Communications, Papers, and Memoirs intended for this work should be addressed to "THE EDITOR of the Zoological Record, Zoological Society, 3, Hanover Square, London, W. It is earnestly requested that in the case of separately-printed copies of papers so forwarded, the *original pagination* may be indicated.

The Editor thanks those Societies and individuals who have forwarded works and papers for the purposes of the Record, and suggests that Societies publishing Zoological Papers would much facilitate the work of the Recorders by forwarding a separate copy of each Zoological Memoir they publish to the Editor for the use of the Recorder. This is preferable to sending the entire volume, because each paper can go directly to the Recorder it concerns.

CAMBRIDGE:
PRINTED BY J. AND C. F. CLAY,
AT THE UNIVERSITY PRESS.

PREFACE.

THE thirty-ninth Volume of the Zoological Record is a little later in appearance than usual owing to some unexpected changes in the staff.

Professor J. A. Thomson decided, to our great regret, that his remoteness from the larger libraries compelled him to retire from the compilation of "General Subjects." As he has carried on this department without any interruption since its inception in 1886, his resignation was felt to be unusually serious, and the Editor has undertaken the work this year with the hope of minimising so far as possible the loss of Professor Thomson's services.

During the summer Mr A. W. Brown, in consequence of his distance from libraries, and of sickness in his family, found that he could not continue his Recordership; and his share of the work has been divided between Dr W. T. Calman and Mr H. M. Woodcock; both of whom have had—it is only fair to say—too short a period for the preparation of their work.

Professor Herdman found that his multifarious duties prevented him from compiling the Tunicata Record; and Dr Calman has placed us under an additional obligation by undertaking this section in addition to the groups of Arthropoda he had already taken in hand.

Several of the Recorders have called attention to the difficulties we experience in obtaining the literature of our

subjects and have asked that memoirs should be sent to the Zoological Record more freely than is at present the case. In the introductory observations prefixed to XIII. Insecta, some examples of the difficulties that have to be encountered are specifically mentioned.

The list of periodicals has again undergone considerable augmentation, the titles of about 60 Journals having been added. The Editor thanks the Librarians who have assisted him in the editing of this list. Mr J. Walker, Oxford, has entirely revised the list as regards the Journals taken at the Radcliffe Library.

D. SHARP.

CAMBRIDGE,
November 5th, 1903.

CONTENTS.

List of Abbreviations and of Titles of Journals.

Records:—

I. GENERAL SUBJECTS. By D. Sharp, M.A., F.R.S. (Cambridge.)

II. MAMMALIA. By R. Lydekker, F.R.S. (Harpenden.)

III. AVES. By R. Bowdler Sharpe, LL.D. (British Museum, Natural History.)

IV. REPTILIA and BATRACHIA. By G. A. Boulenger, F.R.S. (British Museum, Natural History.)

V. PISCES. By G. A. Boulenger, F.R.S. (British Museum, Natural History.)

VI. TUNICATA. By W. T. Calman, D.Sc. (London.)

VII. MOLLUSCA. By E. R. Sykes, B.A., F.L.S. (London), assisted by E. A. Smith, F.Z.S. (British Museum, Natural History.)

VIII. BRACHIOPODA. By E. R. Sykes, B.A., F.L.S. (London), assisted by E. A. Smith, F.Z.S. (British Museum, Natural History.)

IX. BRYOZOA. By Alice L. Embleton, B.Sc. (Cambridge.)

X. CRUSTACEA (incl. Gigantostraca). By W. T. Calman, D.Sc. (London.)

XI. ARACHNIDA. By W. T. Calman, D.Sc. (London.)

XII. MYRIOPODA and PROTOTRACHEATA. By W. T. Calman, D.Sc. (London.)

XIII. INSECTA. By D. Sharp, M.A., F.R.S. (Cambridge.)

XIV. ECHINODERMA. By F. A. Bather, M.A., etc. (British Museum, Natural History.)

XV. VERMES (incl. Hemichordata). By Alice L. Embleton, B.Sc. (Cambridge.)

XVI. CŒLENTERATA. By Alice L. Embleton, B.Sc. (Cambridge.)

XVII. SPONGIÆ. By E. A. Minchin. (London.)

XVIII. PROTOZOA. By H. M. Woodcock. (London.)

Corrigenda.

Alphabetical Index of New Names of Genera and Subgenera. By the Editor.

ALPHABETICAL LIST

OF THE

ABBREVIATIONS

USED IN THE

ZOOLOGICAL RECORD, Vol. XXXIX, 1902,

FOR THE

TITLES OF THE JOURNALS, TRANSACTIONS, ETC.

THAT CONTAIN ZOOLOGICAL PAPERS;

WITH INDICATIONS OF SOME OF THE PRINCIPAL

LIBRARIES

IN WHICH THE BOOKS ARE CURRENT.

The primary object of this list is to enable those using the Record to find with ease the full title of a Journal they see quoted in an abbreviated form. The arrangement is therefore a simple alphabetical list of the abbreviations, uncomplicated by syllabic or verbal limitations.

The list has also to serve the Recorders and others as a list of Journals, and for this purpose it is important that it should be fairly complete as regards current periodicals. In order to increase the utility of the list, the abbreviations have been made on a uniform system; but a few exceptions have, in practice, been found necessary. The chief points that have been kept in view in constructing the abbreviations may be briefly stated as follows:—

The words selected as distinctive in each title are reduced in most cases to three or four.

A distinct abbreviation is used for each different word, and the same abbreviation for the same word is used throughout the list.

Accents are omitted. As a rule the first word of the title is represented by an abbreviation, but this rule is departed from in the case of articles and prepositions, and occasionally in the case of adjectives that are useless for distinctive purposes. Thus "Annual Report" becomes "Rep.," and "Occasional Papers" becomes "Pap." Such adjectives as "New" and "Royal" are omitted, except when necessary for distinctive or other purposes.

The consecutive order of the words of the title is maintained in the abbreviation, except in a few cases where the arrangement of the words in the title is very unusual or faulty.

As an example of the form of abbreviation that is aimed at, we may take Bull. Soc. Moscou. The name of the locality is given at greater length than the more frequently used portions of the abbreviation.

After the titles, the place of publication is given, and this is followed by letters indicating some of the principal libraries in which the works may be consulted. The explanation of these letters is as follows:—

N. = British Museum Natural History: general library.
Nz. = „ „ library, zoological department.
Ng. = „ „ „ geological „
K. = Science library; Victoria and Albert Museum.
R. = Royal Society library.
Z. = Zoological Society library.
L. = Linnean „ „
C. = Cambridge University library.
C, p or (*C*) p = Cambridge Philosophical Society library.
b, or g, or y, after C, or (*C*) = Cambridge Balfour, or Woodwardian Museum, or Physiological libraries respectively.
O. = Radcliffe library, Oxford.
§ is prefixed to titles added since the last list, and to changes of titles when important.

Abeille—L'Abeille: Journal d'entomologie publié par la Société entomologique de France. (Paris, 8vo.) Nz. C.

Abh. Ak. Berlin—Abhandlungen der königlichen Akademie der Wissenschaften zu Berlin. (Berlin, 4to.) N. K. R. Z. L. C, p. O.

Abh. Bayer. Ak.—Abhandlungen der mathematisch-physikalischen Classe der königlichen Bayerischen Akademie der Wissenschaften. (München, 4to.) N. K. R. Z. L. C, p. O.

Abh. Bohmisch. Ges.—Abhandlungen der mathematisch-naturwissenschaftlichen Classe der k. Böhmischen Gesellschaft. [Called also] Rozpravy třídy mathematicko-přírodvěcke královske Ceske společnosti Nauk. (Prag, 4to.) N. K. R. L. C, p.

Abh. deutsch. Seefisch.-Ver.—Abhandlungen des deutschen Seefischerei-Vereins. (Berlin, 4to.) Nz. C.

Abh. geol. Karte Elsass—Abhandlungen zur geologischen Spezial-Karte von Elsass-Lothringen. (Strassburg, 8vo.) Ng.

Abh. geol. Landesanst. Darmstadt—Abhandlungen der grossherzoglich Hessischen geologischen Landesanstalt zu Darmstadt. (Darmstadt, 8vo.) Ng.

Abh. geol. Reichsanst.—Abhandlungen der Kaiserlich-Königlichen geologischen Reichsanstalt. (Vienna, 4to.) Ng. R. L. C.

Abh. Ges. Gorlitz—Abhandlungen der naturforschenden Gesellschaft zu Görlitz. (Görlitz, 8vo.) N. K. R.

Abh. Ges. Gotting.—Abhandlungen der königlichen Gesellschaft der Wissenschaften zu Göttingen. Mathematisch-Physikalische Klasse. Neue Folge. (Göttingen, 4to.) N. R. Z. L. C, p. O.

Abh. Ges. Halle—Abhandlungen der naturforschenden Gesellschaft zu Halle. (Halle, 4to.) N. K. R. Z. L. C. O.

Abh. Ges. Isis—Sitzungsberichte und Abhandlungen der naturwissenschaftlichen Gesellschaft 'Isis' in Dresden. (Dresden, 8vo.) N. K. Z. C.

Abh. Ges. Konigsb.—[Part of *Schr. Ges. Konigsb.*, q.v.]

Abh. Ges. Nurnberg—Abhandlungen der naturhistorischen Gesellschaft zu Nürnberg. (Nürnberg, 8vo.) N. K. C.

Abh. Ges. Wien—Abhandlungen der K. K. zoologischen-botanischen Gesellschaft in Wien. N. K. R. Z. L. C. O.

Abh. Hamburg. Anst.—[Part of *Jahrb. Hamburg. Anst.*, q.v.]

Abh. Mus. Dresden—Abhandlungen und Berichte des königlichen zoologischen und anthropologisch-ethnographischen Museums zu Dresden. (Berlin, 4to.) Nz. Z. C.

Abh. Preuss. geol. Landesanst.—Abhandlungen der königlich Preussischen geologischen Landesanstalt (Neue Folge). [Formerly Abh. geol. Specialkarte von Preussen und den Thüringischen Staaten.] (Berlin, 8vo.) Ng. K. C.

Abh. Sachs. Ges.—Abhandlungen der k. Sächsischen Gesellschaft der Wissenschaften. (Leipzig, 4to.) N. K. R. C, p.

Abh. Schweiz. pal. Ges.—Abhandlungen der Schweizerischen paläontologischen Gesellschaft. Mémoires de la Société Paléontologique suisse. (Basel, &c., 4to.) Ng. R. Z. (*C*) g. O.

Abh. Senckenb. Ges.—Abhandlungen herausgegeben von der Senckenbergischen naturforschenden Gesellschaft. (Frankfort a.-M., 4to.) N. K. R. Z. L. C. O.

Abh. Ver. Bremen—Abhandlungen herausgegeben vom naturwissenschaftlichen Verein zu Bremen. (Bremen, 8vo.) N. K. R. Z. L. C.

Abh. Ver. Hamburg—Abhandlungen aus dem Gebiete der Naturwissenschaften herausgegeben vom naturwissenschaftlichen Verein in Hamburg. (Hamburg, 4to.) N. K. R. Z. L. C, b.

Abh. Ver. Karlsruhe—[Vide *Verh. Ver. Karlsruhe.*]

Abh. Ver. Kassel—[Issued with *Ber. Ver. Kassel*, q.v.]

Abh. Ver. Lotos—Abhandlungen des deutschen naturwissenschaftlich-medicinischen Vereines für Böhmen "Lotos." (Prag, 4to.) N. C.

Acta Ac. German.—N. Acta Academiæ Cæsareæ Leopoldino-Carolinæ Germanicæ naturæ curiosorum. [Called also] Verhandlungen der k. Leop.-Carol. deutschen Akademie der Naturforscher. (Halle, 4to.) N. K. R. Z. L. C, p. O.

Act. Ac. Cordoba—Actas de la Academia nacional de Ciencias en Córdoba. (Buenos Aires, 4to.) N. R. Z. L.

Acta Soc. Faun. Fenn.—Acta Societatis pro Fauna et Flora Fennica. (Helsingfors, 8vo.) N. R. L.

Acta Soc. Lund.—Acta regiæ Societatis physiographicæ Lundensis. [Published as part of *Acta Univ. Lund.*, q.v.]

Acta Soc. Sci. Fenn.—Acta Societatis Scientiarum Fennicæ. (Helsingfors, 4to.) N. K. R. Z. (*C*) p.

Acta Soc. Upsal.—Nova Acta regiæ Societatis Scientiarum Upsaliensis. (Upsala, 4to.) N. K. R. Z. L. C, p.

Acta Univ. Lund.—Acta Universitatis Lundensis. [Called also] Lunds Universitets Årsskrift, [and includes] Acta regiæ Societatis physiographicæ Lundensis, [also called] Kongl. fysiografiska Sällskapets i Lund Handlingar. (Lund, 4to.) N. K. R. L. C, p.

Actes Mus. Rouen—Actes du Muséum d'histoire naturelle de Rouen. (Rouen, 8vo.) N. L.

Act. Soc. Bordeaux—Actes de la Société Linnéenne de Bordeaux. (Bordeaux, 8vo.) N. Z. C.

Act. Soc. Chili—Actes de la Société scientifique du Chili. (Santiago, 4to.) R. Z.

Act. Soc. Espan.—Actas de la Sociedad española de historia natural. (Madrid, 8vo.) N. R. Z. C.

Act. Soc. Helvet.—Actes de la Société Helvétique des Sciences naturelles. [Called also] Verhandlungen der schweizerischen naturforschenden Gesellschaft. (Basel, &c., 8vo.) N. K. R. L. C. O.

Afh. Mus. Lund.—E Museo Lundii. En Samling af Afhandlinger. (Kjobnhavn, 8vo.) N. K. R. Z. L.

Agric. Gaz. N. S. W.—The Agricultural Gazette of New South Wales. (Sydney, 8vo.) Nz. R.

Agric. Ledger—The Agricultural Ledger. (Calcutta, 8vo.) Nz.

§ *Allg. Naturf. Zeit.*—Allgemeine Naturforscher Zeitung. (Berlin.)

Allg. Zeitschr. Ent.—Allgemeine Zeitschrift für Entomologie. Organ der "Allgemeinen entomologischen Gesellschaft." (Neudamm, 8vo.) Nz.

Amer. Geol.—The American Geologist, a Monthly Journal of Geology and allied Sciences. (Minneapolis, 8vo.) Ng. (*C*) g. K. O.

Amer. J. Anat.—The American Journal of Anatomy. (Baltimore, 8vo.) (*C*) b.

Amer. J. Physiol.—The American Journal of Physiology. (Boston, 8vo.) N. K. R. (*C*) y. O.

Amer. J. Sci.—The American Journal of Science. (New Haven, 8vo.) N. K. R. Z. C, p. O.

Amer. Micr. J.—The American Monthly Microscopical Journal. (Washington, 8vo.) N. O.

Amer. Mus. J. The American Museum Journal. (New York, 8vo.) N.

Amer. Natural.—The American Naturalist. (Philadelphia, 8vo.) N. K. Z. L. C, b. O.

An. Ac. Habana—Anales de la real Academia de ciencias medicas, fisicas y naturales de la Habana. (Habana, 8vo.) N. R.

An. Ac. Romane—Analele Academiei Romane. Bucuresci (4to.). N.

Anat. Anz.—Anatomischer Anzeiger. Centralblatt für die gesamte wissenschaftliche Anatomie. Amtliches Organ der anatomischen Gesellschaft. (Jena, 8vo.) Nz. K. Z. (*C*) b. O.

Anat. Hefte. Arb.—Anatomische Hefte. Referate und Beiträge zur Anatomie und Entwickelungsgeschichte. Erste Abteilung. Arbeiten aus Anatomischen Instituten. (Wiesbaden, 8vo.) K. C, b. O.

Anat. Hefte. Ergebn.—Anatomische Hefte. . . . . Zweite Abteilung. Ergebnisse der Anatomie und Entwickelungsgeschichte. (Wiesbaden, 8vo.) K. C, b. O.

§ *An. cient. Paraguay.*—Anales cientificos Paraguayas. (Asuncion.)

Anh. Abh. Ak. Berlin—Anhang zu den Abhandlungen der K. preuss. Akademie der Wissenschaften zu Berlin. (Berlin, 4to.)

An. Mus. Buenos Aires—Anales del Museo nacional de Buenos Aires. (Buenos Aires, 4to.) N. Ng. K. R. Z. L. O.

An. Mus. Chile—Anales del Museo Nacional de Chile. Publicados por órden del Gobierno de Chile. Primera Seccion. Zoología. (Santiago, 4to.) Z.

An. Mus. La Plata—Anales del Museo de La Plata. (Buenos Aires, &c., 4to.) Nz. Ng. R. Z. O.

An. Mus. Mexico—Anales del Museo nacional de México. (México, folio.) N.

An. Mus. Montevideo—Anales del Museo nacional de Montevideo. (Montevideo, 8vo.) N. L.

Ann. Brit. Geol.—Annals of British Geology. (London, 8vo.) Ng. K. O.

Ann. Carnegie Mus.—Annals of the Carnegie Museum. (Pittsburgh, 8vo.) N. K. O.

Annee biol.—L'année biologique. Comptes-rendus annuels des travaux de Biologie générale. (Paris, 8vo.) N. K. Z. L. C, b. O.

Ann. Fac. Marseille—Annales de la Faculté des Sciences de Marseille, publiées sous les auspices de la municipalité. (Marseille & Paris, 4to.) N. R. (*C*) p.

Ann. geol. Balkan.—Annales géologiques de la péninsule Balkanique. (Belgrade, 8vo.) Ng.

Ann. Geol. Pal.—Annales de Géologie et de Paléontologie, publiées sous la direction du Marquis Antoine de Gregorio. (Palermo, 4to.) Ng. K. (*C*) g.

Ann. Hebert—Annales Hébert. Annales de stratigraphie et de paléontologie du laboratoire de géologie de la faculté des Sciences de Paris. (Paris, 8vo.) Ng.

Ann. Hofmus. Wien—Annalen des k. k. naturhistorischen Hofmuseums. (Wien, 8vo.) N. K. R. Z. L. (*C*) p. O.

Ann. Inst. Jamaica—Annals of the Institute of Jamaica. (Kingston, 4to.) N. R. L. C.

Ann. Inst. Pasteur—Annales del' Institut Pasteur. (Paris, 8vo.) Nb. K. R. C, path. O.

Ann. Microgr.—Annales de Micrographie, spécialement consacrées à la Bactériologie aux Protophytes et aux Protozoaires. (Paris, 8vo.) N. O.

Ann. Mus. Belgique—Annales du Musée royal d'histoire naturelle de Belgique. (Bruxelles, 4to.) K. R. C. O.

Ann. Mus. Congo—État indépendant du Congo. Annales du Musée du Congo, publiées par ordre du Secrétaire d'état. Série II. Zoologie. (Bruxelles, 4to.) Nz. K. R. Z. L. C.

Ann. Mus. Genova—Annali del Museo civico di Storia Naturale di Genova. (Genova, 8vo.) Nz. K. Z. L. C, p. O.

§ *Ann. Mus. Hungar.*—Annales Musei nationalis Hungarici. (Buda-Pest, 8vo.)

Ann. Mus. Marseille—Annales du Musée d'histoire naturelle de Marseille, Zoologie. (Marseille, 4to.) N. K. R. Z. L. C, p. O.

Ann. Nat. Hist.—Annals and Magazine of Natural History, including Zoology, Botany, and Geology. (London, 8vo.) Nz. K. Ng. R. Z. L. C, b, p. O.

Ann. N. York Ac.—Annals of the New York Academy of Sciences. Late Lyceum of Natural History. (New York, 8vo.) N. K. R. Z. L. C, p.

Annot. zool. Japon.—Annotationes zoologicæ japonenses, auspiciis societatis zoologicæ tokyonensis. (Tokyo, 8vo.) Nz. K. R. Z. L. C, b.

Ann. Queensland Mus.—Annals of the Queensland Museum. (Brisbane, 8vo.) N. L. (*C*) p.

Ann. S. African Mus.—Annals of the South African Museum. (Cape Town, 8vo.) (*C*) p.

Ann. Sci. nat.—Annales des Sciences naturelles. Zoologie et Paléontologie. Huitième série. (Paris, 8vo.) Nz. K. R. Z. L. C, p. O.

Ann. Sci. nat. Porto—Annaes de Sciencias naturaes publicados por Augusto Nobre. (Porto, 8vo.) N. R.

Ann. Scott. Nat. Hist.—The Annals of Scottish Natural History: a quarterly magazine, with which is incorporated "The Scottish Naturalist." (Edinburgh & London, 8vo.) N. Z. L. C.

§ *Ann. Scuol. Agric. Portici*—Annali della R. Scuola superiore di Agricoltura in Portici. 2ª Serie. (Napoli.) C.

Ann. Soc. Agric. Lyon—Annales de la Société d'Agriculture, Histoire naturelle et Arts utiles de Lyon. Septième série. (Lyons & Paris, 8vo.) N. R. L.

Ann. Soc. Belge Micr.—Annales de la Société Belge de Microscopie. (Bruxelles, 8vo.) N. (*C*) p.

Ann. Soc. Bruxelles—Annales de la Société Scientifique de Bruxelles. (Bruxelles, 8vo.) N.

Ann. Soc. Charente—Academie de la Rochelle. Annales de la Société des Sciences naturelles de la Charente inférieure. (La Rochelle, 8vo.) N.

Ann. Soc. ent. Belgique—Annales de la Société entomologique de Belgique. [Called also Comptes-rendus.] (Bruxelles, 8vo.) Nz. Z. L. C. O.

Ann. Soc. ent. France—Annales de la Société entomologique de France. (Paris, 8vo.) Nz. K. R. Z. L. C.

Ann. Soc. geol. Belgique—Annales de la Société géologique de Belgique. [Consists of Bulletin and Mémoires.] (Liège, 8vo.) Ng. K. R. (*C*) p.

Ann. Soc. geol. Nord—Annales de la Société géologique du Nord. (Lille, 8vo.) Ng.

Ann. Soc. Linn. Lyon—Annales de la Société Linnéenne de Lyon. Nouvelle série. (Lyon, 8vo.) N. R. Z. L. C. O.

Ann. Soc. malac. Belgique—Annales de la Société royale malacologique de Belgique. [Consists of Mémoires and Bulletin, qq.v.] (Bruxelles, 8vo.) Nz. R. Z. L.

Annuaire Mus. St. Petersb.—Annuaire du Musée zoologique de l'Académie impériale de St. Pétersbourg. [Called also] Ezheghodnīk zoologīcheskagho muzeya īmperatorskoĭ akademiī nauk. (St. Pétersbourg, 8vo.) Nz. R. Z. L.

Annuar. Ac. Porto—Annuario da Academia polytechnica do Porto. (Porto, 8vo.) N.

§ *Annuar. Mus. Univ. Napoli*—Annuario del Museo zoologico della R. Universita di Napoli. (Nuova Serie.) (Napoli, 8vo.)

Ann. Univ. Jassy—Annales scientifiques de l'Université de Jassy. (Jassy, 8vo.) K. R. Z. C, p.

Ann. Univ. Kharkow—Annales de l'Université de Kharkow [called also Zapīskī imperatorskagho Khakovskagho Unīversīteta]. (Kharkow, 8vo.) (*C*) p.

Ann. Univ. Lyon—Annales de l'Université de Lyon. Nouvelle série. I. Sciences, Médecine. (Paris, 8vo.) N. R. C, p.

Ann. Univ. Toscane—Annali delle Università Toscane. (Pisa, 4to.) N.

An. Soc. Argent.—Anales de la Sociedad cientifica Argentina. (Buenos Aires, 8vo.) N.

An. Soc. Espan.—Anales de la Sociedad Española de historia natural. (Madrid, 8vo.) N. R. Z. C.

Antanan. Ann.—Antananarivo Annual and Madagascar Magazine. (Antananarivo, 8vo.) N.

An. Univ. Chile—Anales de la Universidad de Chile. (Santiago, 8vo.) N. Z. C.

Anz. Ak. Wiss.—Anzeiger der k. Akademie der Wissenschaften. Mathematisch-naturwissenschaftliche Classe. (Wien, 8vo.) N. R. L. Z. C.

Appalachia—Appalachia: the Journal of the Appalachian Mountain Club. (Boston, 8vo.) N.

Aquila—Aquila a Magyar madártani Központ folyóirata. (Budapest, 4to.) Nz. Z.

Arb. Inst. Wien—Arbeiten aus dem zoologischen Institut der Universität Wien und der Zoologischen Station in Triest. (Wien, 8vo.) Nz. K. R. Z. L. C, b. O.

Arb. Inst. Wurzburg—Arbeiten aus dem zoologisch-zootomischen Institut in Würzburg. (Wiesbaden, 8vo.) Nz. K. R. Z. L. C, b. O.

Arb. Lab. Warsaw—[Vide *Rabot. Lab. Warsaw.*]

Arb. Ver. Riga—Arbeiten des Naturforscher-Vereins zu Riga. Neue Folge. (Riga, 8vo.) N.

Arch. Anat.—Archiv für Anatomie und Entwickelungsgeschichte. Anatomische Abtheilung des Archives für Anatomie und Physiologie [His.]. (Leipzig, 8vo.) K. R. Z. C, b, p, y. O.

Arch. anat. micr.—Archives d'anatomie microscopique. (Paris, 8vo.) N. (*C*) b. O.

Arch. Anthrop.—Archiv für Anthropologie. Zeitschrift für Naturgeschichte und Urgeschichte des Menschen. [Includes *CB. Ges. Anthrop.*] (Brunswick, 4to.) R. O.

Arch. Anthrop. Geol. Schleswig.—Archiv für Anthropologie und Geologie Schleswig-Holsteins und der benachbarten Gebiete. (Kiel, Leipzig, 8vo.) N. K.

Arch. Biol.—Archives de Biologie. (Gand & Paris, 8vo.) Nz. K. R. Z. L. C, b. O.

Arch. Dorpat. Ges.—Archiv für die Naturkunde Liv-, Ehst- und Kurlands. Herausgegeben von der Dorpater Naturforscher-Gesellschaft. Zweite Serie. Biologische Naturkunde. (Dorpat, 8vo.) K. N. Z.

Arch. Entwickmech.—Archiv für Entwickelungsmechanik der Organismen. (Leipzig, 8vo.) K. Z. L. (*C*) b. O.

Arch. ges. Physiol.—Archiv für die gesammte Physiologie des Menschen und der Thiere. [Pflüger.] (Bonn, 8vo.) K. R. C, p, y. O.

§ *Arch. ital. anat.*—Archivio italiano di anatomia e di embriologia. (Firenze.)

Arch. ital. Biol.—Archives italiennes de Biologie. Revues, résumés reproductions des travaux scientifiques italiens. (Turin, 8vo.) N. C, y. O.

Arch. Landesdf. Bohmen—Archiv für naturwissenschaftliche Landesdurchforschung von Böhmen. (Prag, 8vo.) N. Z. C.

Arch. mikr. Anat.—Archiv für mikroskopische Anatomie. (Bonn, 8vo.) Nz. K. R. Z. L. C, b, p, y. O.

Arch. miss. Sci.—Nouvelles archives des missions scientifiques et littéraires, choix de rapports et instructions, &c. (Paris, 8vo.) N.

Arch. Mus. Lyon—Archives du Muséum d'histoire naturelle de Lyon. (Lyon, 4to.) N. R. Z. O.

Arch. Mus. Paris—Nouvelles Archives du Muséum d'histoire naturelle. Troisième série. (Paris, 4to.) N. R. Z. L. C, p. O.

Arch. Mus. Teyler—Archives du Musée Teyler. (Harlem, 4to.) N. K. R. Z. C, p, g. O.

Arch. Naturg.—Archiv für Naturgeschichte. (Berlin, 8vo.) Nz. K. R. Z. L. C, b, p. O.

§ *Arch. Naturk. Liv.-Ehstkurland*—[Vide *Arch. Dorpat Ges.*]

Arch. Naturv. Christian.—Archiv for Mathematik og Naturvidenskab. (Christiania, 8vo.) N. R. Z.

Arch. Neerland.—Archives Néerlandaises des Sciences exactes et naturelles, publiées par la Société Hollandaise des Sciences à Harlem. (Harlem, 8vo.) N. K. R. Z. L. C. O.

Arch. parasit.—Archives de parasitologie. (Paris, 8vo.) N. Z. (*C*) b. O.

Arch. Physiol.—Archiv für Physiologie. Physiologische Abtheilung des Archives für Anatomie und Physiologie. [Engelmann.] (Leipzig, 8vo.) K. R. Z. (*C*) p, y. O.

Arch. Protistenk.—Archiv für Protisten-Kunde. (Jena, 8vo.) N. K. Z. (*C*) b. O.

Arch. Sci. biol.—Archives des Sciences biologiques. Publiées par l'Institut Impérial de Médecine expérimentale à St. Pétersbourg. (St. Pétersbourg, 4to.) O.

Arch. Sci. Nat.—Bibliothèque universelle. Archives des Sciences physiques et naturelles. Quatrième période. [Vide *C.R. Soc. Helvet.*] (Genève, 8vo.) N. K. R. C.

Arch. Ver. Mecklenb.—Archiv des Vereins der Freunde der Naturgeschichte in Mecklenburg. (Güstrow, 8vo.) N. L.

Arch. Zeeuwsch. Genoots.—Archief. Vroegere en latere Mededeelingen voornamelijk in betrekking tot Zeeland, uitgeven door het Zeeuwsch Genootschap der Wetenschappen. (Middelburg, 8vo.) N.

Arch. Zool. exp.—Archives de Zoologie expérimentale et générale. (Paris, 8vo.) Nz. K. R. Z. L. C, b. O.

Arch. zool. exp. Notes—Archives de Zoologie expérimentale et générale. Notes et Revue. (Paris, 8vo.) Nz. K. R. Z. L. C, b. O.

§ *Arch. zool. ital.*—Archivio zoologico pubblicato sotto gli auspicii della unione zoologica italiana. (Napoli, 8vo.) Nz. Z. O.

§ *Arkiv. Zool.*—Arkiv för Zoologi uitgifvet af K. Svenska Vetenskaps-akademien. (Stockholm, 8vo.) C, p.

Atti Acc. Acireale—Atti e rendiconti dell' Accademia di scienze, lettere e arti dei zelanti e PP. dello studio di Acireale. Memorie della classe di Scienze. 3 serie. Classe scienze. (Acireale, 8vo.) N. R. (*C*) p.

Atti Acc. Gioen.—Atti dell' Accademia Gioenia di Scienze naturali in Catania. Serie quarta. (Catania, 4to.) N. R.

Atti Acc. Lincei—Atti della R. Accademia dei Lincei. [Consists of Memorie and Rendiconti, qq.v.] N. K. R. Z. L. (*C*) p. O.

Atti Acc. Napoli—Società Reale di Napoli. Atti della R. Accademia delle Scienze fisiche e matematiche. Serie seconda. (Napoli, 4to.) N. R. L. C, p. O.

Atti Acc. Padova—Atti e Memorie della R. Accademia di scienze lettere ed arti in Padova. Nuova serie. (Padova, 8vo.) N.

Atti Acc. Palermo—Atti della Reale Accademia di Scienze, Lettere e Belle Arti di Palermo. (Palermo, 4to.) N. K.

Atti Acc. Pontan.—Atti della Accademia Pontaniana. (Napoli, 4to.) N. R.

Atti Acc. Pont. Lincei—Atti dell' Accademia Pontificia de' nuovi Lincei. (Roma, 4to.) N. K. R.

Atti Acc. Torino—Atti della R. Accademia delle Scienze di Torino. (Torino, 8vo.) N. K. R. Z. L. C, p.

Atti Ist. Napoli—Atti del Reale Istituto d' incoraggiamento alle Scienze naturali economiche e tecnologiche di Napoli. Quarta serie. (Napoli, 4to.) N. K.

Atti Ist. Veneto—Atti del Reale Istituto Veneto di Scienze Lettere ed Arti. Serie vii. (Venezia, 8vo.) N. K. R. L.

Atti Mus. Milano—Atti della Società italiana di Scienze naturali e del Museo civico di storia naturale in Milano. (Milano, 8vo.) N. K. R. Z. C.

Atti Mus. Trieste—Atti del Museo civico di Storia naturale di Trieste. (Trieste, 8vo.) N. R.

Atti Soc. Ital.—[Vide *Atti Mus. Milano.*]

Atti Soc. Ligustica—Atti della Società Ligustica di Scienze naturali e geografiche. (Genova, 8vo.) N. R.

Atti Soc. Modena—Atti della Società dei Naturalisti di Modena. (Modena, 8vo.) N. Z. C.

Atti Soc. Toscana—Atti della Società Toscana di Scienze naturali residente in Pisa. [Consists of two separate works, Memorie and Processi verbali.] (Pisa, 8vo.) N. R.

Atti Soc. Veneto-Trent.—Atti della Società Veneto-Trentina di Scienze naturali residente in Padova. (Padova, 8vo.) N. Z.

Atti Univ. Genova—Atti della R. Università di Genova. (Genova, 8vo.) N.

Auk—The Auk: a Quarterly Journal of Ornithology. (New York, 8vo.) Nz. Z.

Avicula—Avicula, Giornale ornitologico italiano. (Siena, 8vo.) Nz.

Avicult. Mag.—The Avicultural Magazine, being the journal of the Avicultural Society for the study of foreign and British birds. (Brighton, 8vo.) Nz. Z.

Beiheft Hamburg Anst.—[Vide *Mt. Mus. Hamburg.*]

§ *Beitr. Chem. Physiol.*—Beiträge zur chemischen Physiologie und Pathologie. Zeitschrift für die gesamte Biochemie. (Braunschweig, 8vo.) (*C*) y. O.

Beitr. Geol. Braunschweig—Beiträge zur Geologie und Paläontologie des Herzogthums Braunschweig und der angrenzenden Landestheile, herausgegeben im Auftrage des Herzoglichen Staats-Ministeriums von Herzoglicher Cammer, Direction der Bergwerke. (Braunschweig, 8vo.) Ng.

Beitr. geol. Karte Schweiz—Beiträge zur geologischen Karte der Schweiz. (Bern, 4to.) Ng. C.

Beitr. Naturk. Preuss.—Beiträge zur Naturkunde Preussens, herausgegeben von der Physikalisch-Oekonomischen Gesellschaft zu Königsberg. (Königsberg, 4to.) Ng. R. L. O.

Beitr. Pal. Oesterr.-Ung.—Beiträge zur Paläontologie Österreich-Ungarns und des Orients. (Wien, 4to.) Ng. R. O.

Ber. Annaberg Ver.—Bericht über den Annaberg-Buchholzer Verein für Naturkunde. (Annaberg, 8vo.) N.

§ *Ber. Comm. ocean. Forsch.*—[Extracts from *Denk. Ak. Wien.*]

Ber. deutsch. ornith. Ges.—Allgemeine deutsche ornithologische Gesellschaft zu Berlin. Bericht über die . . . Jahresversammlung. [Forms part of *J. Ornithol.*, q.v.]

Bergens Mus. Aarbog—Afhandlinger og Aarsberetning udgivne af Bergens Museum. [Consists of Afhandlinger and Aarsberetning.] (Bergen, 8vo.) N. R. L. (*C*) b, p. O.

Bergens Mus. Meeresf.—Bergen's Museum. Meeres fauna von Bergen. (Bergen, 8vo.) N. R. L.

Ber. Ges. Bamberg—Bericht der naturforschenden Gesellschaft in Bamberg. (Bamberg, 8vo.) N.

Ber. Ges. Chemnitz—Bericht der naturwissenschaftlichen Gesellschaft zu Chemnitz. (Chemnitz, 8vo.) N.

Ber. Ges. Freiburg—Berichte der naturforschenden Gesellschaft zu Freiburg, i. B. (Freiburg, i. B., 8vo.) N. K. R. Z. L. C. O.

Ber. Ges. Halle—Bericht über die Sitzungen der naturforschenden Gesellschaft zu Halle. (Halle, 8vo.) N. R. Z. L. C. O.

Berlin. ent. Zeitschr.—Berliner entomologische Zeitschrift, herausgegeben von dem entomologischen Verein in Berlin. (Berlin, 8vo.) Nz. Z. L. C. O.

Ber. Mus. Dresden—[Vide *Abh. Mus. Dresden.*]

§ *Ber. naturf. Ges. Basel.*—Thätigkeitsbericht der naturforschenden Gesellschaft Baselland. (Liestal, 8vo.) N.

Ber. Nordoberfrank. Ver.—Bericht des Nordoberfränkischen Vereins für Natur- Geschichts- und Landeskunde in Hof. (Hof, 8vo.) N.

Ber. Oberhess. Ges.—Bericht der Oberhessischen Gesellschaft für Natur- und Heilkunde. (Giessen, 8vo.) N. K. L. (*C*) p.

Ber. Oberrhein. geol. Ver.—Bericht über die Versammlungen der Oberrheinischen geologischen Vereins. (Stuttgart, 8vo.) Ng.

Ber. Offenb. Ver.—Bericht über die Thätigkeit des Offenbacher Vereins für Naturkunde. (Offenbach-a.-M., 8vo.) N. K. L.

Ber. Sachsisch. Ges.—Berichte über die Verhandlungen der k. sächsischen Gesellschaft der Wissenschaften zu Leipzig. Mathematisch-physische Classe. (Leipzig, 8vo.) N. K. R. C, p. O.

Ber. Senckenberg. Ges.—Bericht über die Senckenbergische naturforschende Gesellschaft in Frankfurt-am-Main. (Frankfurt, 8vo.) N. R. Z. L. C. O.

Ber. St. Gall. Ges.—Bericht über die Thätigkeit der St. Gallischen naturwissenschaftlichen Gesellschaft. (St. Gallen, 8vo.) N. R. Z.

Ber. Ver. Augsburg—Bericht des naturwissenschaftlichen Vereins für Schwaben und Neuburg a. V., früher naturhistorischen Vereins in Augsburg. (Augsburg, 8vo.) N.

Ber. Ver. Innsbruck—Berichte des naturwissenschaftlich-medizinischen Vereines in Innsbruck. (Innsbruck, 8vo.) N. R. C. O.

Ber. Ver. Kassel—Bericht des Vereins für Naturkunde zu Kassel. (Kassel, 8vo.) N.

Ber. Ver. Passau—Bericht des naturhistorischen Vereins in Passau. (Passau, 8vo.) N.

Ber. Ver. Regensburg—Berichte des naturwissenschaftlichen Vereines zu Regensburg. (Regensburg, 8vo.) N.

Bibl. geol. Russ.—Bibliothèque géologique de la Russie. (St. Petersburg, 8vo.) Ng.

Bibl. hautes etudes—Bibliothèque de l'école des hautes études. Section des Sciences naturelles. (Paris, 8vo.) N. K.

Bibliog. anat.—Bibliographie anatomique. Revue des travaux en langue française. Anatomie, histologie, embryologie, anthropologie. (Paris, 8vo.) Nz.

Bibl. universelle—Bibliothèque universelle. [Vide *Arch. Sci. Nat.*]

§ *Bibl. Zool.*—[Vide *Zool. Anz.*]

Bidr. Finlands Nat.—Bidrag till Kännedom af Finlands Natur och Folk. (Helsingfors, 8vo.) N. R. Z. (*C*) p.

Bih. Svenska Ak.—Bihang till K. Svenska Vetenskaps-Akademiens Handlingar. Afdelning 4. (Stockholm, 8vo.) N. K. R. Z. L. C, p.

Bijbl. Java Suikerind.—De indische Natuur. Algemeen Natuurwetenschapp. Bijblad van het Archief voor de Java-Suikerindustrie. (8vo.)

Bijdr. Dierk.—Bijdragen tot de Dierkunde uitgeven door het Genootschap Natura artis magistra. (Amsterdam, 4to.) Nz. K. R. L. C, b.

§ *Biochem. Centrbl.*—Biochemisches Centralblatt. Vollstandiges Sammelorgan für die Grenzgebiet der Medizin und Chemie. (Leipzig, 8vo.) (*C*) y.

§ *Biol. Bull.*—Biological bulletin published by the Marine Biological Laboratory, Woods Holl, Mass. (8vo, Woods Holl.) K. Z. L. (*C*) b.

Biol. Centrbl.—Biologisches Centralblatt. (Leipzig, 8vo.) N. K. R. L. Z. C, b. O.

Biol. Centr.-Amer.—Biologia Centrali-Americana. (London, 4to.) Nz. K. Z. L. (*C*) p. O.

Biol. Foren. Forh.—Biologiska Föreningens Förhandlingar. Verhandlungen des biologischen Vereins in Stockholm. (Stockholm and Leipzig, 8vo.) N. K. R. C. O.

Biol. Lect. Wood's Holl—Biological Lectures from the Marine Biological Laboratory, Wood's Holl, Mass. (Boston, 8vo.) K. L. (*C*) b. O.

Biol. Untersuch.—Biologische Untersuchungen von Prof. Dr. Gustaf Retzius. Neue Folge. (Stockholm, 4to.) Nz. C. O.

Biometrika. Biometrika a journal for the statistical study of biological problems. (Cambridge, 8vo.) N. K. Z. C, p, b. O.

Blatt. Aquar. Fr.—Blätter der Aquarien- und Terrarien-Freunde. (Berlin.) Z.

Board Agric. leaf.—Board of Agriculture leaflets. (London.) Nz. K.

Bol. Ac. Barcelona—Boletín de la real Academia de Ciencias y Artes de Barcelona. (Barcelona, 4to.) N.

Bol. Ac. Cordoba—Boletín de la Academia nacional de Ciencias en Cordoba (República Argentina). (Buenos Aires, 8vo.) [Formerly *Ac. Argentina.*] N. R. Z. L.

Bol. Com. geol. espan.—Boletín de la Comisión del mapa geológico de España. (Madrid, 8vo.) Ng. R. O.

Bol. Com. geol. Ital.—Bollettino del R. Comitato geologico d' Italia. (Roma, 8vo.) Ng. R.

Bol. Comm. geogr. Minas Geraes—Boletim de Commissão geographica a geologica do Estado de Minas Geraes. (Rio de Janeiro, 8vo.) N.

§ *Bol. Com. Parasit. agric. Mexico*—Boletin de la Comisión de parasitologia agricola de México.

Boll. Comm. S. Paulo—Boletim da Commissão geographica e geologica da Provincia de S. Paulo. (S. Paulo, 8vo.) N. K.

Bol. Inst. geol. Mexico—Boletin del Instituto geologico de Mexico. (Mexico, 4to.) Ng. K. (*C*) p.

Boll. Acc. Gioen.—Bollettino mesile della Accademia Gioenia di Scienze naturali in Catania. (Catania, 8vo.) N. R.

Boll. Ent. agrar.—Bolletino di Entomologia agraria, Patologia vegetale, Orticultura e Giardinaggio. (Padova.)

Boll. Mus. Genova—Bollettino dei Musei di Zoologia e Anatomia comparata della R. Università di Genova. (Genova, 8vo.) [Apparently reprints from *Atti Soc. Ligustica.*] Nz. (*C*) z.

Boll. Mus. Torino—Bollettino dei Musei di Zoologia ed Anatomia comparata della R. Università di Torino. (Torino, 8vo.) Nz. Z. L.

Boll. Nat.—[Vide *Riv. ital. Sci. Nat.*]

Boll. scient.—Bollettino scientifico. (Pavia, 8vo.) N.

Boll. Soc. Adriat.—Bollettino della Società Adriatica di Scienze naturali in Trieste. (Trieste, 8vo.) N. R.

Boll. Soc. geol. Ital.—Bollettino della Società geologica Italiana. (Roma, 8vo.) Ng.

Boll. Soc. Napoli—Bollettino della Società di Naturalisti in Napoli. (Napoli, 8vo.) N. R. Z. (*C*) p.

Boll. Soc. zool. Ital.—Bolletino della Società zoologica Italiana. (Roma, 8vo.) [Formerly called *Boll. Soc. rom. Zool.*] Nz. Z.

Bol. Mus. Para.—Boletim do Museu paraense. (Museu Goeldi.) (Para, 8vo.) Z.

Bol. Mus. Valparaiso—[Vide *Revist. Chilena.*]

§ *Bol. Soc. Aragon. Ci. nat.*—Boletín de la Sociedad Aragonesa de Ciencias naturales. (8vo, Zaragoza.)

Bol. Soc. espan.—Boletín de la Sociedad española de Historia natural. (Madrid, 8vo.) N. R. Z. C.

§ *Broteria*—Broteria. Revista de sciencias naturaes do Collegio de S. Fiel. (Lisboa, 8vo.) N. Z.

§ *Bryn Mawr Mon.*—Bryn Mawr College Monographs. Monograph Series. (Bryn Mawr, 8vo.)

§ *Bryn Mawr Repr.*—Bryn Mawr College Monographs. Reprint Series. (Bryn Mawr, 8vo.) (*C*) b.

Bull. Ac. Belgique—Bulletins de l'Académie royale des Sciences, des Lettres, et des Beaux-arts de Belgique. 3e Série. (Bruxelles, 8vo.) N. K. R. Z. L. C, p. O.

Bull. Ac. Cracovie—Bulletin international de l'Académie des Sciences de Cracovie. Comptes-rendus des séances. (Cracovie, 8vo.) N. R. Z. O.

Bull. Ac. St. Petersb.—Izvyestiya imperatorskoĭ akademiĭ nauk. Bulletin de l'Académie impériale des Sciences de St. Pétersbourg. Ve Série. (St. Pétersbourg, 8vo.) N. K. R. L. C, p. O.

Bull. Agric. Brisbane—Queensland. Department of Agriculture, Brisbane, Bulletin. [Consists chiefly of *Rep. Dep. Agric. Brisbane.*] (Brisbane, 8vo.) N.

Bull. Amer. Mus.—Bulletin of the American Museum of Natural History. (New York, 8vo.) N. K. R. Z. L. (*C*) p. O.

Bull. Amer. Pal.—Bulletins of American Paleontology. (Cornell Univ., Ithaca, 8vo.) Ng.

Bull. Arizona exp. Stat.—University of Arizona. Arizona agricultural experiment Station. Bulletin. (Tucson, 8vo.)

Bull. B. O. C.—[Vide *Bull. Ornith. Club.*]

Bull. Brooklyn Inst.—The Museum of the Brooklyn Institute of Arts and Sciences. Science Bulletin. (New York, 8vo.) N. R. (*C*) p.

Bull. Brookville Soc.—Bulletin of the Brookville Society of Natural History. (Richmond, 8vo.) N. L.

Bull. Buffalo Soc.—Bulletin of the Buffalo Society of Natural Sciences (Buffalo, 8vo.) N. R. L. C.

Bull. Bussey Inst.—Bulletin of the Bussey Institution. (Cambridge, Mass., 8vo.) N. R.

Bull. Carte geol. France—Bulletin des Services de la Carte géologique de la France et des Topographies souterraines. (Paris, 8vo.) Ng.

Bull. Ceska Ac.—Académie des sciences de l'Empereur François Joseph I (Česká Akademie Císaře Františka Joséfa I) IV. Bulletin international. Résumés des travaux présentés. Sciences mathématiques et naturelles. (Prague, 8vo.) N. (*C*) p.

Bull. Chicago Ac.—Bulletin of the Chicago Academy of Sciences. (Chicago, 8vo.) N. R. L. O.

Bull. Coll. Agric. Tokyo—Imperial University. College of Agriculture. Bulletin. (Tōkyō, 8vo.)

Bull. Colorado exp. Stat.—The State agricultural College. Agricultural experiment Station. Bulletin. (Fort Collins, 8vo.)

Bull. Com. geol. St. Petersb.—Bulletin du Comité géologique de St. Pétersbourg. (St. Pétersbourg.) Ng. K. R.

Bull. Comm. geol. Finlande—Bulletin de la Commission géologique de Finlande. (Helsingfors, 8vo.) Ng.

Bull. Cornell Exp. Stat.—Cornell University Agricultural Experiment Station. Bulletin. Entomological Division. (Ithaca, 8vo.)

Bull. Cornell Univ.—Bulletin of the Cornell University. (Science.) (Ithaca, 8vo.) N. O.

Bull. Denison Univ.—Bulletin of the Scientific Laboratories of Denison University. (Granville, 8vo.) N. Z. (*C*) p.

Bull. Dep. Agric. Brisbane—[Vide *Rep. Dep. Agric. Brisbane.*]

Bull. Dep. Agric. Ent.—[Vide *Bull. U. S. Dep. Agric. Ent.*]

Bull. Dep. Agric. Victoria—[Vide *J. Dep. Agric. Victoria.*]

Bull. Essex Inst.—Bulletin of the Essex Institute. (Salem, 8vo.) N. K. R. Z. (*C*) p. O.

Bull. Exp. Stat. Florida—Bulletin of the Experiment Station of Florida at the State Agricultural College. (Jacksonsville, 8vo.)

Bull. Geol. Caen—Bulletin du Laboratoire de Géologie de la Faculté des Sciences de Caen. (Caen, 8vo.) Ng.

Bull. Geol. Inst. Upsala—Bulletin of the Geological Institute of Upsala. (Upsala, 8vo.) Ng. (*C*) p.

Bull. Geol. Soc. Amer.—Bulletin of the Geological Society of America. (Rochester, 8vo.) Ng. O.

Bull. geol. surv. Alabama—Geological Survey of Alabama. Bulletin (Montgomery, 8vo.) Ng.

Bull. Geol. Surv. Minnesota—Bulletin. Geological and Natural History Survey of Minnesota. (Minneapolis, 8vo.) Ng. O.

Bull. Geol. Surv. Missouri—Geological Survey of Missouri. Bulletin. (Jefferson City, 8vo.) Ng.

§ *Bull. Geol. Surv. Victoria*—Victoria, Department of mines. Bulletins of the geological Survey of Victoria. (Melbourne, 8vo.) Ng.

Bull. geol. Univ. Calif.—University of California. Bulletin of the Department of Geology. (Berkely, 8vo.) Ng. K. (*C*) p.

Bull. Illinois exp. Stat.—University of Illinois Agricultural experiment Station. Bulletin. (? Springfield, 8vo.)

Bull. Illinois Lab.—Bulletin of the Illinois State Laboratory of Natural History. (Peoria, 8vo.) N. Z. L. (*C*) p.

Bull. Illinois Mus.—Bulletin of the Illinois State Museum of Natural History. (Springfield, 4to.) Ng. Z.

Bull. Inst. Egypt.—Bulletin de l'Institut Égyptien, Troisième série. (Le Caire, 8vo.) N.

Bull. Inst. Genev.—Bulletin de l'Institut nationale Genevois. (Genève, 8vo.) N. R. C.

Bull. kol. Mus. Haarlem—Bulletin van het kolonial Museum te Haarlem. (Amsterdam, 8vo.) N.

Bull. Lab. Iowa—Bulletin from the Laboratories of Natural History of the State University of Iowa. (Iowa City, 8vo.) N.

Bull. Lab. St. Petersb.—Bulletin de la Laboratoire biologique de St. Pétersbourg. [Called also] Izvyestiya . . . Izdanie pod redaktziei P. Lesghafta. (St. Pétersbourg, 8vo.) N. K.

Bull. Liverp. Mus.—Bulletin of the Liverpool Museums under the City Council. (Liverpool, 8vo.) N. Z.

Bull. Minnesota Ac.—Bulletin of the Minnesota Academy of Natural Sciences. (Minneapolis, 8vo.) N. K.

Bull. Mus. Harvard—Bulletin of the Museum of Comparative Zoölogy at Harvard College in Cambridge. (Cambridge, Mass., 8vo.) Nz. R. Z. L. (*C*) p. O.

Bull. Mus. Madras—Madras government Museum. Bulletin. (Madras, 8vo.) Nz. R. Z. L. (*C*) p.

Bull. Mus. Marseille—Annales du Musée d'histoire naturelle de Marseille . . . Série II. Bulletin, notes zoologiques, géologiques, paléontologiques, variétés. (Marseille, 4to.) N. K. Z. L. O.

Bull. Mus. Paris—Muséum d'histoire naturelle. Bulletin du Muséum d'histoire naturelle. (Paris, 8vo.) N. K. R. Z. L. C. O.

Bull. N. Mexico Stat.—New Mexico College of Agriculture and the mechanic Arts. Agricultural experiment Station. Bulletin. (Las Cruces, 8vo.) Nz.

Bull. N. York Mus.—Bulletin of the New York State Museum. (Albany, 8vo.) N. R. L.

Bull. Ohio Exp. Stat.—Bulletin of the Ohio Agricultural Experiment Station. Technical Series. (Columbus, 8vo.)

Bull. Ornith. Club—Bulletin of the British Ornithologists' Club. (London, 8vo.) Nz. Z. O.

Bull. Queensland Geol. Surv.—Queensland. Department of mines. Geological Survey. Bulletin. (Brisbane, 8vo.) Ng. K.

§ *Bull. S. Calif. Ac.*—Bulletin of Southern California Academy of Sciences. (Los Angeles, 8vo.) N.

Bull. Sci. France Belgique—Bulletin scientifique de la France et de la Belgique. (Paris, 8vo.) N. Z. C, b. O.

Bull. Soc. Angers—Bulletin de la Société d'Études scientifiques d'Angers. (Angers, 8vo.) N.

Bull. Soc. Anthrop. Lyon—Bulletin de la Société d'Anthropologie de Lyon. (Lyon, 8vo.) R.

Bull. Soc. Anthrop. Paris—Bulletins de la Société d'Anthropologie de Paris. (Paris, 8vo.) K. R. C. O.

Bull. Soc. Aude—Bulletin de la Société d'Études scientifiques de l'Aude. (Carcassonne, 8vo.) N.

Bull. Soc. Autun—Société d'Histoire Naturelle d'Autun. Bulletin. (Autun, 8vo.) N. K.

Bull. Soc. Belge Geol.—Bulletin de la Société belge de Géologie, de Paléontologie et d'Hydrologie. [Consists of Pr.-verb. and Mémoires.] (Bruxelles, 8vo.) Ng. K.

Bull. Soc. Belge Micr.—Bulletin de la Société belge de Microscopie. (Bruxelles, 8vo.) N. (*C*) p.

Bull. Soc. Beziers—Bulletin de la Société d'étude des Sciences naturelles de Béziers. Compte-rendu des séances (extrait des procès-verbaux). (Béziers, 8vo.) N. R.

Bull. Soc. Borda Dax—Société de Borda Dax. Bulletin trimestriel. (Dax, 8vo.) N.

Bull. Soc. Bruxelles—Bulletin de la Société royale Linnéenne de Bruxelles. (Bruxelles, 8vo.) N. Z.

Bull. Soc. Bucarest—Buletinul Societatii de Sciinte din Bucuresci-România, Bulletin de la Société des Sciences Bucarest-Roumanie. (Bucuresci, 8vo.) N. R.

Bull. Soc. Colmar—Bulletin de la Société d'histoire naturelle de Colmar. (Colmar, 8vo.) N.

Bull Soc. Elbeuf—Bulletin de la Société d'étude des sciences naturelles d'Elbeuf. (Elbeuf, 8vo.) N.

Bull. Soc. ent. France—Bulletin des séances et Bulletin bibliographique de la Société entomologique de France [published with *Ann. Soc. ent. France*]. (Paris, 8vo.) Nz. K. R. Z. L. C.

Bull. Soc. ent. Ital.—Bullettino della Società entomologica italiana. (Firenze, 8vo.) Nz. Z. O.

Bull. Soc. ent. Suisse—[Vide *Mt. Schweiz. ent. Ges.*]

Bull. Soc. Finistere—Bulletin de la Société d'études scientifiques du Finistère. (Morlaix, 8vo.) N.

Bull. Soc. Fribourg—Bulletin de la Société fribourgeoise des Sciences naturelles. (Fribourg, 8vo.) N.

Bull. Soc. geol. Belgique—[Included in *Ann. Soc. geol. Belgique*, q.v.]

Bull. Soc. geol. France—Bulletin de la Société géologique de France. [Includes Compte-rendu.] (Paris, 8vo.) Ng. K. R. C. O.

Bull. Soc. geol. Normand.—Bulletin de la Société géologique de Normandie. (Havre, 8vo.) Ng.

Bull. Soc. hist. nat. Toulouse—Société d'histoire naturelle de Toulouse. Bulletin. (Toulouse, 8vo.) N. Z.

Bull. Soc. Isere—Bulletin de la Société de statistique des sciences naturelles et des arts industriels du département de l'Isère. 4e Série. (Grenoble, 8vo.) N.

Bull. Soc. Jassy—Le Bulletin de la Société des médecins et des naturalistes de Jassy. (Jassy, 8vo.) N.

Bull. Soc. malac. Belgique—Bulletin des séances de la Société royale malacologique de Belgique [forms part of *Ann. Soc. malac. Belgique*, q.v.]. (Bruxelles, 8vo.) Nz. R. L.

Bull. Soc. Metz—Bulletin de la Société d'histoire naturelle de Metz. (Metz, 8vo.) N.

Bull. Soc. Moscou—Bulletin de la Société impériale des Naturalistes de Moscou. (Moscou, 8vo.) N. K. R. Z. L. C, p. O.

Bull. Soc. Murith.—Bulletin des travaux de la Murithienne. Société Valaisanne des Sciences naturelles. (Sion, 8vo.) N.

Bull. Soc. Nancy, seances—Bulletin des Séances de la Société des Sciences de Nancy. Serie III. (Nancy, 8vo.) N. R.

Bull. Soc. N. Brunswick—Bulletin of the Natural History Society of New Brunswick. (St. John, 8vo.) N.

Bull. Soc. Neuchatel—Bulletin de la Société des Sciences naturelles de Neuchatel. (Neuchatel, 8vo.) N. R. Z. C.

Bull. Soc. Nimes—Bulletin de la Société d'étude des Sciences naturelles de Nimes. (Nimes, 8vo.) N.

Bull. Soc. Nord France—Bulletin de la Société Linnéenne du Nord de la France. (Amiens.) N. K.

Bull. Soc. Normand.—Bulletin de la Société Linnéenne de Normandie. 4e Série. (Caen, 8vo.) N. Z. L. C.

Bull. Soc. Ouest France—Bulletin de la Société des Sciences naturelles de l'Ouest de la France. (Paris & Nantes, 8vo.) N. (*C*) p.

Bull. Soc. Ouest Rennes—[Vide *Bull. Soc. Sci. med. Ouest. France.*]

Bull. Soc. Oural.—Bulletin de la Société ouralienne d'amateurs des sciences naturelles. (Ekathérinebourg, fo.) N.

Bull. Soc. Philom.—Bulletin de la Société Philomathique de Paris. viiie Série. [Includes Comptes-rendus.] (Paris, 8vo.) N. R. Z. C.

Bull. Soc. Reims—Bulletin de la Société d'Étude des Sciences naturelles de Reims. [Includes Comptes-rendus des réunions.] (Reims, 8vo.) N.

Bull. Soc. Rouen—Bulletin de la Société des amis des Sciences naturelles de Rouen. (Rouen, 8vo.) N.

Bull. Soc. Saone—Bulletins de la Société des Sciences naturelles de Saône-et-Loire. (Chalon-sur-Saône, 4to.) N. Z.

Bull. Soc. Savoie—Bulletin de la Société d'histoire naturelle de Savoie. (Chambéry, 8vo.) N.

Bull. Soc. Sci. Med. Ouest France—Bulletin de la Société scientifique et médicale de l'Ouest. (Rennes, 8vo.) (*C*) p.

Bull. Soc. Sci. Toulouse—Bulletin de la Société des Sciences physiques et naturelles de Toulouse. (Toulouse, 8vo.) N. R.

Bull. Soc. Semur—Bulletin de la Société des Sciences historiques et naturelles de Semur (Côte-d'Or). 2e Série. (Semur, 8vo.) N.

Bull. Soc. Vaudoise—Bulletin de la Société Vaudoise des Sciences naturelles. (Lausanne, 8vo.) N. R. Z. L. (*C*) g.

Bull. Soc. Veneto-Trent.—Bullettino della Società Veneto-Trentina di Scienze Naturali. (Padova, 8vo.) N.

Bull. Soc. Washington—Bulletin of the Philosophical Society of Washington. (Washington, 8vo.) N. K. R. Z. L. (*C*) p.

Bull. Soc. Yonne—Bulletin de la Société des Sciences historiques et naturelles de l'Yonne. (Auxerre, 8vo.) N.

§ *Bull. Soc. Zool. agric.*—Bulletin de la Société d'Études et de vulgarisation de la Zoologie agricole. (Bordeaux, 8vo.)

Bull. Soc. zool. France—Bulletin de la Société zoologique de France. (Paris, 8vo.) Nz. K. Z. L. C. O.

Bull. Univ. Kansas—Bulletin of the University of Kansas. [Vide *Kansas Univ. Bull.*]

Bull. Univ. Montana—Bulletin of the University of Montana. (Missoula 8vo.) N.

Bull. U. S. Dep. Agric. Animal Ind.—U. S. Department of Agriculture. Bureau of Animal Industry. Bulletin. (Washington, 8vo.) N. K.

Bull. U. S. Dep. Agric. Biol.—U. S. Department of Agriculture. Division of Biological Survey. (Washington, 8vo.) N. K. Z. R. O.

Bull. U. S. Dep. Agric. Ent.—U. S. Department of Agriculture. Division of Entomology. Bulletin. (Washington, 8vo.) Nz. K. Z. C. O.

Bull. U. S. Dep. Agric. Ent. tech.—U. S. Department of Agriculture. Division of Entomology. Technical series. (Washington, 8vo.) Nz. Z. C. O.

Bull. U. S. Dep. Agric. Farmers—U. S. Department of Agriculture. Farmers' Bulletin. (Washington, 8vo.) N. K.

Bull. U. S. Fish Comm.—Bulletin of the United States Fish Commission. (Washington, 8vo.) Nz. K. R. Z. L. O.

Bull. U. S. Geol. Surv.—Bulletins of the United States Geological Survey. (Washington, 8vo.) Ng. K. R. Z. (*C*) p, g. O.

Bull. U. S. Mus.—Bulletin of the United States National Museum. (Washington, 8vo.) N. K. R. Z. L. C, b, p. O.

Bull. Washburn Lab.—Bulletin of the Washburn Laboratory of Natural History. (Topeka, 8vo.) N.

Bull. Wisconsin Soc.—Bulletin of the Wisconsin Natural History Society. (Milwaukee, 8vo.) Z.

Bull. Wisconsin Surv.—Wisconsin Geological and Natural History Survey. Bulletin. Scientific Series. (Madison, 8vo.) N. K. C, p.

Bull. Zool. Soc. New York—News Bulletin of the Zoological Society. (New York, 4to.) Nz. Z.

§ *Butll. Inst. Catalan.*—Buttleti de la institució catalana d'historia natural. (Barcelona, 8vo.)

Canad. Ent.—The Canadian Entomologist. (London, Canada, 8vo.) Nz. Z. L. C. O.

Canad. Rec.—The Canadian Record of Science, including the proceedings of the Natural History Society of Montreal. (Montreal, 8vo.) N. R. L. C. O.

Causeries Soc. zool. France—Causeries scientifiques de la Société zoologique de France. (Paris, 8vo.) Nz. K. Z. C.

CB. Ges. Anthrop.—Correspondenzblatt der deutschen Gesellschaft für Anthropologie, Ethnologie und Urgeschichte. [Issued with *Arch. Anthrop.*, q.v.] (München, 4to.) R. O.

CB. Iris—[Vide *Deutsche ent. Zeitschr. Lep.*]

Cellule—La Cellule: Recueil de Cytologie et d'Histologie générale. (Lierre & Louvain, 4to.) Nz. K. R. L. C, b. O.

Centrbl. Bakter.—Centralblatt für Bakteriologie, Parasitenkunde und Infektionskrankheiten. Erste Abteilung: Medizinisch-hygienische Bakteriologie und tierische Parasitenkunde. Zweite Abteilung: Allgemeine landwirtschaftlich Bakteriologie, Gärungsphysiologie und Pflanzenpathologie. (Jena, 8vo.) N. R. Z. C, p. O.

Centrbl. Mineral.—Centralblatt für Mineralogie, Geologie und Palæontologie in Verbindung mit dem Neuen Jahrbuch für Mineralogie, Geologie und Palæontologie herausgegeben von M. Bauer, E. Koken, Th. Liebisch. (Stuttgart, 8vo.) Ng. K. R. C. O.

Centrbl. Physiol.—Centralblatt für Physiologie unter Mitwirkung der Physiologischen Gesellschaft zu Berlin und des Physiologischen Clubs in Wien. (Berlin, 8vo.) (*C*) g. O.

Ceska Ak. Praze—Česká Akademie Císaře Františka Joséfa provědy, slovesnost a umění v Praze. Třída II. (Praze, 4to.) N. (*C*) p.

Circ. U. S. Dep. Agric. Ent.—United States Department of Agriculture. Division of Entomology. Circular. Second series. (Washington, 8vo.) N.

Coleopteriste—Le Coléoptériste ou Répertoire des travaux sur les Coléoptères de l'Ancien-monde. (Paris, 8vo.)

Colorado Coll. Stud.—[Vide *Stud. Colorado Coll.*]

Commis. geol. Portugal—Commissão dos trabalhos geologicos de Portugal. Mémoires. (Lisboa, 4to.) Ng. O.

Comm. Millport Stat.—Millport Marine biological Station. Communications. (Glasgow, 8vo.) N. C.

Commun. geol. Portugal—Communicações da Commissão dos trabalhos geologicos de Portugal. (Lisboa, 8vo.) Ng. R. (*C*) p.

Comun. Mus. Buenos Aires—Comunicaciones del Museo nacional de Buenos Aires. (Buenos Aires, 8vo.) N. K.

Congr. Zool.—Congrès international de Zoologie. [Vide *Verh. Congr. Zool.*]

Contr. Canad. Pal.—Geological Survey of Canada. Contributions to Canadian Palæontology. (Ottawa, 8vo or 4to.) Ng. K. O.

Contr. Lab. Pennsylv.—Contributions from the Zoological Laboratory of the University of Pennsylvania. (Philadelphia, 8vo.) Nz. (*C*) p.

C.R. Ac. Savoie—[Vide *Mem. Ac. Savoie.*]

C.R. Ac. Sci.—Comptes-rendus hebdomadaires des Séances de l'Académie des Sciences. (Paris, 4to.) N. K. R. Z. L. C, p, y. O.

C.R. Ass. Franc.—Association française pour l'avancement des Sciences. Compte-rendu. (Paris, 8vo.) N. K. R. C.

C.R. Soc. Biol.—Comptes-rendus hebdomadaires des Séances et Mémoires de la Société de Biologie. Neuvième série. [Consists of Comptes-rendus and Mémoires.] (Paris, 8vo.) N. R. Z, C, y. O.

C.R. Soc. Bordeaux—[Vide *Pr.-verb. Soc. Bordeaux.*]

C.R. Soc. geol. France—Compte-rendu des séances de la Société géologique de France. [Issued with *Bull. Soc. geol. France*, q.v.]

C.R. Soc. Helvet.—Archives des Sciences physiques et naturelles. Compte-rendu des travaux . . . de la Société Helvétique des Sciences naturelles. (Genève, 8vo.) (*C*) p.

C.R. Soc. Philom. -Comptes-rendus sommaires de la Société philomathique de Paris. [Indexed in *Bull. Soc. Philom.*, q.v.] (Paris, 8vo.)

C.R. Soc. Reims—[Part of *Bull. Soc. Reims*, q.v.]

C.R. Soc. St. Petersburg—[Vide *Protok. St. Peterb. Obshch.*]

Danmarks geol. Unders.—Danmarks geologiske Undersøgelse. (Kjøbenhavn, 8vo.) Ng.

Danske Selsk. Skr.—Det Kongelige Danske Vinenskabernes Selskabs Skrifter. Naturvidenskabelig og mathematisk Afdeling. (Kjøbenhavn, 8vo.) N. K. R. Z. L. (*C*) p.

Denk. Ak. Wien—Denkschriften der Kaiserlichen Akademie der Wissenschaften zu Wien. (Wien, 4to.) N. K. R. Z. L. C. O.

Denk. Ges. Jena—Denkschriften der medecinischnaturwissenschaftlichen Gesellschaft zu Jena. (Jena, 4to.) N. K. R. Z. L. C. O.

Denk. Schweiz. Ges.—Neue Denkschriften der allgemeinen Schweizerischen Gesellschaft für die gesammten Naturwissenschaften. Nouveaux Mémoires de la Société Helvétique des Sciences naturelles. (Zurich, 4to.) N. K. R. L. C, p.

Derby. Naturalist.—The Derbyshire Naturalists' Quarterly. (Derby, 8vo.) N. C.

Deutsche ent. Zeitschr.—Deutsche entomologische Zeitschrift herausgegeben von der Deutschen entomologischen Gesellschaft. (Berlin, 8vo.) Nz. Z. C. O.

Deutsche ent. Zeitschr. Iris—Deutsche entomologische Zeitschrift Iris herausgegeben vom entomologische Verein Iris zu Dresden. (Berlin, 8vo.) Nz. Z. C.

Doc. Soc. Charleroy—Documents et rapports de la Société paléontologique et archéologique de Charleroy. (Malines, 8vo.) Ng.

Echange—L'Échange, Revue Linnéenne, organe des Naturalistes de la région Lyonnaise. (Lyon, 8vo.) N.

Eclog. geol. Helvet. -Eclogæ geologicæ Helvetiæ. [Also called] Recueil périodique de la Société géologique Suisse, and Mittheilungen der Schweizerischen geologischen Gesellschaft. (Lausanne, 8vo.) Ng.

§ *Econ. P. Dublin Soc.*—The economic proceedings of the Royal Dublin Society. (Dublin, 8vo.) N. K. R. Z. L. C, p. O.

E. Mus. Lund.—[Vide *Afh. Mus. Lund.*]

§ *Ent. Ber. Nederland.*—Entomologische Berichten uitgeven door de Nederlandsche entomologische Vereeniging. (Amsterdam, 8vo.) Nz. L.

Ent. Mag.—The Entomologist's Monthly Magazine. Second series. (London, 8vo.) Nz. Z. L. C.

Ent. Meddel.—Entomologiske Meddelelser udgivne af entomologisk Forening. Anden raekke. (Kjøbenhavn, 8vo.) Nz. Z.

Ent. Nachr.—Entomologische Nachrichten. (Berlin, 8vo.) Nz. Z. C.

Ent. News Philad.—Entomological News and Proceedings of the Entomological Section of the Academy of Natural Sciences of Philadelphia. (Philadelphia, 8vo.) Nz. Z. L.

Entomologist—The Entomologist: an Illustrated Journal of General Entomology. (London, 8vo.) Nz. K. Z. L. C.

Ent. Rec.—The Entomologist's Record and Journal of Variations. (London, 8vo.) Nz. Z. C.

Ent. Tidskr.—Entomologisk Tidskrift utgifven af entomologiska Föreningen i Stockholm. (Stockholm, 8vo.) Nz. L. O.

Ent. Zeit. Stettin—Entomologische Zeitung herausgegeben von dem entomologische Vereine zu Stettin. (Stettin, 8vo.) Nz. Z. L. C.

Ergeb. Anat.—Ergebnisse der Anatomie und Entwicklungsgeschichte. [=A second title of *Anat. Hefte Ergeb.*, q.v.]

Ertek. term. Magyar Ak.—Értekezések a természettudományok köréböl. Kiadja a Magyar tudományos Akadémia. [Dissertations, Natural Science group; published by the Magyar Academy of Sciences.] (Budapest, 8vo.) N. K. R.

Ertes. Erdel. Muz.—Értesitö az Erdélyi Muzeum-egylet. Orvos természettudományi szakosztályából. II. Természettudományi szak. [Bulletin of the Transylvanian Museum Society. Medico-natural-science section.] (Kolozvart, 8vo.) N. R.

Essex Natural.—The Essex Naturalist: being the Journal of the Essex Field Club. (Chelmsford, 8vo.) N. R. Z. L. C, p.

Etudes Ent.—Études d'Entomologie: Faunes entomologiques, descriptions d'Insectes nouveaux ou peu connus. Par Charles Oberthur. (Rennes, 8vo.) Nz. Z.

Evkon. Trencsen Eg.—[Vide *Jahresh. Ver. Trencsen.*]

§ *Exp. Stat. Rec.*—Experiment Station Record. U. S. Department of Agriculture. (Washington, 8vo.) K. R.

Ezh. Mus. St. Petersb.—Ezheghodnīk zoologīcheskagho muzeya īmperatorskoĭ akademiī nauk.—[Vide *Annuaire Mus. St. Petersb.*]

Fauna—"Fauna." Verein Luxemburger Naturfreunde. Mittheilungen aus den Vereinssitzungen. [Also called] "Fauna." Société des Naturalistes Luxembourgeois. Comptes-rendus des Séances. (Luxembourg, 8vo.) N.

Fauna Stat. Neapel—Fauna und Flora des Golfes von Neapel und der angrenzenden Meeres-Abschnitte, herausgegeben von der zoologischen Station zu Neapel. (Berlin, 4to.) Nz. K. R. Z. L. (*C*) b. O.

Feuille Natural.—Feuille des Jeunes Naturalistes. (Paris, 8vo.) Nz.

Field—The Field, the Farm, the Garden. The Country Gentleman's newspaper. (London.) Z. C.

Field Club—The Field Club, with which is incorporated "The Garner." (London, 8vo.) N. C. O.

Field Columbian Mus. Publication—[Vide *Field Mus. Ornithol.*—*Field Mus. Zool.*—etc. : there being in all six of these "series."]

Field Mus. Ornithol.—Field Columbian Museum Publication. Ornithological Series. (Chicago, 8vo.) N. K. R. Z. L. C.

Field Mus. Rep.—Field Columbian Museum Publication. Annual Report of the Director to the Board of Trustees. (Chicago, 8vo.) N. K. R. Z. L. C.

Field Mus. Zool.—Field Columbian Museum Publication. Zoological Series. (Chicago, 8vo.) N. K. R. Z. L. C.

§ *Field Nat. Quart.*—The Field Naturalist's Quarterly. (Edinburgh and London, 8vo.) Z.

Foldtani Kozl.—Földtani Közlöny. [Geologische Mittheilungen. Zeitschrift der Ungarischen geologischen Gesellschaft.] (Buda Pest, 8vo.) Ng. K. R.

Forh. Selsk. Christian.—Forhandlinger i Videnskabs-Selskabet i Christiania. (Christiania, 8vo.) N. R. Z. (*C*)p. O.

Forh. Skand. Naturf.—Forhandlingar ved det Skandinaviska Naturforskaremötet. (Christiania, &c., 8vo.) N.

Forschber. Plon—Forschungsberichte aus der biologischen Station zu Plön. (Berlin, 8vo.) Nz. K. Z. (*C*)b. O.

Forsch. Deutsch. Landesk.—Forschungen zur deutschen Landes- und Volkskunde. (Stuttgart, 8vo.) N.

Frelon—Le Frelon, journal d'Entomologie. (Chateauroux, 8vo.) Nz. Z.

Gefied. Welt—Die gefiederte Welt : Zeitschrift für Vogelliebhaber, -zuchter und -händler. (Magdeburg, 4to.) Nz. Z.

Geognost. Jahresh.—Geognostische Jahreshefte ; herausgegeben im Auftrage des K. Bayerischen Staatsministeriums des Innern von der geognostischen Abtheilung des K. Bayer. Oberbergamtes in München. (Cassel, 8vo.) Ng. C.

Geol. Foren. Stockholm Forh.—Geologiska Föreningens i Stockholm Förhandlingar. (Stockholm, 8vo.) Ng.

Geol. Mag.—The Geological Magazine, or Monthly Journal of Geology ; with which is incorporated "The Geologist." New series. (London, 8vo.) Ng. K. Z. L. C. O.

Geol. Surv. Michigan—Geological Survey of Michigan lower peninsula. [Separate parts are often headed "Reports."] (Lansing, 8vo.) Ng.

Ghlas Srpska Ak.—Ghlas Srpska Kral'evska akanemiie. Prvī razred. (Beoghrad, 8vo.) N.

Giorn. Soc. Palermo—Giornale di Scienze naturali ed economiche pubblicato per cura della Società di Scienze naturali ed economiche di Palermo. (Palermo, 4to.) N. R.

Glasnik Naravosl. druzt.—Glasnik hrvatskoga naravoslovnoga družtva [Societas historico-naturalis Croatica]. (Zagreb, 8vo.) N. (*C*) p.

§ *Globus*—Globus. Illustrierte Zeitschrift für Länder-und Volkerkunde (Braunschweig, 4to.) C.

Goteborgs Vetensk. Handl.—Göteborgs kongl. Vetenskaps- och Vitterhets-samhälles Handlingar. Ny Tidsföljd. (Göteborg, 8vo.) N. (*C*) p.

Halifax Natural.—The Halifax Naturalist and Record of the scientific Society. (Halifax, 8vo.) N. C.

Helios—Helios. Abhandlungen und monatliche Mittheilungen aus dem Gesammtgebiete der Naturwissenschaften. Organ des Naturwissen-schaftlichen Vereins des Regierungsbezirks Frankfurt. (Berlin, 8vo.) N. R.

Hist. Berwick. Club—History of the Berwickshire Naturalists' Club. (Alnwick, 8vo.) N. R. L.

Horæ Soc. ent. Ross.—Horæ Societatis entomologicæ Rossicæ. [Called also] Trudui Russkagho entomologhicheskagho obshchestva v St. Peterburg. (St. Petersburg, 8vo.) Nz. Z. L. C.

Hull Mus. Publ.—Hull Museum Publications [Reprints]. (Hull, 8vo.) N.

Ibis—The Ibis: a Quarterly Journal of Ornithology. (London, 8vo.) Nz. Z. L. C. O.

Indian Mus. Notes—Indian Museum Notes. (Calcutta, 8vo.) Nz. R. Z. C.

Indisch. Nat.—[Vide *Bijbl. Java Suikerind.*]

Informe Mus. Costa Rica—Museo nacional de Costa Rica. Informe. (San José, 8vo.) N. K.

Ins. World—The Insect World: a monthly magazine. [In the Japanese language.] (Gifu, 8vo.) Nz.

Int. J. Anat.—Monthly International Journal of Anatomy and Physiology. [Also issued as] Journal international d'anatomie et de physiologie, [and as] Internationale Monatsschrift für Anatomie und Histologie. (Paris, Leipzig, London, 8vo.) K. R. C. O.

Int. J. Micr.—The International Journal of Microscopy and Natural Science. (London, 8vo.) N. K. C.

Int. Monatsschr. Anat.—[Vide *Int. J. Anat.*]

Iris, Dresden—[Vide *Deutsche ent. Zeitschr. Iris.*]

Irish Natural.—The Irish Naturalist: a Monthly Journal of General Irish Natural History. (Dublin, 8vo.) N. K. Z. L. C.

Izv. Obshch. Moskov.—Īzvyestiya īmperatorskagho obshchestva lyubīteleĭ estestvoznaniya, antropolghiī ī étnografiī sostoyashchagho prī īmperatorskom Moskovskom Unīversītetye. (Moscow, 4to.) N.

Izv. imp. ak. nauk.—[Vide *Bull. Ac. St. Petersb.*]

Izv. Kaukas. Mus.—Īzvestiya Kaukaskagho Museya. [Called also Mittheilungen des Kaukasischen Museums.] (Tiflis, 8vo.) N. L.

Izv. S. Petersb. Lab.—[Vide *Bull. Lab. St. Petersb.*]

Izv. Vost.-sibir.—Izvyestiya Vostochno-sībīrskagho, otdyela imperatorskagho russkagho gheoghrafīcheskagho obshchestva. (Irkutsk, 8vo.) N.

Jaarb. Ak. Amsterdam—Jaarboek van de Koninklijke Akademie van Wetenschappen gevestigd te Amsterdam. (Amsterdam, 8vo.) N. R. Z. L. (*C*) p.

Jaarb. Mijn. Ned. Oost-Ind.—Jaarboek van het Mijnwesen in Nederlandsch Oost-Indië. (Amsterdam, 8vo.) N. K.

J. Ac. Philad.—Journal of the Academy of Natural Sciences of Philadelphia. (Philadelphia, 8vo.) N. R. Z. L. C. O.

J. Agric. Soc. Engl.—The Journal of the Royal Agricultural Society of England. (London, 8vo.) K. R. Z. L. C. O.

J. Agric. Soc. Guiana—Journal of the Royal agricultural and commercial Society of British Guiana [formerly called *Timehri.*] (Demerara, 8vo.) N. R. L.

J. Agric. Soc. India—Proceedings and Journal of the Agricultural and Horticultural Society of India. (Calcutta, 8vo.) Nz.

Jahrb. Ak. Erfurt—Jahrbücher der königlichen Akademie gemeinnütziger Wissenschaften zu Erfurt. Neue Folge. (Erfurt, 8vo.) N.

Jahrb. geol. Landesanst. Berlin—Jahrbuch der königlich-preussischen geologischen Landesanstalt und Bergakademie zu Berlin. (Berlin, 8vo.) Ng. K. C.

Jahrb. geol. Reichsanst.—Jahrbuch der kaiserlich-königlichen geologischen Reichsanstalt. (Wien, 8vo.) Ng. R. L. C, p, g. O.

Jahrb. Hamburg. Anst.—Jahrbuch der Hamburgischen wissenschaftlichen Anstalten. [Consists of Jahresberichte and Abhandlungen. Also vide *Mt. Mus. Hamburg.*] (Hamburg, 8vo.) N. K. R. L. C.

Jahrb. Mus. Karnten—Jahrbuch des naturhistorischen Lande-museums von Kärnten. (Klagenfurt, 8vo.) N. C.

Jahrb. nassau. Ver.—Jahrbücher des nassauischen Vereins für Naturkunde. (Wiesbaden, 8vo.) N. K. L. C, p.

Jahrb. Siebenburg. Karpath. Ver.—Jahrbuch des Siebenbürgischen Karpathen-Vereins. (Hermannstadt, 8vo.) N. R.

Jahrb. Ungarn. geol. Anstalt—[=*Magyar Föld. Int. Evkon.*, q.v.]

Jahresber. Anat. Entwickl.—Jahresberichte über die Fortschritte der Anatomie und Entwicklungsgeschichte. (Jena, 8vo.) K. C. O.

Jahresber. Bohm. Ges.—Jahresbericht der Königlich-Böhmischen Gesellschaft der Wissenschaften. (Prag, 8vo.) N. R. L. (*C*) p.

Jahresber. forst.-phan. Stat.—Jahresbericht der forstlich-phänologischen Stationen Deutschlands. (Berlin, 8vo.) N.

Jahresber. Ges. Gera—Jahresbericht der Gesellschaft von Freunden der Naturwissenschaften in Gera. (Gera, 8vo.) N.

Jahresber. Ges. Graubund.—Jahres-Bericht der naturforschenden Gesellschaft Graubündens. (Chur, 8vo.) N. C.

Jahresber. Ges. Hannover—Jahresbericht der naturhistorischen Gesellschaft zu Hannover. (Hannover, 8vo.) L.

Jahresber. Hamburg. Anst.—[Forms part of *Jahrb. Hamburg. Anst.*, q.v.]

Jahresber. Mus. Francisco-Car.—Jahres-Bericht des Museums Francisco-Carolinum. (Linz, 8vo.) N.

§ *Jahresber. ornith. Ver. München*—Jahresbericht der ornithologischen Vereins München. (Munich, 8vo.) Z. C.

Jahresber. Physiol.—Jahresbericht über die Fortschritte der Anatomie und Physiologie. (Bonn, 8vo.) K. R. C, y. O.

Jahresber. Schlesisch. Ges.—Jahres-Bericht der Schlesischen Gesellschaft für vaterländische Cultur. (Breslau, 8vo.) N. K. R. (*C*) p.

Jahresber. Ungarn geol. Anstalt—Jahresbericht der Kgl.-Ung. geologischen Anstalt. (Budapest, 8vo.) Ng. R. C.

Jahresber. Ver. Braunschweig—Jahresbericht des Vereins für Naturwissenschaft zu Braunschweig. (Braunschweig, 8vo.) N. R.

Jahresber. Ver. Erdk. Dresden—Jahresbericht des Vereins für Erdkunde zu Dresden. (Dresden, 8vo.) Ng. K. R.

Jahresber. Ver. Magdeburg—Jahresbericht und Abhandlungen des naturwissenschaftlichen Vereins in Magdeburg. (Magdeburg, 8vo.) N. R. (*C*) p.

Jahresber. Ver. Mannheim—Jahresbericht des Vereins für Naturkunde zu Mannheim. (Mannheim, 8vo.) N.

Jahresber. Ver. Osnabruck—Jahresbericht des naturwissenschaftlichen Vereins zu Osnabruck. (Osnabruck, 8vo.) N. R.

Jahresber. Ver. Zwickau—Jahresbericht des Vereins für Naturkunde zu Zwickau. (Zwickau, 8vo.) N.

Jahresber. Westfal. Ver.—Jahresbericht des Westfälischen Provinzial-Vereins für Wissenschaft und Kunst. (Münster, 8vo.) N. Z. L.

Jahresh. Ver. Luneberg—Jahreshefte des naturwissenschaftlichen Vereins für das Fürstentum Lüneberg. (Lüneberg, 8vo.) N.

Jahresh. Ver. Trencsen.—Jahresheft des naturwissenschaftlichen Vereines des Trencsener Komitates. [Called also] Évkönyve a Trencsén vármegyei Termeszettudományi egylet megbizásából. (Trencsen, 8vo.) N.

Jahresh. Ver. Wurttemb.—Jahreshefte des Vereins für vaterländische Naturkunde in Württemberg. (Stuttgart, 8vo.) N. K. R. Z. L. C.

J. Anat. Physiol.—Journal de l'Anatomie et de la Physiologie normales et pathologiques de l'homme et des animaux. (Robin.) (Paris, 8vo.) K. R. Z. C. O.

J. Anat. Physiol. norm. path.—The Journal of Anatomy and Physiology, normal and pathological. (London, 8vo.) Nz. K. R. Z. L. C, p, y. O.

J. Asiat. Soc. Bengal—Journal of the Asiatic Society of Bengal: Part II Natural History, &c. (Calcutta, 8vo.) N. K. R. Z. L. C. O.

J. Board Agric. London—The Journal of the Board of Agriculture. (London, 8vo.) Nz. K. C.

J. Bombay Asiat. Soc.—Journal of the Bombay Branch of the Royal Asiatic Society. (Bombay, 8vo.) N. C.

J. Bombay Soc.—The Journal of the Bombay Natural History Society. (Bombay, 8vo.) N. Z.

J. Ceylon Asiat. Soc.—Journal of the Ceylon Branch of the Royal Asiatic Society. (Colombo, 8vo.) N. Z.

J. China Asiat. Soc.—Journal of the China Branch of the Royal Asiatic Society. (Shanghai, 8vo.) N. R. Z.

J. Cincinnati Soc.—Journal of the Cincinnati Society of Natural History. (Cincinnati, 8vo.) N. R. (*C*) p.

J. Coll. Tokyo—Journal of the College of Science, Imperial University of Tokyo, Japan. (Tōkyō, 4to.) N. K. R. Z. L. C, b, p. O.

J. Conch.—The Journal of Conchology. (Leeds, 8vo.) Nz. Z. L. C.

J. Conchyl.—Journal de Conchyliologie. (Paris, 8vo.) Nz. Z. C.

§ *J. Dep. Agric. Victoria*—The Journal of the department of Agriculture of Victoria. (Melbourne, 8vo.) [Reprints are issued as *Bull. Dep. Agric. Victoria.*] Nz. L.

J. E. Mitchell Soc.—Journal of the Elisha Mitchell Scientific Society. (Raleigh, 8vo.) N. R.

Jena. Zeitschr.—Jenaische Zeitschrift für Naturwissenschaft, herausgegeben von der medizinisch-naturwissenschaftlichen Gesellschaft zu Jena. (Jena, 8vo.) N. K. R. Z. L. C, b, p, y. O.

J. Essex Lab.—The journal of the Essex technical laboratories. ["Biology notes."] (Chelmsford, 8vo.) N. K.

J. exp. Med. Baltimore—The journal of experimental medicine. (Baltimore, 8vo.) (*C*) path. O.

J. f. O.—[=*J. Ornith.*, q.v.]

J. Geol.—The journal of Geology. A semi-quarterly Magazine of Geology and related Sciences. (Chicago, 8vo.) Ng. K. (*C*) p. O.

J. geol. Soc. Tokyo—The journal of the geological Society of Tōkyō. [Tokyo, 8vo.] Ng.

J. Hamilton Ass.—Journal and proceedings of the Hamilton Association. (Hamilton, Ontario, 8vo.) N. R.

J. Inst. Cornwall—Journal of the Royal Institution of Cornwall. (Truro, 8vo.) N. K. R. Z.

J. Inst. Jamaica—Journal of the Institute of Jamaica. (Kingston, 8vo.) N. K. R. Z. L.

J. int. Anat.—Journal international d'anatomie et de physiologie. [Vide *Int. J. Anat.*]

J. Isle Man Soc.—Yn Líoar Mannínagh. The journal of the Isle of Man Natural History and Antiquarian Society. (Douglas, 8vo.) N.

J. Leeward Isl.—Agricultural Journal of the Leeward Islands. (St. John's, Antigua, 8vo.)

J. Linn. Soc.—Journal of the Linnean Society: Zoology. (London, 8vo.) Nz. K. R. Z. L. C, b, p. O.

J. Liverp. Geol. Ass.—Liverpool Geological Association: Journal. (Liverpool, 8vo.) Ng.

J. London Coll. Soc.—Journal of the City of London College Society, London. (Lewes, 8vo.)

J. Malac.—The journal of Malacology. (London, 8vo.) Nz.

J. Mar. Biol. Ass.—Journal of the Marine Biological Association of the United Kingdom. (Plymouth, 8vo.) N. K. R. Z. L. C, b. O.

J. Morphol.—Journal of Morphology. (Boston, U. S., 8vo.) K. R. Z. L. (*C*), b. O.

J. N. Jersey Soc.—Journal of the New Jersey Natural History Society (Trenton, 8vo.) R. Z.

J. Northampt. Soc.—Journal of the Northamptonshire Natural History Society and Field Club. (Northampton, 8vo.) N.

J. N. York Ent. Soc.—Journal of the New York Entomological Society. (New York, 8vo.) Nz. Z.

J. N. York Micr. Soc.—Journal of the New York Microscopical Society. (New York, 8vo.) N. C.

Johns Hopkins Univ. Circ.—Johns Hopkins University Circulars. (Baltimore, 4to.) N. K. R. (*C*) p. O.

J. Ornith.—Journal für Ornithologie. Deutsches Centralorgan für die gesammte Ornithologie. (Leipzig, 8vo.) Nz. R. Z.

J. Oxford Club—Journal of the Oxford University Junior Scientific Club. (Oxford, 8vo.) N. O.

J. Physiol.—The Journal of Physiology. [Foster.] (Cambridge, 8vo.) K. R. Z. L. C, y. O.

§ *J. Physiol. Path.*—Journal de Physiologie et de Pathologie générale. (Paris, 8vo.) R. C, y. O.

§ *J. Psychol. Neurol.*—Journal für Psychologie und Neurologie. (Leipzig, 8vo.)

J. Quekett Club—The Journal of the Quekett Microscopical Club. (London, 8vo.) N. K. R. Z. L. C. O.

J. R. Micr. Soc.—Journal of the Royal Microscopical Society. (London, 8vo.) N. K. R. Z. L. C, p. O.

J. R. Soc. N. S. Wales—Journal and Proceedings of the Royal Society of New South Wales. (Sydney, 8vo.) N. K. R. Z. L. C, p. O.

J. Sci. Lisb.—Jornal de Sciencias mathematicas, physicas et naturaes publicado sob os auspicios da Academia real das Sciencias de Lisboa. (Lisboa, 8vo.) N. R. Z. L. C.

J. Straits Asiat. Soc.—Journal of the Straits Branch of the Royal Asiatic Society. (Singapore, 8vo.) N. R. C.

J. Trinidad Club—Journal of the Trinidad Field Naturalists' Club. (Port of Spain, 8vo.) N. Z. L.

J. trop. Medicine—The Journal of tropical Medicine. (London, 4to.) N. (*C*) path.

J. Victoria Inst.—Journal of the Transactions of the Victoria Institute or Philosophical Society of Great Britain. (London, 8vo.) N. K. R. C.

Kansas quart.—The Kansas University quarterly. Series A, Science and Mathematics. (Lawrence, 8vo.) N. (*C*) p.

§ *Kansas Univ. Bull.*—The Kansas University Science Bulletin [formerly called *Kansas Univ. Quarterly*]. N. R. (*C*) p.

Kansas Scient.—The Kansas City Scientist. (Kansas City, 8vo.) N.

KB. Ver. Riga—Korrespondenzblatt des Naturforscher-Vereins zu Riga. (Riga, 8vo.) N.

K. Danske Selsk. Skr.—[Vide *Danske Selsk. Skr.*]

Kent Mag.—The Kent Magazine. (Maidstone, 8vo.)

Kew Bull.—Royal Gardens, Kew. Bulletin of Miscellaneous Information. (London, 8vo.) K. R. Z. L. C.

K. fysiografiska Sallskapets i Lund Handlingar [published as part of *Acta Univ. Lund.*, q.v.]

Kosmos polski.—Kosmos czasopismo polskiego Towarzystwa przyrodników im Kopernika. (Lwowie [=Lemberg], 8vo.) N.

Leopoldina—Leopoldina: Amtliches Organ der k. Leopoldino-carolinischen deutschen Akademie der Naturforscher. (Halle, 4to.) N. R. Z. L. (*C*) p.

Lioar Mannin.—Yn Líoar Mannínagh. Published quarterly for the Isle of Man Natural History Society. N.

Lo Speriment.—Lo Sperimentale. Archivio di biologia normale e patologica (Organo dell' Accademia medico-fisica fiorentina). (Firenze, 8vo.) (*C*) path.

Lund. Univ. Ars-skr.—[=*Acta Univ. Lund.*, q.v.]

Maandbl. Genoot. Amsterdam—Maandblad voor Natuurwetenschappen uitgeven door de Sectie voor Natuurwetenschappen van het Genootschap ter bevordering van Natuur-, Genees- en Heelkunde te Amsterdam. (Amsterdam, 8vo.) N.

Magyar Fold. int. evkon.—A Magyar Királyi Földtani intézet évkönyve. [Annals of the Hungarian Royal Geological Bureau.] (Buda Pest, 8vo.) Ng. R.

§ *Marcellia*—Marcellia. Revista internazionale di Cecidologia. (Padova, 8vo.) Z.

§ *Mar. invest. S. Africa*—Cape of Good Hope, Department of Agriculture. Marine investigations in South Africa. (Cape Town, 8vo.) N. R. Z. L.

Maryland geol. Surv.—Maryland geological Survey. (Baltimore, 8vo.) Ng. R. (*C*) p.

Mater. fizyjogr. Kraj.—[Vide *Sprawozd. Kom. Krajo.*]

Mater. gheol. Kavkaza—Materialuī dlya gheologhiī Kavkaza. (Tiflis, 8vo.) Ng.

Math. naturw. Ber. Ungarn—Mathematische und naturwissenschaftliche Berichte aus Ungarn, &c. (Berlin and Budapest, 8vo.) N. K. (*C*) p.

Math. term. Ertes. Magyar Ak.—Mathematikai és természettudományi Értesitö. Kiadja a Magyar Tudományos Akademia. [Mathematics and Natural Science Intelligencer.] (Budapest, 8vo.) N. R.

Math. term. Kozlem. Magyar Ak.—Mathematikai és természettudományi Közlemények vonatkozólag a hazai viszonyokra. Kiadja a Magyar tudományos Akadémia. [Mathematical and Natural Science communications relating to native topics. Published by the Magyar Academy of Natural Sciences.] (Budapest, 8vo.) N. R.

Medd. Dansk Geol. For.—Meddelelser fra Dansk geologisk forening. (Kjøbenhavn, 8vo.) Ng.

Medd. Gronland—Meddelelser om Grønland, udgione af Commissionen for Leddsen af de geologiske og geographiske Undersøgelser i Grønland. (Kjøbenhavn, 8vo.) N. (*C*) g. O.

Medd. Soc. Faun. Fenn.—Meddelanden af Societas pro Fauna et Flora Fennica. (Helsingfors, 8vo.) N. R. L.

Med. Plantentuin Java—Mededeelingen uit 's Lands Plantentuin. (Batavia, 8vo.) R. (*C*) p.

Mel. biol.—Mélanges biologiques [reprints from *Bull. Ac. St. Petersb.*]. N. K. Z.

Mem. Ac. Angers—Mémoires de l'Académie des sciences et belles-lettres d'Angers. Nouvelle période. (Angers, 8vo.) N.

Mem. Ac. Barcel.—Memorias de la Real Academia de Ciencias de Barcelona. (Barcelona, 4to.) N.

Mem. Ac. Belgique—Mémoires de l'Académie royale des Sciences, des Lettres et des Beaux-Arts de Belgique. (Bruxelles, 4to.) N. R. Z. L. (*C*) p. O.

Mem. Acc. Acireale—[Vide *Atti Acc. Acireale.*]

Mem. Acc. Bologna—Memorie della R. Accademia delle Scienze dell' Istituto di Bologna. Memorie della Sezione delle Scienze naturali. (Bologna, 4to.) N. R. C.

Mem. Acc. Lincei—Atti della R. Accademia dei Lincei. Memorie della classe di Scienze fisiche, matematiche e naturali. (Roma, 4to.) N. K. R. L. C. O.

Mem. Acc. Modena—Memorie della Regia Accademia di Scienze, Lettere ed Arti in Modena. Serie ii. (Modena, 4to.) N.

Mem. Acc. Pont. Lincei—Memorie della Pontificia Accademia dei nuovi Lincei. (Roma, 4to.) N.

Mem. Acc. Torino—Memorie della Reale Accademia delle Scienze di Torino. (Torino, 4to.) N. K. R. Z. L. C, p.

Mem. Ac. Dijon—Mémoires de l'Académie des Sciences, Arts et Belles-Lettres de Dijon. 4e Série. (Dijon, 8vo.) N. K. R. C.

Mem. Ac. France—Mémoires de l'Académie des Sciences de l'Institut de France. (Paris, 4to.) N. R. C. O.

Mem. Ac. Lisboa—Memorias da Academia real das Sciencias de Lisboa; classe de Sciencias mathematicas, physicas e naturaes. (Lisboa, 4to.) N. R.

Mem. Ac. Lyon—Mémoires de l'Académie des Sciences, Belles Lettres et Arts de Lyon. 3e Série. (Lyon, 8vo.) N. K. R. L. C.

Mem. Ac. Madrid—Memorias de la real Academia de Ciencias exactas, fisicas y naturales de Madrid. (Madrid, 8vo,) N. R. Z. O.

Mem. Ac. Metz—Mémoires de l'Academie de Metz lettres, sciences, arts et agriculture. 3e série. (Metz, 8vo.) K. Z. (*C*) p.

Mem. Ac. Montpell.—Académie des Sciences et Lettres de Montpellier. Mémoires de la section des Sciences. (Montpellier, 4to.) N. R. L. C.

Mem. Ac. Savoie—Mémoires de l'Académie des Sciences, Belles Lettres et Arts de Savoie [includes Comptes-rendus]. 4e Série. (Chambéry, 8vo.) N. C.

Mem. Ac. St. Petersb.—Zapīskī īmperatorskoĭ akademiī nauk. Mémoires de l'Académie impériale des Sciences de Saint-Pétersbourg. VIIIe série. (St. Pétersbourg, 4to.) N. K. R. Z. L. C, p. O.

Mem. Ac. Toulouse—Mémoires de l'Académie des Sciences de Toulouse. IXe Série. (Toulouse, 8vo.) N. R. C.

Mem. Ac. Vaucluse—Mémoires de l'Académie de Vaucluse. (Avignon, 8vo.) N.

Mem. Ac. Washington—Memoirs of the National Academy of Sciences. (Washington, 4to.) N. R. Z. L. C, p. O.

Mem. Amer. Ac.—Memoirs of the American Academy of Arts and Sciences. (Cambridge, Mass., 4to.) N. K. R. Z. L. (*C*) p. O.

Mem. Amer. Mus.—Memoirs of the American Museum of Natural History. (New York, 4to.) N. K. (*C*) p.

Mem. Austral. Mus.—Australian Museum, Sydney. Memoir. (Sydney, 8vo.) N. K. R. Z. L. C. O.

Mem. Boston Soc.—Memoirs of the Boston Society of Natural History (Boston, 4to.) N. K. R. Z. L. (*C*) p. O.

§ *Mem. B. P. Bishop Mus.*—Memoirs of the Bernice Pauahi Bishop Museum. (Honolulu, 4to.) L. C.

Mem. Calif. Ac.—Memoirs of the California Academy of Sciences. (San Francisco, 4to.) N. R. Z. L.

Mem. Carnegie Mus.—Memoirs of the Carnegie Museum. (Pittsburgh, 4to.) N. K. O.

Mem. Carta geol. Ital. (8vo)—Memorie descrittive della carta geologica d' Italia. (Roma, 8vo.) Ng.

Mem. carta geol. Ital. (4to)—Memorie per servire alla descrizione della carta geologica d' Italia, pubblicate a cura del R. comitato geologico del Regno. (Firenze, 4to.) Ng.

Mem. Chicago ent. Soc.—Occasional memoirs of the Chicago entomological Society. (Chicago, 8vo.)

Mem. Com. geol.—Mémoires du Comité géologique [second title for *Trudui geol. Kom.*, q.v.].

Mem. Com. geol. España—Memorias de la Comisión del mapa geológico de España. (Madrid, 8vo.) Ng. R.

Mem. Cour. Ac. Belgique (8vo)—Mémoires couronnés et Mémoires des Savants étrangers publiés par l'Académie Royale des Sciences des Lettres et des Beaux-Arts de Belgique. (Bruxelles, 8vo.) N. K. R. Z. L. C, p.

Mem. Cour. Ac. Belgique (4to)—Mémoires couronnés et Mémoires des Savants étrangers publiés par l'Académie Royale des Sciences des Lettres et des Beaux-Arts de Belgique. (Bruxelles, 4to.) N. K. R. Z. L. C, p.

Mem. geol. Surv. India—Memoirs of the geological Survey of India. (Calcutta, 8vo.) Ng. R. Z. (*C*) p, g. O.

Mem. geol. Surv. N. S. Wales—Memoirs of the geological Survey of New South Wales. (Sydney, 4to.) Ng. K. R. L. C.

Mem. geol. Surv. U. K.—Memoirs of the geological Survey of the United Kingdom. (London, 8vo.) Ng. K. R. C. O.

§ *Mem. geol. Surv. Victoria*—Victoria. Department of mines. Memoirs of the geological Survey of Victoria. (Melbourne, 4to.) Ng. R.

Mem. Inst. Egypt.—Mémoires présentés à l'Institut Égyptien et publiés sous les auspices de S. A. Abbas Pacha, Khédive d'Égypte. (Le Caire, 4to.) N.

Mem. Inst. Genev.—Mémoires de l'Institut national Genevois. (Genève, 4to.) N. K. R. L. C.

Mem. Ist. Lombardo—Memorie del Reale Istituto Lombardo di Scienze e Lettere. Classe di scienze matematiche e naturali. (Milano, 4to.) N. K. R. C, p.

Mem. Ist. Veneto—Memorie del Reale Istituto Veneto di Scienze, Lettere ed Arti. (Venezia, 4to.) N. K. R. L. C.

Mem. Johns Hopkins Univ.—Memoirs from the Biological Laboratory of the Johns Hopkins University. (Baltimore, 4to.) Nz. (*C*) p. O.

Mem. Manchester Soc.—Memoirs and Proceedings of the Manchester Literary and Philosophical Society. (Manchester, 8vo.) N. K. R. Z. L. C, p. O.

Mem. Mus. Belgique—Mémoires du Musée royal d'histoire naturelle de Belgique. (Bruxelles, 4to.) R. Z.

§ *Mem. Mus. Goeldi*—Memorias do Museu Goeldi. (Museu Paraense de Historia natural e ethnographia.) (Rio de Janeiro, 4to.) N. L. C.

Mem. Mus. Harvard—Memoirs of the Museum of Comparative Zoölogy at Harvard College. (Cambridge, U.S., 4to.) Nz. R. Z. L. C, p. O.

Mem. Mus. Milano—Museo civico di Storia naturale di Milano e Società italiana di scienze naturali. Memorie. (Milano, 4to.) N. R.

Mem. Mus. Para.—[Vide *Mem. Mus. Goeldi.*]

Mem. N. York Ac.—New York Academy of Sciences. Memoirs. (New York, 4to.) N. K. R. (*C*) p.

Mem. N. York Mus.—Memoirs of the N. York State Museum. (Albany, 4to.) Ng.

Mem. pres. Ac. France—Mémoires présentés par divers savants à l'Académie des sciences de l'Institut de France et imprimés par son ordre. (Paris, 4to.) N. K. C.

Mem. R. Soc. S. Austral.—Memoirs of the Royal Society of South Australia. (Adelaide, 4to.) N. R. Z. L. (*C*) p.

Mem. Soc. Ac. Boulogne—Société Académique de l'arrondissement de Boulogne-sur-Mer. Mémoires. (Boulogne, 8vo.)

Mem. Soc. Anthrop. Paris—Mémoires de la Société d'Anthropologie de Paris. (Paris, 8vo.) Nz. K. R. O.

Mem. Soc. Ant. Alzate—Memorias de la Sociedad Científica "Antonio Alzate." (Mexico, 8vo.) R. Z. L. (*C*) p.

Mem. Soc. Belge Geol.—[Vide *Bull. Soc. Belge Geol.*]

Mem. Soc. Belge Micr.—[= *Ann. Soc. Belge Micr.*, q.v.]

Mem. Soc. Biol.—Comptes rendus hebdomadaires des séances, et mémoires de la Société de Biologie. [Issued with *C.R. Soc. Biol.*] (Paris, 8vo.) N. R. Z. C. O.

Mem. Soc. Bordeaux—Mémoires de la Société des Sciences physiques et naturelles de Bordeaux. 5ième Série. (Paris & Bordeaux, 8vo.) N. K. R. L. (*C*) p.

Mem. Soc. Cannes—Mémoires de la Société des Sciences naturelles et historiques des Lettres et des Beaux-Arts de Cannes et de l'arrondissement de Grasse. (Cannes, 8vo.) N.

Mem. Soc. Cher—Mémoires de la Société historique, littéraire et scientifique du Cher. (Bourges, 8vo.)

Mem. Soc. Cherbourg—Mémoires de la Société nationale des Sciences naturelles et mathématiques de Cherbourg. (Paris, 8vo.) N. K. R. L. C, p.

Mem. Soc. ent. Belgique—Mémoires de la Société entomologique de Belgique. (Bruxelles, 8vo.) Nz. Z. L. C.

Mem. Soc. Geneve—Mémoires de la Société de physique et d'histoire naturelle de Genève. (Genève, 4to.) N. R. Z. L. C, p.

Mem. Soc. geol. Belgique—[Included in *Ann. Soc. geol. Belgique*, q.v.]

Mem. Soc. geol. France—Mémoires de la Société géologique de France. Troisième série. (Paris, 4to.) Ng. K. R. C, p, g. O.

Mem. Soc. geol. France, Pal.—Mémoires de la Société géologique de France. Paléontologie. (Paris, 4to.) Ng.

Mem. Soc. geol. Nord—Mémoires de la Société géologique du Nord. (Lille, 4to.) Ng. C.

Mem. Soc. Hainaut—Mémoires et Publications de la Société des Sciences, des Arts, et des Lettres du Hainaut. vme Série. (Mons, 8vo.) K. N. R.

Mem. Soc. ital.—Memoire di matematica e di fisica della Società italiana delle Scienze. (Detta dei LX.) (Napoli, 4to.) N. R. (*C*) p.

Mem. Soc. Kiev.—[Vide *Zapiski Kiev. Obshch.*]

Mem. Soc. Liege—Mémoires de la Société royale des Sciences de Liège. (Bruxelles, 8vo.) N. K. R. L. C.

Mem. Soc. Lille—Mémoires de la Société des Sciences de l'Agriculture et des Arts de Lille. (Lille, 8vo.) N.

Mem. Soc. malac. Belgique—Mémoires. (Part of *Ann. Soc. malac. Belgique*, q.v.]

Mem. Soc. Moscou—Nouveaux Mémoires de la Société impériale des Naturalistes de Moscou. (Moscou, 4to.) N. K. R. C, p.

Mem. Soc. Nord France Mémoires de la Société Linnéenne du Nord de la France. (Amiens, 8vo.) N.

Mem. Soc. Normandie—Mémoires de la Société Linnéenne de Normandie. (Caen, 4to.) N. Z. L. C.

Mem. Soc. nouv. Russ.—[Vide *Zapiski Novoross. Obshch.*]

Mem. Soc. pal. Suisse—[Vide *Abh. Schweiz. pal. Ges.*]

Mem. Soc. Saone—Mémoires de la Société des Sciences naturelles de Saône-et-Loire. (Chalon-sur-Saône, 4to.) N. Z.

Mem. Soc. Seine et Oise—Mémoires de la Société des Sciences naturelles et médicales de Seine-et-Oise. (Versailles, 8vo.) N. K.

Mem. Soc. Toscana—[Vide *Atti Soc. Toscana.*]

Mem. Soc. zool. France—Mémoires de la Société zoologique de France. (Paris, 8vo.) Nz. K. Z. L. C. O.

Micrograph. prep.—Le Micrographe préparateur, journal de micrographie générale de technique micrographique et revue des journaux français et étrangers. (Paris, 8vo.) N.

Miscell. ent.—Miscellanea entomologica. (Narbonne, 8vo.) Nz. Z.

Monit. Zool. ital.—Monitore Zoologico italiano. (Firenze, 8vo.) Nz. Z. (*C*) b.

Mon. U.S. Geol. Surv.—Department of the Interior. Monographs of the United States Geological Survey. (Washington, 4to.) Ng. K. R. Z. (*C*) p. O.

Morphol. Jahrb.—Morphologisches Jahrbuch: eine Zeitschrift für Anatomie und Entwickelungsgeschichte. (Leipzig, 8vo.) Nz. K. R. Z. L. C, b. O.

Mt. Aargau. Ges.—Mittheilungen der Aargauischen naturforschenden Gesellschaft. (Aarau, 8vo.) N. K. R.

Mt. Ak. Berlin—Mathematische und naturwissenschaftliche Mittheilungen aus den Sitzungsberichten der königlich-preussischen Akademie der Wissenschaften zu Berlin. [Comprises the nat. hist. portions of *SB. Ak. Berlin*, and bears the pagination of that periodical in addition to its own.] (Berlin, 8vo.) N. L. O.

Mt. Badisch. Geol. Landesanst.—Mitteilungen der grossherzoglich-badischen Geologischen Landesanstalt, herausgegeben im Auftrage des Ministeriums des Innern. (Heidelberg, 8vo.) Ng. C.

Mt. Deutsch. Fisch. Ver.—Mittheilungen des Deutschen Fischereivereins.

Mt. Deutsch. Schutzg.—Mittheilungen von Forschungsreisenden und Gelehrten aus den Deutschen Schutzgebieten. Wissenschaftliche Beihefte zum Deutschen Kolonialblatte. (Berlin, 8vo.) N.

Mt. embr. Inst. Wien—Mittheilungen aus dem embryologischen Institute der k. k. Universität in Wien. (Wien, 8vo.) N. K. C, b. O.

Mt. geogr. Ges. Jena—Mitteilungen der geographischen Gesellschaft (für Thüringen) zu Jena. (Jena, 8vo.) N.

Mt. Geol. Landesanst. Elsass Lothringen—Mittheilungen der Geologischen Landesanstalt Elsass-Lothringen. (Strassburg, 8vo.) Ng.

Mt. geol. Mus. Dresden—Mittheilungen aus dem k. mineralogisch-geologischen und præhistorischen Museum in Dresden. (Cassel, 4to.) Ng.

Mt. Ges. Bern—Mittheilungen der naturforschenden Gesellschaft in Bern. (Bern, 8vo.) N. K. R.

Mt. Ges. Lubeck—Mitteilungen der geographischen Gesellschaft und des Naturhistorischen Museums in Lübeck. Zweite Reihe. (Lübeck, 8vo.) N.

Mt. Ges. Luzern—Mitteilungen der Naturforschenden Gesellschaft in Luzern. (Luzern, 8vo.) N.

Mt. Ges. Tokio—Mitteilungen der deutschen Gesellschaft für Natur- und Völkerkunde Ostasiens in Tokio. (Yokohama, 4to.) K.

Mt. Kaukas. Mus.—[Vide *Izv. Kaukas. Mus.*]

Mt. Mecklenb. geol. Landesanst.—Mittheilungen aus der Grossherzoglich Mecklenberg geologischen Landesanstalt. (Rostock, 4to.) Ng.

Mt. Mus. Berlin—Mitteilungen aus der Zoologischen Sammlung des Museums für Naturkunde in Berlin. (Berlin, 4to.) Nz. K. C.

Mt. Mus. Hamburg—Mitteilungen aus dem naturhistorischen Museum in Hamburg. Beiheft zum Jahrbuch der Hamburgischen wissenschaftlichen Anstalten. (Hamburg, 8vo.) N. K. R. Z. C.

Mt. Mus. Hildesheim—Mittheilungen aus dem Roemer-Museum Hildesheim. (Hildesheim, 4to.) N.

Mt. Mus. Ludwig Salvator—[Vide *Numquam ot.*]

Mt. Nat.-Kab. Stuttgart—Mitteilungen aus dem Kgl. Naturalien-Kabinet zu Stuttgart. [Reprints from other periodicals.] (Stuttgart, 8vo.) N.

Mt. ornith. Ver. Wien—Mittheilungen des ornithologischen Vereins in Wien. "Die Schwalbe." (Wien, 4to.) Z.

Mt. Osterlande—Mittheilungen aus dem Osterlande. Herausgegeben von der naturforschenden Gesellschaft des Osterlandes zu Altenburg i. S.-A. Neue Folge. (Altenburg i. S.-A., 8vo.) N.

Mt. Pollichia—Mittheilungen der Pollichia, eines naturwissenschaftlichen Vereins der Rheinpfalz. (Dürkheim, 8vo.) N. L. C.

Mt. Schweiz. ent. Ges.—Mittheilungen der Schweizerischen entomologischen Gesellschaft. Bulletin de la Société entomologique Suisse. (Schaffhausen, 8vo.) Nz. Z. L. C.

Mt. Schweiz. geol. Ges.—[Vide *Eclog. geol. Helvet.*]

Mt. Stat. Neapel—Mittheilungen aus der zoologischen Station zu Neapel. (Berlin, 8vo.) Nz. K. R. Z. C, b. O.

Mt. Thurgau. Ges.—Mitteilungen der thurgauischen naturforschenden Gesellschaft. (Frauenfeld, 8vo.) N.

Mt. Ungar. geol. Anstalt—Mittheilungen aus dem Jahrbuche der k. ungarischen geologischen Anstalt. [German edition of *Magyar Fold. int. evkon.*] (Budapest, 8vo.) Ng. R. (*C*) g.

Mt. Ver. Erdk. Leipzig—Mittheilungen des Vereins für Erdkunde zu Leipzig. (Leipzig, 8vo.) Ng. C.

Mt. Ver. Frankfurt—[Vide *Helios.*]

Mt. Ver. Krain—Mittheilungen des Musealvereines für Krain. Zweite Abtheilung: Naturkundlicher Theil. (Laibach, 8vo.) N.

Mt. Ver. Steiermark—Mittheilungen des naturwissenschaftlichen Vereines für Steiermark. (Gratz, 8vo.) N. R. L.

Mt. Ver. Vorpomm.—Mittheilungen aus dem naturwissenschaftlichen Verein für Neu-Vorpommern und Rügen in Greifswald. (Berlin, 8vo.) N. K. C.

§ *Munchen. Kol. Zeitschr.* Münchener Koleopterologische Zeitschr. Organ für allgemeine Systematik der Koleopteren und für die Koleopteren-Fauna der paläarktischen Region. (München, 8vo.) Z.

Museums J.—The Museums Journal, the organ of the Museums Association. (London, 8vo.) Z. N. O.

Nachrbl. Deutsch. malak. Ges.—Nachrichtsblatt der deutschen malakozoologischen Gesellschaft. (Frankfurt-a-M., 8vo.) Nz. Z. C.

Nachr. Ges. Göttingen—Nachrichten von der königl. Gesellschaft der Wissenschaften und der Georg Augusts Universität zu Göttingen. (Göttingen, 8vo.) N. R. Z. L. C, p. O.

N. Acta Ac. L.-C. Nat. cur.—[Vide *Acta Ac. German.*]

N. Acta Soc. Upsal.—[Vide *Acta Soc. Upsal.*]

N. Arch. Mus. Paris—[Vide *Arch. Mus. Paris.*]

Nat. Hist. Tr. Northumb.—Natural-history Transactions of Northumberland, Durham, and Newcastle-on-Tyne, being papers read at the meetings of the Natural History Society of Northumberland, Durham, and Newcastle-upon-Tyne, and the Tyneside Naturalists' Field Club. (London & Newcastle, 8vo.) N. K. R. Z. L. C, p. O.

Naturæ nov.—Naturæ novitates. [A bookseller's list.] (Berlin, Friedländer, 8vo.) K. Z. L. (*C*) p. O.

Natural. Canad.—Le Naturaliste Canadien. Bulletin de recherches, observations et découvertes se rapportant à l'histoire naturelle du Canada. (Chicoutimi, 8vo.) N. Z.

Naturaleza—La Naturaleza. Periódico científico de la Sociedad mexicana de Historia natural. Segunda serie. (Mexico, 4to.) N.

Naturalist—The Naturalist, a monthly journal of Natural History for the North of England. (London, 8vo.) N. R. Z. L. C.

Naturaliste—Le Naturaliste. (Paris, 8vo.) Nz. Z.

Natural. J.—The Naturalists' Journal. A monthly medium for Collectors and Students of Natural History. (London, 8vo.) N.

Natural. Sicil.—Il Naturalista Siciliano. Organo della Società dei Naturalisti Siciliani. (Palermo, 4to.) N. Z.

Nature—Nature: a weekly illustrated Journal of Science. (London, 12mo.) N. K. R. Z. L. C, b, p. O.

Nature (La)—La Nature. Revue des Sciences. (Paris, 8vo.) K. Z.

Naturen—Naturen. Illustreret månedskrift for populaer naturvidenskab. Udg. Bergens museum. (Kjøbenhavn, 8vo.) Z. L.

Nature Notes—Nature Notes. The Selborne Society's Magazine. (London, 8vo.) N. K. Z. L. C. O.

§ *Naturw. Wochenschr.*—Naturwissenschaftlichen Wochenschrift. (Jena, 4to.) K.

Natuurk. Tijdschr. Nederl. Ind.—Natuurkundig Tijdschrift voor Nederlandsch-Indie. (Batavia, 8vo.) N. K. R. Z. L. (*C*) p.

Natuurk. Verhand. Haarlem—Natuurkundige Verhandelingen van de Hollandsche Maatschappig der Wetenschappen te Haarlem. Derde Verzameling. (Haarlem, 4to.) N. R.

Nautilus—The Nautilus: a monthly journal devoted to the interests of Conchologists. (Philadelphia, 8vo.) Nz.

N. Denk. Schweiz. Ges.—[Vide *Denk. Schweiz. Ges.*]

Neptunia—Neptunia, an Italian Fishery Journal. (Venezia.)

Neujahrsbl. Naturf. Ges.—Neujahrsblatt herausgegeben von der Naturforschenden Gesellschaft. (Zürich, 8vo.) N. R. L. (*C*) p.

N. Jahrb. Min.—Neues Jahrbuch für Mineralogie, Geologie, und Palæontologie. (Stuttgart, 8vo.) Ng. K. R. O.

N. Mem. Soc. Helvet.—[Vide *Denk. Schweiz. Ges.*]

N. Mem. Soc. imp. Moscou—[Vide *Mem. Soc. Moscou.*]

Norges geol. Undersog.—Norges geologiske Undersögelse. (Kristiania, 8vo.) Ng.

Norske Fred. Univ. Progr.—[Vide *Progr. Norske Fred. Univ.*]

Norske Selsk. Skr.—Det Kongelige Norske Videnskabers Selskabs Skrifter. (Throndhjem, 8vo.) N. R.

North Amer. Fauna—U. S. Department of Agriculture. Division of Ornithology and Mammalogy. North American Fauna. (Washington, 8vo.) Nz. K. Z. L. R. (*C*) p. O.

Notes Leyden Mus.—Notes from the Leyden Museum. (Leyden, 8vo.) Nz. Z. L. C. O.

Notes Manchest. Mus.—Notes from the Manchester Museum. (Manchester, 8vo.) N.

Notizbl. Ver. geol. Landesanst. Darmstadt Notizblatt des Vereins für Erdkunde und der Grossh. geologischen Landesanstalt zu Darmstadt. (Darmstadt, 8vo.) N. K.

Nouvelles Archives des Missions scientifiques, &c.—[Vide *Arch. miss. Sci.*]

Nov. Zool.—Novitates Zoologicæ. A journal of Zoology. (Tring, 8vo.) Nz. Z. O.

Nyt Mag. Naturv.—Nyt Magazin for Naturvidenskaberne. (Christiania, 8vo.) N. K. R. Z. C.

Ofv. Ak. Forh.—Öfversigt af k. Vetenskaps-Akademiens. Förhandlingar. (Stockholm, 8vo.) N. R. Z. L. (*C*) p. O.

Ofv. Finska Forh.—Öfversigt af Finska Vetenskaps-Societetens Förhandlingar. (Helsingfors, 8vo.) N. R. Z. (*C*) p.

§ *Ohio Natural.*—The Ohio Naturalist. Published by the biological club of the Ohio State University. (Columbus, 8vo.) N.

Ornith. Centralbl.—Ornithologisches Centralblatt. Organ für Wissenschaft und Praxis. Beiblatt zum Journal für Ornithologie. (Leipzig, 4to.)

Ornith. Jahrb.—Ornithologisches Jahrbuch. Organ für das palæarktische Faunengebiet. (Hallein, 8vo.) N. Z.

Ornith. Monber.—Ornithologische Monatsberichte: herausgegeben von Dr A. Reichenow. (Berlin, 8vo.) Nz. Z. C.

Ornith. Monschr. Schutze—Ornithologische Monatschrifte des deutschen Vereins zum Schutze der Vogelwelt. (Wurzburg, 8vo.) Nz. Z.

Ornith. Ool.—The Ornithologist and Oologist. (Hyde Park, Mass., 8vo.) Z.

Ottawa Natural.—The Ottawa Naturalist. The Transactions of the Ottawa Field-Naturalists' Club. (Ottawa, 8vo.) N. L.

Ov. Danske Selsk.—Oversigt over det k. Danske Videnskabernes Selskabs Forhandlinger. (Copenhagen, 8vo.) N. K. R. Z. C, p. O.

P. Ac. Amsterdam—Proceedings of the Royal Academy of Sciences, Amsterdam. [Translation of Versl. Ak. Amsterdam, q. v.] N. K. R. L. C, p.

P. Ac. Philad.—Proceedings of the Academy of Natural Sciences of Philadelphia. (Philadelphia, 8vo.) N. R. Z. L. C, b, p. O.

P. Agric. Soc. India.—[Vide *J. Agric. Soc. India.*]

Pal. Abh.—Palæontologische Abhandlungen. (Jena, 4to.) Ng. K. O.

Palæontogr.—Palæontographica. Beitraege zur Naturgeschichte der Vorzeit. (Stuttgart, 4to.) Ng. R. C. O.

Palæontogr. ital.—Palæontographia italica. Memorie di Paleontologia pubblicate per cura del Prof. Mario Canavari. (Pisa, 4to.) Ng. C. O.

Pal. Bull.—Palæontological Bulletin. [Extracts from *P. Amer. Phil. Soc.*] (Philadelphia, 8vo.)

Pal. franc.—Paléontologie française ou description des fossiles de la France. (Paris, 8vo.) Ng. K. R.

Pal. Ind.—Palæontologia indica: [also with title Memoirs of the Geol. Survey of India, but a separate work from our *Mem. geol. Surv. Ind.*]. (Calcutta, 4to.) Ng. R. Z. L. (*C*) p, g. O.

Pal. Mon. Carte geol. Alger.—Carte géologique de l'Algérie. Paléontologie Monographies. (Alger, 4to.) Ng.

Pal. Soc. Mon.—Palæontographical Society Monographs. (London, 8vo.) Ng. K. R. Z. L. (*C*) p. O.

Pam. Ak. Krakow.—Pamiętnik Akademii Umiejetnosci w Krakowie, Wydzial matematyczno-przyrodniczy. (Krakowie, 4to.) N.

P. Amer. Ac.—Proceedings of the American Academy of Arts and Sciences. (Boston, 8vo.) N. K. R. Z. L. C, p. O.

P. Amer. Ass.—Proceedings of the American Association for the advancement of Science. (Salem, 8vo.) N. K. R. Z. L. C, p. O.

P. Amer. Phil. Soc.—Proceedings of the American Philosophical Society. (Philadelphia, 8vo.) N. K. R. Z. L. C, b, p. O.

Pam. Fizyjogr.—Pamietnik Fizyjograficzny. Dzial II. Gieologija z Chemija. Dzial III. Botanika i Zoologija. (Warszawa, 4to.) N.

Pap. Boston Soc.—Occasional papers of the Boston Society of Natural History. (Boston, 8vo.) N. K. R. (*C*) p. O.

§ *Pap. B. P. Bishop Mus.*—Occasional papers of the Bernice Pauahi Bishop Museum of Polynesian Ethnology and natural history. (Honolulu, 8vo.) C.

Pap. Calif. Ac.—Occasional papers of the California Academy of Sciences. (San Francisco, 8vo.) N. K. R. (*C*) p.

Pap. Minnesota Ac.—The Minnesota Academy of Natural Sciences at Minneapolis, Minn. Occasional papers. (Minneapolis, 8vo.) N.

Pap. Ohio Ac.—Ohio State Academy of Science. Special Papers. (Wooster, 8vo.) N.

Pap. Soc. Brit. Columb.—Papers and communications read before the Natural History Society of British Columbia. (Columbia, 8vo.) N.

Pap. Soc. Wisconsin—Occasional papers of the Natural History Society of Wisconsin. (Milwaukee, 8vo.) N. O.

P. Asiat. Soc. Bengal—Proceedings of the Asiatic Society of Bengal. (Calcutta, 8vo.) N. K. R. Z. L. C, p.

P. Ass. Meriden—[Vide *Tr. Ass. Meriden.*]

P. Bath Club—Proceedings of the Bath Natural History and Antiquarian Field Club. (Bath, 8vo.) N. L. C.

P. Birmingh. Soc.—Proceedings of the Birmingham Natural History and Philosophical Society. (Birmingham, 8vo.) N. R. Z. L. C, p. O.

P. Boston Soc.—Proceedings of the Boston Society of Natural History. (Boston, U.S., 8vo.) N. K. R. Z. L. C, b, p. O.

P. Bristol Soc.—Proceedings of the Bristol Naturalists' Society. (Bristol, 8vo.) N. Z. L.

P. Calif. Ac.—Proceedings of the California Academy of Sciences. Zoology. Third series. Zoology. (San Francisco, 8vo.) N. K. R. Z. L. (*C*) p.

P. Cambridge Soc.—Proceedings of the Philosophical Society, Cambridge. (Cambridge, 8vo.) N. K. R. Z. L. C, p. O.

P. Canad. Inst.—Proceedings of the Canadian Institute. New Series. (Toronto, 8vo.) N. R. L. (*C*) p.

P. Chester Soc.—Proceedings of the Chester Society of Natural Science and Literature. (Chester, 8vo.) N. L.

P. Colorado Soc.—Proceedings of the Colorado Scientific Society. (Denver, 8vo.) N.

P. Cotteswold Club—Proceedings of the Cotteswold Naturalists' Field Club. (Gloucester, 8vo.) N. R.

P. Croydon Club—Proceedings and Transactions of the Croydon Microscopical and Natural History Club. (Croydon, 8vo.) N.

P. Davenport Ac.—Proceedings of the Davenport Academy of Natural Sciences. (Davenport, 8vo.) Nz.

P. Dorset Club—Proceedings of the Dorset natural history and antiquarian Field Club. (Dorchester, 8vo.) N. Z. L.

P. Dublin Soc.—The Scientific Proceedings of the Royal Dublin Society. New series. (Dublin, 8vo.) N. K. R. Z. L. C, p. O.

P. Ealing Soc.—[Vide *Rep. Ealing Soc.*]

P. East Scotland Soc.—Proceedings of the East of Scotland Union of Naturalists' Societies. (Perth, 8vo.) N.

P. ent. Soc. London—The Proceedings of the entomological Society of London. [Published with *Tr. ent. Soc. Lond.*] (London, 8vo.) Nz. R. Z. L. C, p. O.

P. ent. Soc. Washington—Proceedings of the entomological Society of Washington. (Washington, 8vo.) Nz. Z.

Pflüger's Archiv—[Vide *Arch. ges. Physiol.*]

P. Folkestone Soc.—Proceedings of the Folkestone natural history Society. (Folkestone, 8vo.) N.

P. Geol. Ass.—Proceedings of the Geologists' Association. (London, 8vo.) Ng. K. R. Z. (*C*) p. O.

P. Geol. Soc. London [published with *Quart. J. Geol. Soc. London*, q. v.]

P. Hampsh. Club—Papers and Proceedings of the Hampshire Field Club. (Southampton, 8vo.) N. C.

Phil. Trans.—Philosophical Transactions of the Royal Society of London. Series B. (London, 4to.) N. K. R. Z. L. C, p, b. O.

P. Holmesdale Club—Proceedings of the Holmesdale natural history Club. (London, 8vo.) N.

P. Indiana Ac.—Proceedings of the Indiana Academy of Science. (Brookville, 8vo.) N. Z.

P. Inst. Trinidad—Proceedings of the Victoria Institute of Trinidad. (Port-of-Spain, 8vo.) N.

P. Iowa Ac.—Proceedings of the Iowa Academy of Sciences. (Des Moines, 8vo.) N.

P. Irish Ac.—Proceedings of the Royal Irish Academy. Third series. (Dublin, 8vo.) N. K. R. Z. L. C, p. O.

P. Linn. Soc. London—Proceedings of the Linnean Society of London. (London, 8vo.) Nz. K. R. Z. L. C, p. O.

P. Linn. Soc. N. S. Wales—Proceedings of the Linnean Society of New South Wales. Second series. (Sydney, 8vo.) N. R. Z. L. C, b, p. O.

P. Liverp. biol. Soc.—Proceedings and Transactions of the Liverpool biological Society. (Liverpool, 8vo.) N. K. R. Z. (*C*) b.

P. Liverp. Club—Proceedings of the Liverpool Naturalists' Field Club. (Liverpool, 8vo.) N.

P. Liverp. geol. Soc.—Proceedings of the Liverpool geological Society. (Liverpool, 8vo.) Ng. R. C.

P. Liverp. lit. Soc.—Proceedings of the literary and philosophical Society of Liverpool. (London & Liverpool, 8vo.) N. K. Z. L.

P. London Amateur Soc.—Proceedings of the London Amateur Scientific Society. Metropolitan Association and Society of Amateur Geologists. (London, 8vo.) N. K. C.

P. Malac. Soc. London—Proceedings of the Malacological Society of London. (London, 8vo.) N. K. Z. C.

P. Manchester Soc.—[Included in *Mem. Manchester Soc.*, q.v.]

P. Nat. Hist. Soc. Glasgow—[Vide *Tr. Soc. Glasgow.*]

P. New England Zool. Club—Proceedings of the New England Zoological Club. (Boston, Mass., 8vo.) Nz.

P. Newport Soc.—Proceedings of the Newport natural history Society. (Newport, 8vo.) N.

P. Nova Scotian Inst.—Proceedings and Transactions of the Nova-Scotian Institute of Science. Second series. (Halifax, 8vo.) N. R. Z. L. C, p.

P. N. Zealand Inst.—[Vide *Tr. N. Zealand Inst.*]

Potfuz. Termes. Kozl.—Pótfüzetek a Természettudományi Közlönyhöz . . . . Kiadja a K. M. Természettudományi Társulat. [Supplement to *Termes. Közl.*] (Budapest, 8vo.) N.

Pozson. Orvos—[Vide *Verh. Ver. Presburg.*]

P. Perthsh. Soc.—[Vide *Tr. Perthsh. Soc.*]

P. Phil. Soc. Glasgow—Proceedings of the Philosophical Society of Glasgow. (Glasgow, 8vo.) N. K. R. L. C, p.

P. Phys. Soc. Edinb.—Proceedings of the Royal Physical Society of Edinburgh. (Edinburgh, 8vo.) N. K. R. Z. L. C, p. O.

P. Portland Soc.—Proceedings of the Portland Society of Natural History. (Portland, 8vo.) N.

Preisschr. Ges. Leipzig—Preisschriften gekrönt und herausgegeben von der fürstlich Jablonowski'schen Gesellschaft zu Leipzig. (Leipzig, 8vo.) N. R. C.

P. R. Inst. Brit.—Notices of the Proceedings at the Meetings of the Members of the Royal Institution of Great Britain, with abstracts of the discourses delivered at the evening meetings. (London, 8vo.) N. K. R. Z. L. C, p. O.

P. Rochester Acad.—Proceedings of the Rochester Academy of Science. (Rochester, N.Y.) N. R. Z. (*C*) p.

Progr. Norske Fred. Univ.—Det Kgl. Norske Frederiks Universitet. Universitet's Program. (Christiania, 8vo.) (*C*) p.

Protok. Obshch. Varshav.—Trudui Varshavskagho Obshchestva, estestvoĭspuitateleĭ. Protokolui otdyeleniya biologhiĭ. [Called also] Travaux de la Société des naturalistes de Varsovie. Comptes-rendus de la Section biologique. (Varsovie, 8vo.) N. Z.

Protok. Kazan. Univ.—Protokolui zasyedaniĭ obshchestva estestvoĭspuitateleĭ prī īmperatorskom Kazanskom Unīversītetye. (Kazan, 8vo.) N.

Protok. St. Peterb. Obshch.—Protokolui zasyedaniĭ imperatorskagho S.-Peterburghskagho Obshchestva estestvoĭspuitateleĭ. [Called also] Comptes-rendus des Séances de la Société impériale des Naturalistes de St. Pétersbourg [and forms one section of *Trav. Soc. St. Petersb.* q.v.] (St. Petersburg, 8vo.) N.

P. R. Soc. London—Proceedings of the Royal Society of London. (London, 8vo.) N. K. R. Z. L. C, p. O.

P. R. Soc. Canada—[Vide *Tr. R. Soc. Canada.*]

P. R. Soc. Edinb.—Proceedings of the Royal Society of Edinburgh. (Edinburgh, 8vo.) N. K. R. Z. L. C, p. O.

Pr.-verb. malac. Belgique—Procès-verbaux des séances de la Société royale malacologique de Belgique. [Reappears later, with a different number to the volume, as *Bull. Soc. malac. Belgique*, q.v.] (Bruxelles, 8vo.) Nz. K. R. L.

Pr.-verb. Soc. Belge Geol.—[Vide *Bull. Soc. Belge Geol.*]

Pr.-verb. Soc. Bordeaux—Procès-verbaux de la Société Linnéenne de Bordeaux. [Called also Extraits des comptes rendus des Séances de la Soc. Linn. Bordeaux.] (Bordeaux, 8vo.) N. Z. C.

Pr.-verb. Soc. Toscana—Atti della Società Toscana di Scienze Naturali residente in Pisa. Processi verbali. [Vide *Atti Soc. Tosc.*] (Pisa, 8vo.) N.

P. Scott. Micr. Soc.—Proceedings of the Scottish Microscopical Society. (Edinburgh, 8vo.) (*C*) p.

P. Soc. Montreal—[Vide *Canad. Rec.*]

P. Soc. Queensland—Proceedings of the Royal Society of Queensland. (Brisbane, 8vo.) N. R. (*C*) p.

P. Soc. Tasmania—Papers and Proceedings of the Royal Society of Tasmania. (Hobart, 8vo.) N. K. R. Z. L.

P. Soc. Victoria—Proceedings of the Royal Society of Victoria. New series. (Melbourne, 8vo.) N. K. R. L. C, b, p. O.

P. Soc. Washington—Proceedings of the Biological Society of Washington. (Washington, 8vo.) N. Z. O.

P. Somersetsh. Soc.—Somersetshire archæological and natural history Society. Proceedings. New series. (Taunton, 8vo.) N. C.

P. South London Soc.—Proceedings of the South London entomological and Natural history Society. (London, 8vo.) N. L. C.

§ *P. Suffolk Inst.*—Proceedings of the Suffolk Institute of Archaeology and Natural History. (Ipswich, 8vo.) N.

Psyche—Psyche, a Journal of Entomology. Published by the Cambridge Entomological Club. (Cambridge, U.S., 4to.) Nz. Z.

Publ. Carnegie Mus.—Publications of the Carnegie Museum. [Consists of Annals and Memoirs, qq. v.]

Publ. Inst. Luxembourg—Publications de l'Institut grand-ducal de Luxembourg. Section des Sciences Naturelles et Mathématiques. (Luxembourg, 8vo.) N. R.

Publ. Iowa Geol. Surv.—Publications of the Iowa Geological Survey. (Des Moines, 4to.) C.

P. Univ. Durham Soc.—Proceedings of the University of Durham Philosophical Society. (Newcastle-upon-Tyne, 8vo.) C, p.

P. U. S. Mus.—Proceedings of the United States National Museum (Washington, 8vo.) Nz. K. R. L. Z. C, b, p. O.

P. Warwicksh. Club—Proceedings of the Warwickshire Naturalists' and Archæologists' Field Club. (Warwick, 8vo.) N. R. L.

P. Washington Ac.—Proceedings of the Washington Academy of Sciences. (Washington, 8vo.) N. R. Z. L.

P. Yorksh. geol. Soc.—Proceedings of the Yorkshire geological and polytechnic Society. (Halifax, 8vo.) Ng. (*C*) p. O.

P. Zool. Soc. London [or *P. Z. S.*]—Proceedings of the Scientific Meetings of the Zoological Society of London. (London, 8vo.) Nz. K. R. Z. L. C, p. O.

Quart. J. Geol. Soc.—The Quarterly Journal of the Geological Society. (London, 8vo.) Ng. K. R. L. C, p. O.

Quart. J. Micr. Sci.—The Quarterly Journal of Microscopical Science. (London, 8vo.) N. K. R. Z. L. C, b, p. O.

Queensland Agric. J.—Queensland Agricultural Journal. (Brisbane, 8vo.) Nz.

Rabot. Lab. Warsaw—Rabotui iz Laboratoriī zoologīcheskagho Kabīneta imperatorskagho Varshavskagho Universīteta. (Varshava, 8vo.)

Rad Jugoslav. Ak.—Rad Jugoslavenske akademije znanosti i umjetnosti. [Transactions of the South Slav Academy of Art and Science.] (Zagreb, 8vo.) N.

Rass. geol. Italia—Rassegna delle Scienze geologiche in Italia. (Roma, 8vo.) Ng. R.

Rec. Austral. Mus.—Records of the Australian Museum. (Sydney, 8vo.) N. K. R. Z. L. C.

Rec. Egypt. School Med.—Ministry of public instruction. Records of the Egyptian Government School of Medicine. (Cairo, 4to.) (*C*) p.

Rec. Geol. Survey N. S. Wales—Records of the Geological Survey of New South Wales. (Sydney, 8vo.) Ng. R. L. C.

§ *Redia*—"Redia" Giornale di Entomologia. (Portici, 8vo.) Nz. Z. C, b. O.

Rend. Acc. Bologna—Rendiconto delle seesioni della R. Academia delle scienze dell' istituto de Bologna. Nuova serie. (Bologna, 8vo.) N. R. C.

Rend. Acc. Lincei—Atti della Reale Accademia dei Lincei. Rendiconti. (Roma, 4to.) N. K. R. Z. L. C, p. O.

Rend. Acc. Napoli—Rendiconto dell' Accademia delle Scienze fisiche e matematiche. (Sezione della Società reale di Napoli.) Serie 3ª. (Napoli, 4to.) N. R. L. C, p. O.

Rend. Ist. Lombardo—Reale istituto Lombardo delle Scienze e Lettere. Rendiconti. (Milano, 8vo.) N. R. C, p.

§ *Rep. Agric. exp. Stat. California*—University of California publications. Report of work of the Agricultural experiment station of the University of California. (Sacramento, 8vo.) (*C*) p.

Rep. Amer. Mus.—The American Museum of Natural History. Annual Report. (New York, 8vo.) N. K. Z. (*C*) p.

Rep. Australas. Ass.—Report of the Australasian Association for the Advancement of Science. (Sydney, 8vo.) N. K. R. L. C, p. O.

Rep. Barrow Club—Barrow Naturalists' Field Club and Literary and Scientific Association. Annual Report and Proceedings. (Barrow-in-Furness, 8vo.) N.

Rep. Belfast Club—Annual Report and Proceedings of the Belfast Naturalists' Field Club. (Belfast, 8vo.) N. L.

Rep. Belfast Soc.—Report and Proceedings of the Belfast natural history and philosophical Society. (Belfast, 8vo.) N. Z. L. (*C*) p.

Rep. Brighton Soc.—Brighton and Sussex Natural History and Philosophical Society. Abstract of papers read before the Society, together with the Annual Report. (Brighton, 8vo.) N. R.

Rep. Brit. Ass.—Report of the British Association for the Advancement of Science. (London, 8vo.) N. K. R. Z. L. C, p. O.

Rep. Canad. Inst.—Annual Report of the Canadian Institute, being an appendix to the report of the Minister of Education, Ontario. (Toronto, 8vo.) N. R. L. (*C*) p.

Rep. Cardiff Soc.—Cardiff Naturalists' Society. Report and Transactions. (Cardiff, 8vo.) N. R. C.

Rep. Cheltenham Coll. Soc.—Cheltenham College Natural History Society. Report. (Cheltenham, 8vo.) N.

Rep. Chester Soc.—Chester Society of Natural Science and Literature. Annual Report. (Chester, 8vo.) N. L.

Rep. Cornell Stat.—Report of the Cornell University Experiment Station.

Rep. Cornwall Soc.—Royal Cornwall Polytechnic Society. Annual Report. (Falmouth, 8vo.) N. K. R. L. C.

Rep. Dep. Agric. Brisbane—Annual Report of the department of Agriculture. [Consists chiefly of *Bull. Dep. Agric. Brisbane*, q.v.] (Brisbane, 8vo.) N. O.

Rep. Devon. Ass.—Report and Transactions of the Devonshire Association for the advancement of Science. (Plymouth, 8vo.) N. K. R. L. C. O.

Rep. Ealing Soc.—Report and Proceedings of the Ealing Natural Science and Microscopical Society. (Ealing, 8vo.) N. L.

Rep. ent. Soc. Ontario—Annual Report of the entomological Society of Ontario. (Toronto, 8vo.) Nz. Z. L. C. O.

Rep. Epsom Soc.—Epsom College Natural History Society. Report. (London, 8vo.) N.

Rep. Felsted Soc.—Report of the Felsted School scientific Society. (Chelmsford, 8vo.) N. L.

Rep. Fish. Board Scotland—Annual Report of the Fishery Board for Scotland. (Edinburgh, 8vo.) Nz. K. Z. C, b.

Rep. geol. Comm. C. G. H.—Cape of Good Hope. Department of Agriculture. Annual Report of the Geological Commission. (Cape Town, 8vo.) Ng. K.

Rep. geol. N. Zealand—Colonial Museum and Geological Survey of New Zealand. Reports of Geological Explorations. (Wellington, 8vo.) Ng. R. Z.

Rep. geol. Surv. Canada—Geological Survey of Canada. Annual Report. (Ottawa, 8vo.) Ng. K. R. Z. L. C, p.

Rep. geol. Surv. India—General Report of the work carried on by the geological Survey of India. (Calcutta, 8vo.) Ng. R. Z. L. C, p. O.

Rep. geol. Surv. Iowa—Iowa Geological Survey. Annual Report. (Des Moines, 8vo.) Ng. K. (*C*) p.

Rep. geol. Surv. Michigan—[Vide *Geol. Surv. Michigan.*]

Rep. geol. Surv. Natal—Natal Surveyor-General's Department. First report of the geological Survey of Natal and Zululand. (Pietermaritzburg, 8vo.) Ng.

Rep. geol. Surv. New Jersey—Geological Survey of New Jersey. Annual Report of the State geologist. (Trenton, 8vo.) Ng. K.

Rep. geol. Surv. Texas—Annual Report of the Geological Survey of Texas. (Austin, 8vo.) Ng.

Rep. Guernsey Soc.—Guernsey Society of Natural Science and Local Research. Report and Transactions. (Guernsey, 8vo.) N.

Rep. Indiana Geol.—Indiana, Department of Geology and Natural Resources. Annual Report. (Indianopolis, 8vo.) Ng.

Rep. Ins. Illinois—Report of the State Entomologist on the Noxious and Beneficial Insects of the State of Illinois. (Springfield, 8vo.) Nz.

Rep. Iowa Ac.—[Vide *P. Iowa Ac.*]

Rep. Liverp. Ass.—Liverpool Science Students' Association. Annual Report and Proceedings. (Liverpool, 8vo.) N.

Rep. Marlbor. Soc.—Report of the Marlborough College natural history Society. (Marlborough, 8vo.) N. L.

Rep. Mus. Harvard—Annual report of the Curator of the Museum of Comparative Zoölogy at Harvard College to the President and Fellows of Harvard College. (Cambridge, Mass., 8vo.) Nz. R. Z. L. (*C*) p. O.

Rep. Mus. Milwaukee—Annual Report of the Board of Trustees of the Public Museum of the City of Milwaukee. (Milwaukee, 8vo.) N. K. O.

Rep. North Staffordsh. Club—North Staffordshire Naturalists' Field Club and Archæological Society. Annual Report and Transactions. (Newcastle-under-Lyme, 8vo.) N.

Rep. N. York Mus.—University of the State of New York. New York State Museum. Annual Report of the Regents. (Albany, 8vo.) Ng. K. R. L.

§ *Rep. New York Zool. Soc.*—Annual Report of the New York Zoological Society chartered in 1895. (New York, 8vo.) Nz. Z.

Rep. Ohio Ac.—Annual report of the Ohio State Academy of Science. (Columbus, 8vo.) N.

Rep. Penzance Soc.—Penzance natural history and antiquarian Society. Report and Transactions. (Plymouth, 8vo.) N. L.

Rep. Plymouth Inst.—Annual Reports and Transactions of the Plymouth Institution and Devon and Cornwall natural history Society. (Plymouth, 8vo.) N. R. Z. L.

Rep. Reading Soc.—Reading literary and scientific Society Report and Proceedings. (Reading, 8vo.) N.

Rep. Rugby Soc.—Report of the Rugby School natural history Society. (Rugby, 8vo.) N. K. L. (*C*) p.

Rep. Secr. Agric.—Report of the Secretary of Agriculture. (Washington, 8vo.)

Rep. S. E. Union Socc.—Report and Transactions of the South Eastern Union of Scientific Societies. (London, 8vo.) N. C.

Rep. S. London Club—Annual Report of the South London Microscopical and Natural History Club. (? place of publication, 8vo.) N.

Rep. Smithson. Inst.—Annual Report of the Board of Regents of the Smithsonian Institution. (Washington, 8vo.) [Videque *Rep. U. S. Mus.*] N. K. R. Z. L. C, b, p. O.

Rep. Southport Soc.—The...Report of the Southport Society of Natural Science. (Southport, 8vo.) N.

§ *Rep. State Rev. Niagara*—Annual report of the Commissioners of the State reservation at Niagara. (Albany, 8vo.) N.

Rep. Surv. Minnesota—The Geological and Natural History Survey of Minnesota. Annual Report. (Minneapolis, 4to.) Ng. Z. C. O.

Rep. U. S. Dep. Agric. Animal Ind.—U. S. Department of Agriculture. Annual Report of the Bureau of Animal industry. (Washington, 8vo.) Nz.

Rep. U. S. Fish. Comm.—United States Commission of Fish and Fisheries. Report of the Commissioner. (Washington, 8vo.) Nz. K. R. Z. (*C*) b. O.

Rep. U. S. Geol. Surv.—Annual Report of the United States Geological Survey to the Secretary of the Interior. (Washington, 8vo.) Ng. K. R. Z. L. C, p. O.

Rep. U. S. Mus.—Annual Report of the Board of Regents of the Smithsonian Institution. Report of the U. S. National Museum. (Washington, 8vo.) N. K. R. Z. L. C, p. O.

Rep. Wellington Soc.—Annual Report of the Wellington College Natural Science Society. (Wellington, 8vo.) N. K.

Rep. Wincanton Cl.—Annual Report, Wincanton Field Club. (Wincanton, 8vo.) N.

Rep. Yorksh. Soc.—Annual Report of the Council of the Yorkshire Philosophical Society. (York, 8vo.) N. K. R. C.

Rep. Yorksh. Union—[Included in *Tr. Yorksh. Union.*]

Rev. biol. Nord. France—Revue biologique du Nord de la France. (Lille, 8vo.) N. K. Z. L. (*C*) b. O.

Rev. Ent. franc.—Revue d'Entomologie publiée par la Société française d'Entomologie. (Caen, 8vo.) Nz. Z.

Rev. gen. Sci.—Revue générale des Sciences pures et appliquées. (Paris, 8vo.) R. K. (*C*) p.

Revist. Argent.—Revista Argentina de Historia Natural. (Buenos Aires, 8vo.) N. R. Z.

Revist. chilena—Revista Chileña de Historia natural. Órgano del Museo de Valparaiso. [Boletin del Museo de Valparaiso is issued with this, but with a separate pagination.] (Valparaiso, 8vo.) N. Z.

§ *Revist. Col. ital.*—Revista Coleotterologica italiana.

Revist. Jard. Buenos Ayres—Revista del Jardin Zoológico de Buenos Ayres. (Buenos Ayres, 8vo.) N.

Revist. Mus. La Plata—Revista del Museo de La Plata. (La Plata, 8vo.) N. R. O.

Revist. Mus. Paulista—Revista do Musai Paulista publicada por H. von Ihering. (S. Paulo, 8vo.) N. Z.

Revist. Mus. Rio Jan.—Revista do Museu nacional do Rio de Janeiro. [Formerly Arch. Mus. Rio Jan.] (Rio de Janeiro, 4to.) N. R. L. (*C*) p. O.

Revist. Soc. Ribeiro—Revista de Sciencias naturaes e sociaes, orgaõ dos Trabalhos da Sociedade Carlos Ribeiro. (Porto, 8vo.) L.

Revist. Univ. Venezuela—Revista cientifica de la Universidad Central de Venezuela. (Caracas, 4to.) N. L.

Rev. Mus. Pays-bas—Muséum d'histoire naturelle des Pays-bas. Revue méthodique et critique des collections déposées dans cet établissement. (Leide, 8vo.) Nz. Z. O.

Rev. paleozool.—Revue critique de Paléozoologie. (Paris, 8vo.) Ng.

Rev. Quest. Sci.—Revue des Questions scientifiques. Publiée par la Société scientifique de Bruxelles. (Bruxelles, 8vo.) N.

Rev. Russe Ent.—Revue Russe d'Entomologie [called also] Russkoe entomologicheskoe Obozryenie. (Jaroslawl, 8vo.) Nz. Z.

Rev. Sci. Bourbonnais—Revue scientifique du Bourbonnais et du centre de la France. (Moulins, 8vo.) N.

Rev. Scient.—Revue Scientifique. [Revue rose.] (Paris, 4to.) K. R. C. O.

Rev. Sci. nat. appl.—Revue des sciences naturelles appliquées. Bulletin bimensuel de la Société nationale d'acclimatation de France. (Paris, 8vo.) Z.

Rev. Sci. Nat. Ouest—Revue des Sciences Naturelles de l'Ouest. (Paris, 8vo.) N.

Rev. Sci. St. Petersb.—Revue des Sciences naturelles. Publiée par la Société des Naturalistes à St. Pétersbourg. [Vide *Vyest. est. St. Peterb.*]

Rev. Suisse Zool.—Revue Suisse de Zoologie et Annales du Musée d'Histoire Naturelle de Genève, &c. (Genève, 8vo.) Nz. Z. L. C, b. O.

Ric. Labor. anat. Roma—Ricerche fatte nel laboratorio di anatomia normale della R. Università di Roma. (Roma, 4to.)

§ *Riv. Biol. gen.*—Rivista de Biologia generale. (Torino, 8vo.) N.

Riv. ital. Pal.—Rivista italiana di Paleontologia. (Bologna, 8vo.) Ng.

Riv. ital. Sci. Nat.—Rivista italiana di Scienze naturali e bollettino de naturalista, collettore, allevatore, coltivatore. (Siena, 8vo.) N.

Riv. Patol. Veg.—Rivista di Patologia vegetale. (Firenze, 8vo.) Nb. L. C.

Riv. Sci. biol.—Rivista di Scienze biologiche. (Como, 8vo.) N.

Rochester Natural.—The Rochester Naturalist: a quarterly Record of the Rochester Naturalists' Club. (Rochester, 8vo.) N.

Rov. Lapok—Rovartani Lapok. (Budapest, 8vo.) Nz.

Rospr. Ak. Krakow—Rozprawy i Sprawozdania z posiedzeń wydzialu matematyczno-przyrodniczego Akademii Umiejętnósci. (Kraków, 8vo.) N.

Rozp. Ceske Ak. Praze—Rozpravy České Akademie Císaře Františka Joséfa provědy slovesnost a umění. Třída II. (Praze, 8vo.) N. C, p.

Rozpr. Ceske Nauk.—[=*Abh. Bohm. Ges.*, q.v.]

Russkaya gheologhicheskaya biblioteka—[Vide *Bibl. geol. Russ.*]

Russkoe ent. Obozr.—[Vide *Rev. Russe Ent.*]

Samm. geol. Mus. Leiden—Sammlungen des geologischen Reichs-Museums in Leiden. Neue Folge. (Leiden, fol.) O.

SB. Ak. Berlin—Sitzungsberichte der königlich-preussischen Akademie der Wissenschaften zu Berlin. [Vide *Mt. Ak. Berlin.*] (Berlin, 8vo.) N. K. R. Z. L. C, p. O.

SB. Ak. München—Sitzungsberichte der mathematisch-physikalischen Classe der k. b. Akademie der Wissenschaften zu München. (München, 8vo.) N. K. R. Z. L. (*C*) p.

SB. Ak. Wien—Sitzungsberichte der mathematisch-naturwissenschaftlichen Classe der kaiserlichen Akademie der Wissenschaften. Abtheilungen I und III. (Wien, 8vo.) N. K. R. Z. L. (Abt. I.) C, g, y. O.

SB. Bohmisch. Ges.—Sitzungsberichte der k. Böhmischen Gesellschaft der Wissenschaften. [Called also] Vestník Královské České Společnosti Nauk. (Prag, 8vo.) N. K. R. L. C, p.

SB. Ges. Dorpat—Sitzungsberichte der Naturforscher-Gesellschaft bei der Universität Dorpat. (Dorpat, 8vo.) N. Z.

SB. Ges. Isis—Sitzungsberichte und Abhandlungen der naturwissenschaftlichen Gesellschaft "Isis." (Dresden, 8vo.) N. K. Z. C.

SB. Ges. Konigsb.—Sitzungsberichte [part of *Schr. Ges. Konigsb.*, q.v.]. (Königsberg, 4to.)

SB. Ges. Leipzig—Sitzungsberichte der naturforschenden Gesellschaft zu Leipzig. (Leipzig, 8vo.) N. K. Z. C.

SB. Ges. Marburg—Sitzungsberichte der Gesellschaft zur Beförderung der gesammten Naturwissenschaften zu Marburg. (Marburg, 8vo.) N.

SB. Ges. München—Sitzungsberichte der Gesellschaft für Morphologie und Physiologie in München. (München, 8vo.) N. L. C.

SB. Ges. naturf. Berlin—Sitzungsberichte der Gesellschaft naturforschender Freunde zu Berlin. (Berlin, 8vo.) N. Z. (*C*) p. O.

SB. Ges. Wien—[Vide *Verh. Ges. Wien.*]

SB. Ges. Wurzburg—Sitzungsberichte der physikalisch-medicinischen Gesellschaft zu Würzburg. (Würzburg, 8vo.) N. K. R. Z. L. C, p. O.

SB. niederrhein. Ges.—Sitzungsberichte der niederrheinischen Gesellschaft für Natur- und Heilkunde. (Bonn, 8vo.) N. Z. L. C. O.

SB. Soc. Erlangen—Sitzungsberichte der physikalisch-medicinischen Societät zu Erlangen. (München, 8vo.) N. R. (*C*) p.

SB. Ver. Karlsruhe—[Vide *Verh. Ver. Karlsruhe.*]

Schr. Ges. Danzig—Schriften der naturforschenden Gesellschaft in Danzig. Neue Folge. (Danzig, 8vo.) N. K. R. Z. C, p. O.

Schr. Ges. Konigsb.—Schriften der physikalisch-ökonomischen Gesellschaft zu Königsberg in Preussen. [Consists of Abhandlungen and Sitzungsberichte.] (Königsberg, 4to.) N. K. R. L. C, p.

Schr. Ges. Marburg—Schriften der Gesellschaft zur Beförderung der gesammten Naturwissenschaften zu Marburg. (Marburg, 8vo.) N. K. R. O.

Schr. Ver. Harzes—Schriften des naturwissenschaftlichen Vereins des Harzes in Wernigerode. (Wernigerode, 8vo.) N.

Schr. Ver. Schleswig-Holst.—Schriften des naturwissenschaftlichen Vereins für Schleswig-Holstein. (Kiel, 8vo.) N. R. C.

Science—Science: a weekly journal. New series. (New York, 4to.) N. K. Z. L. C, b. O.

Sci. Gossip—Science-Gossip, an illustrated monthly record of Nature and country-lore. New series. (London, folio.) N. K. Z. L.

§ *Sci. Mem. India*—Scientific Memoirs by Officers of the Medical and Sanitary departments of the government of India. (Calcutta, 4to.) Nz. R. L.

Sci. P. R. Dublin Soc.—[Vide *P. Dublin Soc.*]

S.-East. Natural.—The South-eastern Naturalist. (Canterbury, 8vo.) N.

Skrift. Vid. Christiania—Skrifter udgivne af Videnskabsselskabet i Christiania. (Kristiania, 8vo.) N. R. (*C*) p.

Smithson. Collect.—Smithsonian Miscellaneous Collections. (Washington, 8vo.) N. K. R. Z. L. C, b, p.

Smithson. Contr.—Smithsonian Contributions to Knowledge. (Washington, 4to.) N. K. R. Z. L. C, p.

Smithson. Rep.—[Vide *Rep. Smithson. Inst.*]

Soc. ent.—Societas entomologica. Organ für den internationalen Entomologen-Verein. (Zurich, 4to.) Nz. Z.

Soc. Pyrenees-or.—Société agricole, scientifique et littéraire, des Pyrénées-orientales. (Perpignan, 8vo.) N.

Special Bull. U. S. Mus.—Smithsonian Institution. United States National Museum. Special Bulletin. (Washington, 4to.) N. K. L. (*C*) p. O.

§ *Spolia Zeylan.*—Spolia Zeylanica. Issued by the Colombo Museum Ceylon. (Colombo, 8vo.) N. Nz. R. Z.

Spom. Srpska Ak.—Srpska Kral'evska Akademiie. Spomenīk. (Beoghrad = Belgrade, 4to.) N. R.

Sprawozd. Kom. Krajo.—Akademija umiejetnosci w Krakowie. Sprawozdanie Komisyi fizyjograficznéj, oraz materyjaly fizyjografiii Krajowej. (Kraków, 8vo.) N. Z.

Stavanger Mus. Aarsb.—Stavanger Museum. Aarsberetning. (Stavanger, 8vo.) N. K. R. L.

Stettin Ent. Zeit.—[Vide *Ent. Zeit. Stettin.*]

Stud. Colorado Coll.—Colorado College Studies. Papers read before the Colorado College Scientific Society. (Colorado Springs, 8vo.) N. (*C*) p.

Stud. Johns Hopkins Univ.—Johns Hopkins University, Baltimore. Studies from the Biological Laboratory. (Baltimore, 8vo.) Nz. K. R C, b, p, y. O.

Stud. Lab. Dublin Soc.—Studies of the Marine Laboratory of the Royal Dublin Society. [Reprints from Tr. Dublin Soc.] (Dublin, 4to.) Nz. Z. L.

Stud. Lab. Nebraska—Studies from the Zoological Laboratory. The University of Nebraska. (Lincoln, Nebraska, 8vo.)

Stud. Owens Coll.—Studies in Biology from the Biological Department of the Owens College. (Manchester, 8vo.) N. Z. (*C*) p. O.

Stud. Univ. Nebraska—University Studies, published by the University of Nebraska. (Lincoln, Nebraska, 8vo.) R. C.

Stud. Univ. Toronto—University of Toronto Studies. Biological Series. (Toronto, 8vo.) R. (*C*) p.

Svenska Ak. Handl.—Kongliga Svenska Vetenskaps-Akademiens Handlingar. Ny Följd. (Stockholm, 4to.) N. K. R. Z. L. C, p.

Sveriges geol. Unders. Afh.—Sveriges geologiska Undersökning. Afhandlingar och uppsatser. (Stockholm, 4to.) Ng. R.

Tabl. zool.—Tablettes zoologiques publiées sous la direction de Aimé Schneider. (Poitiers, 8vo.) Nz. Z. (*C*) b. O.

Tagbl. Ges. Deutsch. Naturf.—Tagblatt der Versammlung der Gesellschaft deutscher Naturforscher und Aerzte. (Halle, &c., 4to.) N. C. O.

Termes. Fuzetek—Természetrajzi Füzetek, kiadja a Magyar nemzeti Múzeum. (Budapest, 8vo.) N. Z. C.

Termes. Kozl. Magyar Tars.—Természettudományi Közlöny . . . . kiadja a K. Magyar Termeszettudományi Társulat. [Natural Science Journal . . . Published by the R. Magyar Natural Science Society.] (Budapest, 8vo.) N.

Thompson Yates Lab. Rep.—The Thompson Yates Laboratories Report. (Liverpool, 4to.) R. C, p. O.

Tijdschr. Ent.—Tijdschrift voor Entomologie, uitgeven door de Nederlandsch entomologische Vereeniging. ('s Gravenhage, 8vo.) Nz. Z. L. C.

Tijdschr. Indische Volkenk.—Tijdschrift voor Indische Taal-, Land- en Volkenkunde. (Batavia and The Hague, 8vo.) N. R. C, p.

Tijdschr. Nederland. Dierk. Ver.—Tijdschrift der Nederlandsche Dierkundige Vereeniging. (Leiden, 8vo.) Nz. L. (*C*) p. O.

Timehri. [Vide *J. agric. Soc. Guiana.*] Journal of the Royal Agricultural and Commercial Society of British Guiana. (Demerara, 8vo.) N. R. L.

Tr. Ac. St. Louis—The Transactions of the Academy of Science of St. Louis. (St. Louis, 8vo.) N. K. R. Z.

Tr. Albany Inst.—Transactions of the Albany Institute. (Albany, U.S., 8vo.) N. R.

Tr. Amer. ent. Soc.—Transactions of the American entomological Society. (Philadelphia, 8vo.) Nz. Z. L. C.

Tr. Amer. micr. Soc.—Transactions of the American microscopical Society. (Buffalo, 8vo.) N.

Tr. Amer. phil. Soc.—Transactions of the American philosophical Society. (Philadelphia, 8vo.) N. R. Z. L. C, p. O.

Tr. Asiatic Soc. Japan—Transactions of the Asiatic Society of Japan. (Yokohama, 8vo.) N. R. Z. C. O.

Tr. Ass. Meriden—Proceedings and Transactions of the Scientific Association, Meriden, Conn. (Meriden, 8vo.) R.

Trav. geol. St. Petersb.—Travaux de la section géologique du cabinet de sa Majesté. (Ministère de la maison de l'Empereur) [called also Trudui geologhicheskoi chastī Kabineta imperatorskagho velichestva]. (St. Petersburg, 8vo.) Ng. R.

Trav. Inst. Lille—Travaux et Mémoires des facultés de Lille. (Lille, 8vo.) R. L. (*C*) p.

§ *Trav. Inst. Montpellier*—Travaux de l'Institut de Zoologie de l'Université de Montpellier. Deuxième série. (Montpellier, 8vo.) Z.

§ *Trav. Inst. Solvay*—Travaux de laboratoire. Publiés par P. Heger. (Bruxelles, 8vo.) R.

§ *Trav. Lab. Arcachon*—Université de Bordeaux. Société scientique et station zoologique d'Arcachon. Travaux des Laboratoires. (Paris, 8vo.) N. Z.

Trav. Lab. geol. Grenoble—Travaux du laboratoire de géologie de la faculté des sciences de l'Université de Grenoble. (Grenoble, 8vo.) Ng.

Trav. Lab. histol. France—École pratique des Hautes Études. Laboratoire d'histologie du Collège de France. Travaux de l'année. (Paris, 8vo.) N. R. Z. C. O.

Trav. Lab. Soie—Travaux du laboratoire d'études de la Soie. (Lyon, 8vo.)

Trav. Soc. St. Petersb.—[Includes two Zoological sections, viz., *Trudui St. Peterb. Obshch.*, and *Protok. St. Peterb. Obshch.*, qq.v.]

Trav. Soc. Univ. Kharkov.—[Vide *Trudui Kharkov. Univ.*]

Trav. Soc. Varsovie—Travaux de la Société des Naturalistes de Varsovie. Comptes-rendus de la section biologique. [Vide *Protok. Obshch. Varshav.* and *Trudui Obshch. Varshav.*]

Trav. Stat. Zool. Wimereux—Travaux de la Station zoologique de Wimereux. (Paris, 4to.) Nz. K. O.

§ *Trav. Univ. Rennes*—Travaux scientifiques de l'Université de Rennes. (Rennes, 8vo.) N. R. Z.

Tr. Burton Soc.—Transactions of the Burton-on-Trent Natural History and Archæological Society. (London, 8vo.) N.

Tr. Canad. Inst.—Transactions of the Canadian Institute. (Toronto, 8vo.) N. R. L. (*C*) p.

Tr. City London Soc.—Transactions of the City of London entomological and natural history Society. (London, 8vo.) N.

Tr. Connect. Ac.—Transactions of the Connecticut Academy of Arts and Sciences. (New Haven, 8vo.) N. K. R. Z. L. (*C*) p. O.

Tr. Croydon Club—[Vide *P. Croydon Club.*]

Tr. Cumberland Ass.—Transactions of the Cumberland Association for the Advancement of Literature and Science. (Carlisle, 8vo.) N. L. C.

Tr. Dublin Soc.—The Scientific Transactions of the Royal Dublin Society. (Dublin, 4to.) N. K. R. Z. L. (*C*) p. O.

Tr. Dumfries Soc.—The Transactions and Journal of Proceedings of the Dumfriesshire and Galloway natural history and antiquarian Society. (Dumfries, 8vo.) N. L.

Tr. Eastbourne Soc.—Transactions of the Eastbourne natural history Society. (Eastbourne, 8vo.) N. K. R.

Tr. Edinb. Field Soc.—Transactions of the Edinburgh Field Naturalists' and Microscopical Society. (Edinburgh, 8vo.) N.

Tr. Edinb. geol. Soc.—Transactions of the Edinburgh geological Society. (Edinburgh, 8vo.) Ng. R. C.

Tr. E. Kent Soc.—Transactions of the East Kent natural history Society. New series. (Canterbury, 8vo.) N. O.

Trencsen term. Evkon.—[Vide *Jahresh. Ver. Trencsen.*]

Tr. ent. Soc. London—The Transactions of the entomological Society of London. [Includes *Proceedings.*] (London, 8vo.) Nz. R. Z. L. C, p. O.

Tr. geol. Soc. Austral.—Transactions of the geological Society of Australasia. (Melbourne, 4to.) Ng. R.

Tr. geol. Soc. Cornwall—Transactions of the Royal geological Society of Cornwall. (Penzance, 8vo.) Ng. R. C. O.

Tr. geol. Soc. Glasgow—Transactions of the geological Society of Glasgow. (Glasgow, 8vo.) Ng. C, p.

Tr. geol. Soc. S. Africa—Transactions of the geological Society of South Africa. (Johannesburg, 8vo.) Ng.

Tr. Guernsey Soc.—[Vide *Rep. Guernsey Soc.*]

Tr. Hertfordsh. Soc.—Transactions of the Hertfordshire natural history Society and Field Club. (London, 8vo.) N. R. Z. L. C.

Tr. Hull Club—Transactions of the Hull Scientific and Field Naturalists' Club. (Hull, 8vo.) N.

Tr. Hull. geol. Soc.—Transactions of the Hull geological Society. (Hull, 8vo.) Ng.

Tr. Inverness Soc.—Transactions of the Inverness Scientific Society and Field Club. (Inverness, 8vo.) N.

Tr. Irish Ac.—The Transactions of the Royal Irish Academy. (Dublin, 4to.) N. K. R. Z. L. C, p. O.

Tr. Kansas Ac.—Transactions of the Kansas Academy of Science. (Topeka, 8vo.) N. R. L. (*C*) p.

Tr. Leeds Club—Transactions of the Leeds Naturalists' Club. (Leeds, 8vo.) N.

Tr. Leeds Geol. Ass.—Transactions of the Leeds Geological Association. (Leeds, 8vo.) Ng.

Tr. Leicester Soc.—Transactions of the Leicester Literary and Philosophical Society. New quarterly series. (Leicester, 8vo.) N. K. L.

Tr. Lincoln Un.—The Transactions of the Lincolnshire Naturalists' Union. (Louth, 8vo.)

Tr. Linn. Soc. London.—The Transactions of the Linnean Society of London. Second series. Zoology. (London, 4to.) Nz. K. R. Z. L. C, b, p. O.

Tr. Liverp. biol. Soc.—[Vide *P. Liverp. biol. Soc.*]

Tr. Manchester Geol. Soc.—Transactions of the Manchester Geological Society. (Manchester, 8vo.) Ng. R. C, p. O.

Tr. Manchester Micr. Soc.—Manchester Microscopical Society. Transactions and Annual Report. (Manchester, 8vo.) N. R.

Tr. Maryland Ac.—Transactions of the Maryland Academy of Sciences. (Baltimore, 8vo.) N.

Tr. Norfolk Soc.—Transactions of the Norfolk and Norwich Naturalists' Society. (Norwich, 8vo.) N. Z. L. C.

Tr. Northern Ass.—Transactions of the Northern Association of Literary and Scientific Societies. (Inverness, &c., 8vo.) N.

Tr. Nottingham Soc.—Nottingham Naturalists' Society. Transactions and Annual Report. (Nottingham, 12mo.) N. L.

Tr. N. York Ac.—Transactions of the New York Academy of Sciences (New York, 8vo.) N. K. R. Z. L. (*C*) p.

Tr. N. Zealand Inst.—Transactions and Proceedings of the New Zealand Institute. (Wellington, 8vo.) N. K. R. Z. L. C, p. O.

Tromso Mus. Aarsh.—Tromsø Museums Aarshefter. (Tromsø, 8vo.) N. R.

Tr. Ottawa Club—[Vide *Ottawa Natural.*]

Tr. Ottawa Soc.—Transactions of the Ottawa Literary and Scientific Society. (Ottawa, 8vo.) (*C*) p.

Tr. Oxford Club—Transactions of the Oxford University Junior Scientific Club. (Oxford, 8vo.) N. O.

Tr. Perthsh. Soc.—Transactions and Proceedings of the Perthshire Society of Natural Science. (Perth, 8vo.) N.

Tr. Rochdale Soc.—Transactions of the Rochdale Literary and Scientific Society. (Rochdale, 8vo.) N.

Tr. R. Soc. Canada—Proceedings and Transactions of the Royal Society of Canada (second series). (Ottawa, 4to.) N. K. R. Z. L. C, p. O.

Tr. R. Soc. Edinb.—Transactions of the Royal Society of Edinburgh. (Edinburgh, 4to.) N. K. R. Z. L. C, b, p. O.

Tr. R. Soc. S. Austral.—Transactions of the Royal Society of South Australia. (Adelaide, 8vo.) N. R. Z. L. (*C*) p.

Tr. S. African Soc.—Transactions of the S. African Philosophical Society. (Cape Town, 8vo.) N. K. R. Z. L. C, p. O.

Tr. Scottish N. H. Soc.—Transactions of the Scottish Natural History Society. (Edinburgh, 8vo.) Z.

Tr. Shropsh. Soc.—Transactions of the Shropshire Archæological and Natural History Society. (Shrewsbury, 8vo.) N.

Tr. Soc. Glasgow—Transactions of the Natural History Society of Glasgow (including the proceedings of the Society). New series. (Glasgow, 8vo.) N. Z. L. C. O.

Tr. Soc. Victoria—Transactions of the Royal Society of Victoria. (Melbourne, 4to.) N. K. R. L. C, p. O.

Tr. Stirling Soc.—Stirling Natural History and Archæological Society Transactions. (Stirling, 8vo.) N.

Tr. Texas Ac.—Transactions of the Texas Academy of Science. (Austin, 8vo.) N. (*C*) p.

Trudui geol. Kab.—[Vide *Trav. geol. St. Petersb.*]

Trudui geol. Kom.—Trudui geologicheskagho Komiteta. [Called also] Mémoires du comité géologique. (St. Pétersbourg, 4to.) Ng. K. R.

Trudui Kazan. Univ.—Trudui obshchestva estestvoispuitateleĭ prī imperatorskom Kazanskom Unīversītetye. (Kazan, 8vo.) N.

Trudui Kharkov. Univ.—Trudui obshchestva ispuitateleĭ prīrodui imperatorskom Kharkovskom Unīversītetye. [Called also] *Trav. Soc. Univ. Kharkov.* (Kharkov, 8vo.)

Trudui Obshch. Varshav.—Trudui obshchestva estestvoīspuitateleĭ prī īmperatorskom Varshavskom Unīversītetye. [Called also] Travaux de la Société des Naturalistes de Varsovie. (Warsaw, 8vo.) N.

Trudui Russkagh. est. Obshch. St. Peterb.—Trudui Russkagho entomologhicheskagho obshchestva v St. Peterburg [=*Horæ Soc. ent. Ross.*, q. v.].

Trudui St. Peterb. Obshch.—Trudui S.-Peterburghskagho obschchestva estestvoīspuitateleĭ. Otdyelenie Zoologiī ī Fīsiologiī. [Called also] Travaux de la Société des Naturalistes de St. Pétersbourg. Section de Zoologie et de Physiologie. (St. Petersburg, 8vo.) N.

Tr. Wagner Inst.—Transactions of the Wagner Free Institute of Science of Philadelphia. (Philadelphia, 8vo.) N. K. R. (*C*) p. O.

Tr. Weardale Club—Weardale Naturalists' Field Club. Transactions. (Bishop Auckland, 8vo.) N.

Tr. Wisconsin Ac.—Transactions of the Wisconsin Academy of Sciences, Arts, and Letters. (Maddison, 8vo.) N. R. (*C*) p. O.

Tr. Woolhope Club—Transactions of the Woolhope Naturalists' Field Club. (Hereford, 8vo.) N. L. C.

Tr. Yorksh. Union—The Transactions of the Yorkshire Naturalists' Union. (Leeds, 8vo.) N. Z. C.

Tr. Zool. Soc. London—Transactions of the Zoological Society of London. (London, 4to.) Nz. K. R. Z. L. C, p. O.

Tufts Coll. Stud.—Tufts College Studies. (Tufts Coll., Mass., 8vo.) Nz. R. (*C*) b, p.

§ *Univ. Calif. publ. Zool.*—University of California publications. Zoology. Also publishes *Rep. Agric. exp. Stat.* and *Bull. Agric. exp. Stat.* (Berkely, 8vo.) R. (*C*) p.

Verh. Ak. Amsterdam—Verhandelingen der koninklijke Akademie van Wetenschappen. Tweede Sectie. (Amsterdam, 4to.) N. K. R. Z. L. C, p.

Verh. Anat. Ges.—Verhandlungen der anatomischen Gesellschaft [published with *Anat. Anz.*, q.v.]. Nz. K. Z. (*C*) b. O.

Verh. Berlin. Ges. Anthrop.—Verhandlungen der Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte [published with *Zeitschr. Ethnol.*]. (Berlin, 8vo.)

§ *Verh. Congr. Zool.*—Verhandelungen des V. internationalen Zoologen-Congresses zu Berlin. (8vo.) [Title and place of publication change.] Nz. K. (*C*) b.

Verh. Deutsch. zool. Ges.—Verhandlungen der deutschen zoologischen Gesell schaft. (Leipzig, 8vo.) Nz. K. Z. C, b. O.

Verh. geol. Reichsanst.—Verhandlungen der kaiserlich-königlichen geologischen Reichsanstalt. (Wien, 8vo.) Ng. R. L. C, p. O.

Verh. Ges. Basel—Verhandlungen der naturforschenden Gesellschaft in Basel. (Basel, 8vo.) N. K. R. Z. L. C, p. O.

Verh. Ges. deutsch. Naturf.—Verhandlungen der Gesellschaft deutscher Naturforscher und Ärzte. Erster Theil, Die allgemeinen Sitzungen; Zweiter Theil, Abtheilungs-Sitzungen. (Leipzig, 8vo.) N. C. O.

Verh. Ges. Wien—Verhandlungen der k.-k. zoologisch-botanischen Gesellschaft in Wien. (Wien, 8vo.) N. K. R. Z. L. C, p. O.

Verh. Ges. Wurzburg—Verhandlungen der physikalisch medicinischen Gesellschaft zu Würzburg. (Würzburg, 8vo.) N. K. R. L. Z. C, p. O.

Verh. k. Leop.-Carol. Ak.—[Vide *Acta Ac. German.*]

Verh. schweiz. Ges.—[Vide *Act. Soc. Helvet.*]

Verh. Siebenb. Ver.—Verhandlungen und Mittheilungen des Siebenbürgischen Vereins für Naturwissenschaften. (Hermannstadt, 8vo.) N. K. R.

Verh. Ver. Brünn—Verhandlungen des naturforschenden Vereines in Brünn. (Brünn, 8vo.) N. R. Z. L.

Verh. Ver. Hamburg naturw.—Verhandlungen des naturwissenschaftlichen Vereins in Hamburg. (Hamburg, 8vo.) N. R. Z. L. (*C*) b.

Verh. Ver. Hamburg Unterh.—Verhandlungen des Vereins für naturwissenschaftliche Unterhaltung zu Hamburg. (Hamburg, 8vo.) N. Z. L.

Verh. Ver. Heidelb.—Verhandlungen des naturhistorisch-medicinischen Vereins zu Heidelberg. Neue Folge. (Heidelberg, 8vo.) N. R. L. C, p.

Verh. Ver. Karlsruhe—Verhandlungen des naturwissenschaftlichen Vereins in Karlsruhe. [Consists of Sitzungsberichte and Abhandlungen.] (Karlsruhe, 8vo.) N.

Verh. Ver. Presburg—Verhandlungen des Vereins für Natur- und Heilkunde zu Presburg. [Called also] A Pozsonyi Orvos-Természettudományi, Egyesület Közleményei. (Presburg, 8vo.) N. R.

Verh. Ver. Rheinland—Verhandlungen des naturhistorischen Vereins der preussischen Rheinlande, Westfalens und des Reg.-Bezirks Osnabrück. (Bonn, 8vo.) N. K. Z. L. C. O.

Verh. Ver. Santiago—Verhandlungen des Deutschen wissenschaftlichen Vereins zu Santiago (Chile). (Santiago, 8vo.) N. R. L. (*C*) p.

Verh. Ver. Stockholm—[Vide *Biol. Foren. Forh.*]

Versl. Ak. Amsterdam—Verslagen en Mededeelingen der k. Akademie van Wetenschappen. Afdeeling Natuurkunde. Derde Reeks. (Amsterdam, 8vo.) N. K. R. Z. L. C, p.

Vestnik Ceske Ak.—Věstník české akademie Císaře Františka Josefa pro vědy, slovesnost a umění. (Praze, 8vo.) N.

Vestnik Ceske. Nauk.—[Vide *SB. Bohmisch. Ges.*]

Victorian Natural.—The Victorian Naturalist: the Journal and Magazine of the Field Naturalists' Club of Victoria. (Melbourne, 8vo.) N. Z. C. O.

Vid. Medd.—Videnskabelige Meddelelser fra den naturhistoriske Forening i Kjøbenhavn. (Copenhagen, 8vo.) N. R. Z. C.

Vierteljahrschr. Ges. Zurich—Vierteljahrschrift der naturforschenden Gesellschaft in Zürich. (Zürich, 8vo.) N. K. R. Z. L. C, b, p.

Vyest. est. S. Peterb.—Vyestnik estestvoznaniya Īzdanie S. Peterburghskagho obshchestva estestvoīspuitateleĭ. [Called also] Revue des Sciences publiée par la Société des Naturalistes à St. Pétersbourg. [St. Petersburg, 8vo.] N.

W. Amer. Scient.—The West American Scientist. (Los Angeles, &c., 8vo.) N.

West Ind. Bull.—West Indian Bulletin, the journal of the Imperial Agricultural Department for the West Indies. (Barbados, 8vo.) Nz. K. Z. (*C*) p.

Wien. ent. Zeit.—Wiener entomologische Zeitung. (Wien, 8vo.) Nz. Z. L. C.

Wiltshire Mag. —The Wiltshire Archæological and Natural History Magazine. (Devizes, 8vo.) N.

Wiss. Meeresuntersuch.—Wissenschaftliche Meeresuntersuchungen herausgegeben von der Kommission zur wissenschaftlichen Untersuchung der deutschen Meere in Kiel und der biologischen Anstalt auf Helgoland. Neue Folge. (Kiel and Leipzig, 4to.) Nz. K. R. Z. L. C. O.

Wiss. Mitt. Bosnien—Wissenschaftliche Mittheilungen aus Bosnien und der Hercegovina. Herausgegeben vom Bosnisch-Hercegovinischen Landesmuseum in Sarajevo. (Vienna, 8vo.) N. K. Z. O.

§ *W. Virginia Geol. Surv.*—West Virginia Geological Survey. (Morgantown, 8vo.) Ng.

Yearb. U. S. Dep. Agric.—Yearbook of the United States department of Agriculture. (Washington, 8vo.) N. R. Z. L. (*C*) b, p. O.

Yn Lioar Manninagh.—[Vide *J. Isle Man Soc.*]

Zapiski imp. ak. nauk.—[Vide *Mem. Ac. St. Petersb.*]

Zapiski Kiev. Obshch.—Zapīskī Kievskagho Obshchestva estestvoīspuitateleĭ. [Called also] Mémoires de la Société des Naturalistes de Kiew. (Kiew, 8vo.) N. R. (*C*) p.

Zapiski Kharkov. Univ.—[Vide *Ann. Univ. Kharkow.*]

Zapiski Novoross. Obshch.—Zapīskī Novorossiskagho Obshchestva estestvoīspuitateleĭ [called also Mémoires de la Société des Naturalistes de la Nouvelle-Russie.] (Odessa, 8vo.) N. R. (*C*) p.

§ *Zeitschr. allg. Physiol.*—Zeitschrift für allgemeine Physiologie herausgegeben von Max Verworn. (Jena, 8vo.) K. (*C*) y. O.

Zeitschr. ang. Mikr.—Zeitschrift für angewandte Mikroskopie herausgegeben von G. Marpmann. (Leipzig, 8vo.) N.

Zeitschr. Biol.—Zeitschrift für Biologie. (München und Leipzig, 8vo.) K. R. C, y. O.

Zeitschr. Deutsch. geol. Ges.—Zeitschrift der deutschen geologischen Gesellschaft. (Berlin, 8vo.) Ng. K. C. O.

Zeitschr. Ent. Breslau—Zeitschrift für Entomologie, herausgegeben vom Verein für Schlesische Insektenkunde zu Breslau. (Breslau, 8vo.) Nz. O.

Zeitschr. Ethnol.—Zeitschrift für Ethnologie. Organ der Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte. (Berlin, 8vo.) K. C. O.

Zeitschr. Ferd. Tirol—Zeitschrift des Ferdinandeums für Tirol und Vorarlberg. (Innsbruck, 8vo.) N. R.

Zeitschr. Hym. Dipt.—Zeitschrift fur systematische Hymenopterologie und Dipterologie. (Teschendorf, 8vo.) Nz. C.

Zeitschr. Morphol.—Zeitschrift für Morphologie und Anthropologie. (Stuttgart, 8vo.) N. K. R. C. O.

Zeitschr. Naturw.—Zeitschrift für Naturwissenschaften. Im Auftrage des naturwissenschaftlichen Vereins für Sächsen und Thüringen. (Leipzig, 8vo.) N. K. R. Z. C. O.

Zeitschr. Ornith.—Zeitschrift für Ornithologie und praktische Geflügelsucht, Organ des Verbandes der ornithologischen Vereine Pommerns. (Stettin, 8vo.) Nz. Z.

Zeitschr. Sinnesorgane—Zeitschrift für Psychologie und Physiologie der Sinnesorgane. (Hamburg und Leipzig, 8vo.) R. C, y. O.

Zeitschr. wiss. Mikr.—Zeitschrift für wissenschaftliche Mikroskopie und für mikroskopische Technik. (Braunschweig, 8vo.) N. K. R. Z. C, b, y. O.

Zeitschr. wiss. Zool.—Zeitschrift für wissenschaftliche Zoologie. (Leipzig, 8vo.) Nz. K. R. Z. L. C, b, p. O.

Zool. Anz.—Zoologischer Anzeiger, zugleich Organ der deutschen zoologischen Gesellschaft [with this is published *Bibliographia zoologica.*] (Leipzig, 8vo.) Nz. K. R. Z. L. C, b. O.

§ *Zool. Anz. Bibl.*—Bibliographia Zoologica (diario "Zoologischer Anzeiger" adnexa). (Leipzig, 8vo.) Nz. K. R. Z. L. C, b. O.

Zool. Beitr.—Zoologische Beiträge. (Breslau, 8vo.) Nz. K. Z. L. C, b. O.

Zool. Centrlbl.—Zoologisches Centralblatt. (Leipzig, 8vo.) Nz. K. Z. (*C*) b. O.

Zool. Garten—Der Zoologische Garten. (Frankfurt-a.-M., 8vo.) Nz. Z. (*C*) p. O.

Zool. Jahrb. Anat.—Zoologische Jahrbücher. Abtheilung für Anatomie und Ontogenie der Thiere. (Jena, 8vo.) Nz. K. R. Z. L. C, b. O.

Zool. Jahrb. Syst.—Zoologische Jahrbücher. Abtheilung für Systematik, Geographie und Biologie der Thiere. (Jena, 8vo.) Nz. K. R. Z. L. C, b. O.

Zool. Jahresber.—Zoologischer Jahresbericht, herausgegeben von der zoologischen Station zu Neapel. (Berlin, 8vo.) N. K. R. Z. L. C, b. O.

Zool. Mag. Tokyo—The Zoological Magazine: organ of the Zoological Society of Tokyo. (Tokyo, 8vo.) Nz. Z.

Zoologica—Zoologica—Abhandlungen aus dem Gesamtgebiete der Zoologie. Herausgegeben von Dr Carl Chun [formerly *Bibl. Zool.*]. (Stuttgart, 4to.) Nz. K. Z. L. C, b. O.

Zoologist—The Zoologist: a Monthly Journal of Natural History. (London, 8vo.) Nz. K. Z. L. C. O.

Zool. Rec.—The Zoological Record. (London, 8vo.) N. Nz. K. R. Z. L. C, b, p. O.

Zool. Res.—Collectio brevium dissertationum novarumque investigationum ad universas zoologicas doctrinas spectantium. (Roma, 8vo.)

Zool. Vortr.—Zoologische Vorträge herausgegeben von William Marshall. (Leipzig, 8vo.) Nz. Z.

Zool. Zentrlbl.—[Vide *Zool. Centrlbl.*]

An asterisk prefixed to a quotation signifies that the Recorder has not seen the journal or work referred to.

THE ZOOLOGICAL RECORD

FOR 1902.

I. GENERAL SUBJECTS.*

BY

D. SHARP.

CONTENTS.

	Page
I. TITLES	2
II. SUBJECT-INDEX	
I. TEXT-BOOKS, GENERAL WORKS, EVOLUTION, ESSAYS :—	
a. Works on Zoology, General text-books	55
b. Philosophical	56
c. Evolution	56
d. Variation	57
e. Adaptation, convergence, environment	57
f. Selection, Protection	57
g. Ethology	57
h. Phylogeny, Organogeny	58
i. Isolated questions	58
k. Historical, biographical	58
l. Pedagogic and Popular	59
m. Nomenclature	59
n. Taxonomy	60
o. Museums, Methods, Economics	60
p. Bibliography, Records	60
II. GEOGRAPHICAL :—	
a. General	61
b. Expeditions	61
c. Travels	61
d. Faunas. Special Regions	61
e. Plankton	62
III. MORPHOLOGICAL :—	
a. General	62
b. Histological	63
c. Teratology	64
IV. PHYSIOLOGICAL :—	
a. General	64
b. Particular functions	64
c. Colour and Pigment	64
d. Nervous and Sensory, Psychology	64
V. PROTOPLASM AND CELL :—	
a. General	65
b. Protoplasm	65
c. Cell, structure & function	65
d. Nucleus, Nucleolus, Centrosome, etc.	66
VI. OVUM AND SPERMATOZOON :—	
a. General	66
b. Ovum, oogenesis	67
c. Spermatozoon, spermatogenesis	67
d. Maturation	67
e. Fertilisation	67
VII. DEVELOPMENT, EMBRYOLOGY :—	
a. General	68
b. Particular species, stages and organs	68
c. Experimental	69
VIII. REPRODUCTION, SEX, HEREDITY, REGENERATION :—	
a. General	69
b. Sex	70
c. Heredity	70
d. Regeneration, Grafting	70

* It will be understood that papers recorded here may also be found under the various classes, II—XVIII. They are included here because of their bearing on general questions, which, if not obvious, will be made apparent in the Subject-Index.

INTRODUCTION.

THIS Record includes under "General Subjects" a wide selection of works of a collective nature as regards the various classes of animals, and of works relating to those questions of Biology that are common to the various classes adopted by Systematists. Hence it is, in a certain sense, supplementary to each of the other seventeen sections that make up this Volume. The Table of Contents on p. 1 indicates its scope and method of arrangement. But it is only right to point out that a certain amount of arbitrariness necessarily occurs in the selection of the works included in it. It is obvious that every grade exists between papers that merely describe a new species or variety and those that discuss such wide topics as the nature of life. The following brief explanation will make the selection that has been used, to some extent comprehensible.

As a rule papers referring to Anatomy or development in man are excluded. Of anatomical and physiological papers, only those are included that are applied—or are likely very soon to be applied—to the consideration of general zoological questions. On the other hand cytology and embryology are more exhaustively dealt with. And a selection is made of papers that, though dealing with only one class of animals, do so in a manner that appears to the Recorder to be of general interest.

The arrangement made use of by Professor Thomson has been continued except that the old Section 9 has been amalgamated with Section I.

Sections V and VI should probably also be united under the heading of Cytology. But as this department of Zoology is undergoing very rapid development, and much uncertainty still prevails as to its dominant features, it is perhaps advisable to leave the old arrangement at present undisturbed.

I.—TITLES.*

Regeln der Zoologischen Nomenklatur nach den Beschlussen des v. internationalen Zoologen-Congresses. [Also in French and English.] Verh. Congr. Zool. v, pp. 927–972.

1. ABEL, M. Beiträge zur Kenntniss der Regenerationsvorgänge bei den limicolen *Oligochäten*. Zeitschr. wiss. Zool. lxxiii, pp. 1–74, pls. i–iii. Summary, J. R. Micr. Soc. 1903, p. 179.

2. ADAMS, C. C. South-eastern United States as a centre of geographical distribution of flora and fauna. Biol. Bull. iii, pp. 115–131.

3. ADELUNG, N. v. Erwiderung auf die "Vorschläge zur Minderung der wissenschaftlichen Sprachverwirrung" (FICK, Anat. Anz. xx, p. 462). Zool. Anz. xxv, pp. 649–652.

4. ADLERZ, G. Periodische Massenvermehrung als Evolutionsfaktor. Biol. Centrbl. xxii, pp. 108–119.

5. AFLALO, G. F. Some private Zoos. Rep. Smithson. Inst. 1901, pp. 689–696, vii pls.

---

* An asterisk prefixed to a quotation indicates throughout the volume that the Recorder has not seen the Journal or Work referred to.

6. Agassiz, A. Reports on the scientific results of the expedition to the Tropical Pacific, in charge of Alexander Agassiz, by the U. S. Fish-Commission steamer "Albatross" from August, 1899, to March, 1900. Commander, Jefferson F. Moser. I. Preliminary report and list of stations by Alex. Agassiz. With remarks on the deep-sea deposits by Sir John Murray. [Parts II. and III. special.] Mem. Mus. Harvard xxvi.

["Albatross" Expedition. See Agassiz (6).]

7. Albrecht, —. Ueber tropfige Entmischung von Zellen. Verh. Anat. Ges. 1902, pp. 207–210.

8. ——. Artefacte zur Cytologie. T. c. pp. 211–213.

9. Alcock, A. A Naturalist in Indian Seas. London, 1902, 8vo, xxiv + 328 pp., 98 figg., 1 map.

10. Allen, E. J. & Todd, R. A. The fauna of the Exe Estuary. J. Mar. Biol. Ass. vi, pp. 295–343.

11. Allen, Grant [the late]. The Natural History of Selborne by Gilbert White. Edited with notes by Grant Allen. Illustrated by E. H. New. London and New York, 1902, 8vo, xl + 552 pp.

12. Allen, J. A. So-called species and subspecies. Science xvi, pp. 383–386.

13. *Almásy, G. v. Reise nach West-Turkestan und in den centralen Tiën-Shan. Mt. geogr. Ges. Wien xliv, 1901, pp. 239–261.
Summary, Zool. Centrlbl. 1902, p. 679.

14. Amans, P. Sur les lignes à double courbure dans la locomotion animale : applications industrielles. Verh. Congr. Zool. v, pp. 975–980.

15. Ancel, P. Sur les mouvements de la Chromatine et les Nucléoles pendant la période d'augmentation de volume de l'ovocyte d'*Helix*. Arch. zool. exp. Notes (3) x, pp. liii–lvii.

16. ——. Sur le déterminisme cyto-sexuel des gamètes glandes génitales d'*Helix pomatia* sans ovocyte. T. c. pp. lviii–lxiv.

17. *——. [Sex determination of gametes in hermaphrodite gonads.] T. c. pp. lxxxiv–xciv.
Summary, J. R. Micr. Soc. 1903, p. 32.

18. Andres, A. Di un nuovo istrumento misuratore per la somatometria. (Somatometro a compasso.) Rend. Ist. Lombardo xxxv, pp. 529–533, 3 pls.

19. Anglas, J. Les phénomênes des métamorphoses internes. Scientia series, biol. No. 17, 84 pp. Paris, 1902.

20. ——. Nouvelles observations sur les métamorphoses internes. Arch. anat. micr. v, pp. 78–121, pl. iv.

21. *Anikin, W. [Bericht über eine Reise in das Narym'sche Gebiet im Sommer 1900.] Bull. Univ. Tomsk xxi, 1902, 121 pp. [in Russian].
Summary, Zool. Centrlbl. 1902, p. 727.

22. Annandale, N. Zoological names and theories of the Malays. P. Phys. Soc. Edinb. xiv, pp. 446–461.

23. [Anon.] Fortsetzung der Berichte der Commission für oceanographische Forschungen im Rothen Meere (Südliche Hälfte) 1897–1898. Denk. Ak. Wien lxix, pp. 1–496.
The special zoological parts relate to Molluscs and Sponges, qq. v.

24. [ANON.] Annual reports of the department of agriculture for the fiscal year ended June 30, 1902. Report of the Secretary of Agriculture. Departmental reports. Washington, 1902, cxxiv + 402 pp.

25. [*——.] Programme und Anweisungen zu Beobachtungen und zum Anlegen von Sammlungen im Gebiet der Naturwissenschaften. Zusammengestellt von einer speziellen Kommission im Auftrage der K. Natf. Gesellschaft. 5 verbesserte und vermehrte Ausgabe. St. Petersb. 1902, 595 pp.
In Russian: review Zool. Zentrlbl. 1903, pp. 105 & 106.

26. APÁTHY, S. VON. Ueber einige neue mikrotechnische Vorrichtunger. Verh. Congr. Zool. v, pp. 269–289.

27. ——. M. Heidenhain's und meine Auffassung der contractilen Substanz und über die Grenzen der Sichtbarkeit. Anat. Anz. xxi, pp. 61–80.
Cf. HEIDENHAIN (339).

28. *APSTEIN, C. Das Plankton der Ostsee. Abh. deutsch. Seefisch.-Ver. vii, pp. 105–129.

29. ARIOLA, V. La natura della partenogenesi nell' *Arbacia pustulosa*. Atti Soc. Ligustica xii, pp. 192–203, pl. ix.

30. *——. La natura della partenogenesi nell' *Arbacia pustulosa*. Boll. Mus Genova No. 111, 1901, 12 pp.
No doubt the same as (29). LOEB (511) replies.

31. *AUBERT, E. Histoire naturelle des Etres vivants. 4. édition, entièrement refondue. Tome i, fascc. 1, 2. Paris, 1902, 428 et 319 pp., 1515 illustt.

32. BABÁK, E. Ueber die Entwicklung der locomotorischen Coordinationsthätigkeit im Rückenmarke des Frosches. Arch. ges. Physiol. xciii, pp. 134–162.

33. BAHADUR, S. R. B. Notes on animals observed at the Alipore zoological garden No. 2. A brief note on the doctrine of telegony with reference to facts observed in the Zoological Gardens, Calcutta. J. Asiat. Soc. Bengal lxxi, p. 132.

34. *BALDWIN, J. M. Development and evolution. New York, 1902, xvi + 395 pp.
Reviews: by W. M. WHEELER, Psychological Rev. x, pp. 70–80: Nature lxvii, pp. 292 & 293: Science xvi, pp. 819 & 820.

35. BALLOWITZ, E. Urmundbilder im Prostomstadium des Blastoporus bei der Ringelnatter. Arch. Anat. 1902, pp. 149–154, pl. x.

36. ——. Ueber das regelmässige Vorkommen zweischwänziger Spermien im normalen Sperma der Säugetiere. Anat. Anz. xx, pp. 561–563.

37. BARDEEN, C. R. A statistical study of the abdominal and border nerves in man. Amer. J. Anat. i, pp. 203–228.

38. ——. Embryonic and regenerative development in Planarians. Biol. Bull. iii, pp. 262–288.

39. BARFURTH, D. Regeneration und Involution, 1901. Anat. Hefte Ergebn. xi, pp. 517–582.

40. —— & DRAGENDORFF, O. Versuche über Regeneration des Auges und der Linse beim Hühnerembryo. Verh. Anat. Ges. 1902, pp. 185–199.
Summary, J. R. Micr. Soc. 1902, p. 633.

41. Barrett-Hamilton, G. E. H. Investigations upon the life-history of Salmon, and their bearing on the phenomena of nuptial and sexual ornamentation and development in the animal kingdom generally. Ann. Nat. Hist. ix, pp. 106–120.

42. *Basse, Alb. Über die künstliche Befruchtung thierische Eier. Ein Sammelreferat. Naturw. Wochenschr. xvii, pp. 493–495 [ex Zool. Anz. Bibl. xxv, p. 72].

43. *Bastian, H. C. Studies in heterogenesis. Part II. London, 1902, pp. 63–147.

44. Bataillon, É. Études expérimentales sur l'évolution des Amphibiens. Les degrès de maturation de l'œuf et la morphogénèse. Arch. Entwickmech. xii, 1901, pp. 610–655.
Summary by Bergh, Zool. Centrlbl. 1902, pp. 185–187.

45. ——. Nouveaux essais de parthénogénèse expérimentale chez les *Amphibiens*. C.R. Ac. Sci. cxxxiv, pp. 918–920.
Summary, J. R. Micr. Soc. 1902, p. 537.

46. Bateson, W. Note on the resolution of compound characters by cross-breeding. P. Cambridge Soc. xii, pp. 50–54.

47. ——. Mendel's principles of heredity. Cambridge, 1902, xiv + 212 pp.

48. —— & Saunders, Miss E. R. Reports to the Evolution Committee. Report I. London Royal Society 1902, 160 pp.

49. Bather, F. A. Scientific terminology. Science xv, pp. 747–749.

50. Baumgarten, W. J. Spermatid transformations in *Gryllus assimilis*, with special reference to the Nebenkern. Kansas Univ. Bull. i, pp. 47–63, pls. ii & iii.
Abstract by Goldschmidt, Zool. Zentrlbl. 1903, p. 487.

51. Beard, J. The determination of sex in animal development. Zool. Jahrb. Anat. xvi, pp. 703–764, pl. xlv.
Review by Fick, Zool. Zentrlbl. 1903, pp. 362–364.

52. ——. The germ-cells. Part I. *Raja batis*. T. c. pp. 615–702, pls. xliii & xliv.
Review by Fick, Zool. Zentrlbl. 1903, pp. 359–361.

53. ——. Heredity and the epicycle of the germ-cells. Biol. Centrbl. xxii, pp. 321–328, 353–360, 398–408.

54. ——. The germ-cells of *Pristiurus*. Anat. Anz. xx, pp. 50–61.
Abstract by Fick, Zool. Zentrlbl. 1903, p. 361.

55. ——. The determination of sex in animal development. T. c. pp. 556–561.
Summary, J. R. Micr. Soc. 1902, p. 534.

56. ——. The numerical law of the germ-cells. Op. cit. xxi, pp. 189–200.
Abstract by Fick, Zool. Zentrlbl. 1903, p. 361.

57. *——. Germ-cells and Germinal continuity. Edinburgh, Nov. 24th, 1902. [Cf. J. R. Micr. Soc. 1903, pp. 22 & 23.]

58. *Beccari, O. Nelle foreste di Borneo; viaggi e ricerche di un Naturalista. Firenze, 1902, 662 pp., 80 illustr.
Review, Monit. Zool. ital. 1902, pp. 90–92.

59. Beddard, F. E. The Cambridge Natural History. Vol. x, *Mammalia*. London, 1902, xii + 605 pp.
Reviews: Nature lxvi, pp. 373–375; Amer. Natural. xxxvi, pp. 911–914.

60. [Belgica.] Expédition antarctique Belge. Résultats du voyage du S. Y. Belgica en 1897 à 1899. Commander A. de Gerlache de Gomery. Rapports scientifiques publiés aux frais du gouvernement Belge sous la direction de la Commission de la Belgica.
There are to be 10 vols.

61. BENEDEN, E. VAN. La reproduction des animaux et la continuité de la vie. [Presidential address.] Bull. Ac. Belgique 1902, pp. 1047–1100.

62. *BENEDIKT, M. Das biomechanische (neo-vitalische) Denken in der Medizin und in der Biologie. Jena 1903 (Oct. 1902), 8vo, 57 pp. [ex Zool. Anz. Bibl. 1903, p. 71].

63. BERETTA, A. Dell' influenza dell' accumulo dell' adipe sulla determinazione e sul decorso del sonno invernale nei mammiferi ibernanti. Monit. Zool. ital. 1902, pp. 234–242.

[BERG, CARLOS: biography. See GALLARDO (268).]

64. BERGH, R. S. Beiträge zur vergleichenden Histologie, III. Über die Gefässwandung bei Arthropoden. Anat. Hefte Arb. xix pp.
Summary by author, Zool. Centrbl. 1902, p. 461.

65. ——. Gedanken über den Ursprung der wichtigsten geweblichen Bestandteile des Blutgefässystems. Anat. Anz. xx, pp. 488–492.
Summary, Zool. Centrlbl. 1902, p. 165.

66. BERGMANN, W. Untersuchungen über die Eibildung bei *Anneliden* und *Cephalopoden*. Zeitschr. wiss. Zool. lxxiii, pp. 278–301, pls. xvii–xix.
Summary by R. FICK, Zool. Zentrlbl. 1903, pp. 281–283.

67. *BERLESE, A. Ricerche fisiologiche su animali a sangue freddo tenuti in digiuno. Lettera aperta a G. Manca. Portici, 1901, 8 pp.

68. ——. Osservazioni su fenomeni che avvengono durante la ninfosi degli insetti metabolici. Parte 1ª. Tessuto adiposo. Memoria seconda (*Lepidotteri*, *Imenotteri*, *Neuroteri*, *Coleotteri*). Riv. Patol. Veg. ix, pp. 177–344, pls. vii–xiv. Parte II. Tessuto muscolare. Op. cit. x, pp. 1–120 [conclusion].

69. BERLINER, K. Die "Hoffmann'schen Kerne" (Koelliker) im Rückenmarke des Hühnchens. Anat. Anz. xxi, pp. 273–278, pl. ii.

70. BERNARD, H. M. Nomenklatur und Entwickelungslehre. Verh. Congr. Zool. v, pp. 891–896.

71. ——. On the unit of classification for systematic biology. P. Cambridge Soc. xi, pp. 268–280.

72. ——. The species problem in Corals. Nature lxv, p. 560.

73. *BERNSTEIN, J. Die Kräfte der Bewegung in der lebenden Substanz. Braunschweig, 1902, 8vo, 25 pp. [ex Zool. Anz. xxv, Bibl. p. 464].

74. *BETHE, A. Kritisches zur Zell- und Kerntheilungstheorie. Int. J. Anat. xix, pp. 119–128.
Summary, J. R. Micr. Soc. 1903, p. 161.

75. ——. Die Heimkehrfährigkeit der Ameisen und Bienen zum Teil nach neuen Versuchen. Eine Erwiderung auf die Angriffe von v. Buttel-Reepen und von Forel. Biol. Centrbl. xxii, pp. 193–215 & 234–238.
Cf. WASMANN (857).

76. BIDDER, GEORGE. Notes on Plymouth Sponges. J. Mar. Biol. Ass. vi, pp. 376–382.
Adaptation and Variation. Metampy, new term.

77. *BIDDLE, A. J. D. Madeira, the land of the Wine ; being an account of the Madeira islands at the beginning of the 20th Century. (Geology, Geography, Climate, Natives, Flora, Fauna etc.). London, 1901, 268 and 300 pp., maps and illustrr.

77A. BIEDERMANN, W. Ueber die Structur des Chitins bei Insecten und Crustaceen. Anat. Anz. xxi, pp. 485–490.

78. BIGELOW, M. A. The early development of *Lepas*. A study of cell-lineage and germ-layers. Bull. Mus. Harvard xl, No. 2, pp. 61–144, 12 pls.
Summary, J. R. Micr. Soc. 1902, p. 555.

79. BLANCHARD, N. On the inheritance in coat-colour of thoroughbred horses (grandsire and grandchildren). Biometrika i, pp. 361–364.

80. BOAS, F. The relations between the variability of organisms and that of their constituent elements. Science xv, pp. 1–5.

81. BOHN, G. Theorie biologique de la vision. C.R. Ac. Sci. cxxxiv, pp. 184–186.
Summary, J. R. Micr. Soc. 1902, p. 298.

82. BOKORNY, TH. Nochmals über Protoplasma und Enzym. Arch. ges. Physiol. xciii, pp. 605–640.

83. BONNEVIE, K. Abnormitäten in der Furchung von *Ascaris lumbricoides*. Jena. Zeitschr. xxxvii, pp. 83–104, pls. iv–vi.

84. BOSE, JAGADIS CHUNDER. Response in the living and non-living. London, 1902, 8vo, xx+199 pp.

85. ——. Réponse des substances inorganiques aux stimulus. Bull. Soc. zool. France xxvii, p. 156.

BOSSHARD, H. [See ROSA, D. (692).]

86. *BOUIN, P. [Spindle-residues in cell-division.] Arch. zool. exp. Notes 1902, pp. cvi–cix.
Summary, J. R. Micr. Soc. 1903, p. 162.

87. *——, P. & M. Réduction chromatique chez les Myriapodes. C.R. Ass. Anat. Montpell. iv, pp. 74–78.
Brief notice by FICK, Zool. Zentrlbl. 1903, p. 381.

88. BOURNE, G. C. An introduction to the study of the comparative anatomy of animals, vol. ii. London, 1902, pp. xv+321.
Review, Nature lxvi, p. 314.

89. BOUTAN, L. La détorsion chez les Gastéropodes. Arch. Zool. exp. 1902, pp. 241–268, pl. xi.

90. ——. Henri de Lacaze-Duthiers. Rev. Scient. xvii, pp. 33–40.
Also account of interment, with addresses, t. c. pp. 705–715.

91. BOUVIER, L. Les mouches à miel. Rev. Scient. xvii, pp. 609–613.

92. BOVERI, T. Das Problem der Befruchtung. Jena, 1902, 48 pp.
Summaries : in Anat. Anz. xx, p. 574 : in Zool. Centrlbl. 1902, p. 329 : J. R. Micr. Soc. 1902, p. 418. Review, Nature lxvi, p. 74.

93. ——. Uber mehrpolige Mitosen als Mittel zur Analyse des Zellkerns. Verh. Ges. Wurzburg xxxv, pp. 67–90.
Review by BERGH, Zool. Zentrlbl. 1903, pp. 397–400.

94. *Braasch, A. H. Der Wahrheitsgehalt des Darwinismus. Weimar, 1902, 8vo, 182 pp.
Review, Anat. Anz. xxii, pp. 581–583.

95. Brachet, A. Recherches sur l'ontogénèse des amphibiens urodèles et anoures. (*Siredon pisciformis. Rana temporaria.*) Arch. Biol. xix, pp. 1–243, pls. i–vi.

——. [See also Swaen & Brachet (787).]

96. Branco, W. Der fossile Mensch. Verh. Congr. Zool. v, pp. 237–259.

97. Brandt, K. Ueber den Stoffwechsel im Meere. 2. Abhandlung. Wiss. Meeresuntersuch. (n. f.) vi, pp. 23–80.

98. ——. Ueber die demnachst beginnenden internationalen Untersuchungen der nordischen Meere. Verh. Congr. Zool. v, pp. 290–295.

99. Brauer, A. Über den Bau der Augen einiger Tiefseefische. Verh. deutsch. Zool. Ges. 1902, pp. 42–57.
Summary, J. R. Micr. Soc. 1903, p. 164.

100. *Brehm, V. Zusammensetzung, Verteilung und Periodicität des Zooplanktons im Achensee. Zeitschr. Ferdinand. xlvi, 63 pp.
Summary, Zool. Zentrlbl. 1903, p. 257.

101. —— & Zederbauer, E Untersuchungen über das Planktou des Erlaufsees. Verh. Ges. Wien lii, pp. 388–402.

102. Breitfuss, L. Das Barents- oder Murmanmeer und die biologische Expedition zur Erforschung desselben. Verh. Congr. Zool. v, pp. 981–985.
Summary, Zool. Centrlbl. 1902, p. 680.

103. Bremer, J. L. On the origin of the pulmonary arteries in Mammals. Amer. J. Anat. i, pp. 137–144.

104. Bresslau, E. Weitere Untersuchungen über Ontogonie und Phylogenie des Mammarapparates der Saugetiere. 1. Die Bedeutung der Milchlinie. Anat. Anz. xxi, pp. 178–189.

105. *Breuer, J. Die Krisis des Darwinismus und die Teleologie. Wiss. Beil. 15 Jahresber. Phil. Ges. Wien, pp. 45–64 [ex Zool. Anz. xxvi, Bibl. p. 192].

106. Brindley, H. H. Regeneration in *Samia ailanthus*. P. Cambridge Soc. xi, pp. 458–462. [*Lepidoptera.*]

107. Broman, I. Über Bau und Entwickelung von physiologisch vorkommenden atypischen Spermien. Anat. Hefte Arb. xviii, pp. 509–547, pls. 42–52; and xix, p. 479 (Berichtigung).

108. ——. Ueber atypischen Spermien (speciell beim Menschen) und ihre mögliche Bedeutung. Anat. Anz. xxi, pp. 496–531: 107 illustr.

109. Bronn, H. G. Klassen und Ordnungen des Thierreiches. [See PISCES, Lönnberg; TUNICATA, Seeliger; MOLLUSCA, Simroth, and ECHINODERMA, Hamann.]

110. Brooks, W. K. The intellectual conditions for the science of embryology. Science xv, pp. 444–454, 481–492.

Browne, Sir Thomas. [See Southwell (757).]

111. Bryce, T. H. Maturation of the ovum in *Echinus esculentus*. Quart. J. Micr. Sci. xlvi, pp. 177–224, pls. x–xii.
Summary, J. R. Micr. Soc. 1902, p. 654.

112. [Bryce, T. H.] Artificial parthenogenesis and fertilisation: a review. T. c. pp. 479–507.

113. Buchs, Georg. Über den Ursprung des Kopfskeletes bei *Necturus*. Morphol. Jahrb. xxix, pp. 582–613, pls. xxvi–xxviii.

114. *Buffa, P. Sulle condizioni fisiche e biologiche di taluni laghi alpini del Trentino. Atti Soc. Veneto-Trent. (2) iv, 32 pp.
Summary, Zool. Centrlbl. 1902, p. 259.

115. Bühler, A. Beziehungen regressiver und progressiver Vorgänge zwischen tiefem Fingerstrecker und den Musculi interossei dorsales der menschlichen Hand. Morphol. Jahrb. xxix, pp. 563–581.

116. ——. Rückbildung der Eifollikel bei Wirbel-Thieren. i. Fische. Op. cit. xxx, pp. 377–452, pls. vi, vii.
Summary, Zool. Zentrlbl. 1903, p. 301 and J. R. Micr. Soc. 1902, p. 631.

117. ——. Rückbildung.... ii. *Amphibien.* Op. cit. xxxi, pp. 85–103, pls. iii, iv.
Summary, Zool. Zentrlbl. 1903, pp. 302–304 and J. R. Micr. Soc. 1903, p. 22.

118. Buller, A. H. R. Is chemotaxis a factor in the fertilisation of the eggs of animals? Quart. J. Micr. Sci. xlvi, pp. 145–176.
Summary, Zool. Centrlbl. 1902, p. 671 and J. R. Micr. Soc. 1902, p. 536.

119. Burckhardt, R. Die Einheit des Sinnesorgansystems bei den Wirbeltieren. Verh. Congr. Zool. v, pp. 621–628.
Summary, Zool. Centrlbl. 1902, p. 793.

120. *——. Jules Soury. Le système nerveux central, structure et fonctions. Histoire critique des théories et des doctrines. Zeitschr. Sinnesorgane xxvii, 4 pp. [ex Zool. Anz. xxv, Bibl. p. 193].

121. Bütschli, O. Mechanismus und Vitalismus. Verh. Congr. Zool. v, pp. 212–235.

122. Byram, W. J. Recent aspect of the Cell theory. Presidential address. P. Soc. Queensland xvii, Proc. pp. v–xvii.

123. Byrne, L. W. On the number and arrangement of the bony plates of the young John Dory. Biometrika ii, pp. 115–120, pl. i.

124. Calkins, G. N. Studies on the life-history of *Protozoa.* i. The life-cycle of *Paramœcium caudatum.* Arch. Entwickmech. xv, pp. 139–186.

125. ——. Studies on the life-history of *Protozoa.* iii. The six hundred and twentieth generation of *Paramœcium caudatum.* Biol. Bull. iii, pp. 192–205.

126. Cambridge, F. P. Some notes on nomenclature. London, Ann. Mag. Nat. Hist. Ser. 7, 10, pp. 89–96. Types of genera and generic names. Cf. Dahl (162).

127. Camerano, L. Contributo alla storia delle teorie Lamarckiane in Italia. Il corso di zoologia di Franco Andrea Bonelli. Atti Acc. Torino xxxvii, pp. 455–464.

128. ——. Studio quantitativo statistico degli organismi. Tabelle pel calcolo degli indici di variazione, di frequenza, di isolamento, di mancanza e di asimmetria. Boll. Mus. Torino 1902, No. 417, 39 pp.

129. ——. Ricerche somatometriche in Zoologia. Lettura fatta al iii convegno nazionale dell' Unione zoologica italiana in Roma il 31 Ottobre 1902. T. c. No. 431, 18 pp.

130. CAR, L. Planktonproben aus dem Adriatischen Meere und einigen süssen und brakischen Gewässern Dalmatiens. Zool. Anz. xxv, pp. 601–605.

131. CARUS, J. V. Bibliographica Zoologica (diario "Zoologischer Anzeiger" adnexa). vii, 1902, 572 pp.

132. *CAUSTIER, E. Zoologie, à l'usage des éleves des classes de dixième A et B (programme du 31 mai 1902). Paris 1902, 18 mo, 319 pp. [ex Zool. Anz. Bibl. xxvi, p. 188].

133. CERFONTAINE, P. Recherches expérimentales sur la régeneration et l'héteromorphose chez *Astroïdes calycularis* et *Pennaria cavolinii.* Arch. Biol. xix, pp. 245–315.
Summary, Zool. Zentrlbl. 1903, pp. 107, 108.

134. CHARRIN, A., DELAMARE, G. & MOUSSU —. Transmission expérimentale aux descendants des lésions développées chez les ascendants. C.R. Ac. Sci. cxxxv, pp. 189–191.
Summary, J. R. Micr. Soc. 1903, p. 22.

135. CHILD, C. M. Studies on regulation. I. Fission and regulation in *Stenostoma.* Arch. Entwickmech. xv, pp. 187–237, pls. v–vii and pp. 355–420.

136. CHUN, C. Wissenschaftliche Ergebnisse der deutschen Tiefseeexpedition auf dem Dampfer "Valdivia" 1898–1899. Im Auftrage des Reichsamtes des Innern. Jena.
Several parts have appeared in 1902 for which see the Special Records.

137. ——. Über die Natur und die Entwicklung der Chromatophoren bei den *Cephalopoden.* Verh. Deutsch. zool. Ges. 1902, pp. 162–182.
Summary, J. R. Micr. Soc. 1903, p. 167.

138. ——. Ansprache [presidential address]. Verh. Deutsch. zool. Ges. 1902, pp. 3–9.
Morphology etc.

139. *CIALONA, M. Osservazioni pratiche sull' epoca della comparsa et della variabilita quantitativa delle specie piu comuni nel plankton del porto di Messina. Ric. Labor. anat. Roma viii, pp 149–155 [ex Zool. Anz. xxv, Bibl. p. 197].

140. CLARK, H. L. So-called species and subspecies. Science xvi, pp. 229–231.
Cf. ALLEN, t. c. pp. 383–386.

141. CLEVE, P. T. Plankton from the Indian Ocean and the Malay Archipelago. Svenska Ak. Handl. xxxv, No. 5, 58 pp., 8 pls.

142. ——. The Plankton of the North Sea and the Skagerak. T. c. No. 7, 49 pp.

143. CLODD, E. Thomas Henry Huxley. London, 1902, xiii + 226 pp.

144. COCKERELL, T. D. A. Preoccupied names in Zoology. Nature lxv, p. 223.

145. ——. De Vriesian species. Op. cit. lxvi, p. 174.

146. COCO, A. M. Sul potere osteo-genetico della dura madre. Contributo all' istologia della dura madre encephalica in alcuni Vertebrati inferiori. Anat. Anz. xxii, pp. 1–9.

147. *COMSTOCK, J. H. & KELLOGG, V. L. The elements of insect anatomy. New edition. Ithaca, 1901, 145 pp.
Review in Amer. Natural. xxxvi, p. 500, by J. G. N.

148. CONKLIN, E. G. Karyokinesis and Cytokinesis in the maturation, fertilisation and cleavage of *Crepidula* and other *Gasteropoda*. J. Ac. Philad. xii, Part I, 121 pp., 6 pls.
Also issued as Univ. Pennsylvania Contr. Zool. Lab.

149. CONTE, A. & VANEY, C. Sur des émissions nucléaires observées chez les Protozoaires. C.R. Ac. Sci. cxxxv, pp. 1365, 1366.

——. [See also VANEY & CONTE (826).]

150. COOK, O. F. Zoological nomenclature in Botany. Science xvi, pp. 30, 31.
Cf. DALL, t. c. p. 150.

151. CORNISH, C. J. The Naturalist on the Thames. London, 1902, viii + 260 pp., illustr.
Review, Nature lxvi, p. 632.

152. *COUPIN, H. Les Arts et Métiers chez les animaux. Paris, 1902, 4to, 422 pp., 225 figg.
Review, Rev. Scient. xvii, p. 82.

153. CUÉNOT. L. La loi de Mendel et l'hérédité de la pigmentation chez les souris. C.R. Ac. Sci. cxxxiv, pp. 779–781.
Summary, J. R. Micr. Soc. 1902, p. 294.

154. ——. La loi de Mendel et l'hérédité de la pigmentation chez les souris. C.R. Soc. Biol. 1902, pp, 395–397.

155. ——. Sur quelques applications de la loi de Mendel. T. c. pp. 397, 398.

156. CUNNINGHAM, J. T. Unisexual inheritance. Biol. Centrbl. xxii, pp. 1–9, 33–41.

157. CURTIS, W. C. The life history, the normal fission, and the reproductive organs of *Planaria maculata*. P. Boston Soc. xxx, pp. 515–559, pls. ix–xix.

158. CYON, E. v. Beiträge zur Physiologie des Raumsinns. I Theil. Neue Beobachtungen an den japanischen Tanzmäusen. Arch. ges. Physiol. lxxxix, pp. 427–453.

159. *DAFFNER, FRANZ. Das Wachstum des Menschen. Anthropologische Studie. Zweite vermehrte und verbesserte Auflage. Leipzig, 1902, 475 pp.
Summary, Zool. Zentrlbl. 1903, pp. 143, 144.

160. *DAGUILLON, A. Notices de zoologie, à l'usage de l'enseignement secondaire (ouvrage rédigé conformément avec le programme officiel de 1902). Paris, 1902, 18mo, 319 pp. [ex Zool. Anz. Bibl. xxvi, p. 188].

161. DAHL, F. Die Ziele der vergleichenden "Ethologie" (d. i. Biologie im älteren engeren Sinne). Verh. Congr. Zool. v, pp. 296–300.

162. ——. Noch einmal über die internationalen Nomenclaturregeln und ihre Anwendung auf die ältesten Spinnengattungen. Zool. Anz. xxv, pp. 157–162.

163. ——. Noch ein Wort über Nomenclaturregeln. T. c. pp. 708–712.

164. ——. Kann ein Systematiker auch zu sorgfältig arbeiten? T. c. pp. 705–708.
Nomenclature. Amount of material requisite for systematic work.

165. *——. Wie ist der Lehramts-Kandidat auf der Universität für seinen Beruf in Zoologie vorzubereiten? Naturw. Wochenschr. xviii, pp. 85–91 [ex Zool. Anz. Bibl. xxvi, p. 182].

166. Dall, W. H. Zoological nomenclature. [Letter.] Science xvi, pp. 150, 151.

167. Damany, P. Le. Quelques remarques sur l'évolution générale des membres dans la série des vertébrés. Bull. Soc. Sci. Med. Ouest France xi, pp. 367–371.

168. Damas, D. Recherches sur le développement des Molgules. Arch. Biol. xviii, pp. 599–664, pls. xxv–xxviii.

169. Dangeard, P. A. La téléomitose chez l'*Amœba gleicheni* Dujard. C.R. Ac. Sci. cxxxv, pp. 1126–1128.

170. ——. L'organisation du *Trepomonas agilis* Dujardin. T. c. pp. 1366, 1367.

171. Darbishire, A. D. Note on the result of crossing Japanese waltzing mice with European albino races. Biometrika ii, pp. 101–104.

172. ——. The Centrosome. Tr. Oxford Club, n. s. 16, 17, 18, pp. 247–262.

173. Davenport, C. B. Zoology of the 20th century. Presidential Address. P. Amer. Ass. l, pp. 309–324.

174. ——. Variability, symmetry and fertility in an abnormal species [of *Hydromedusæ*]. Biometrika i, pp. 255, 256.

175. ——. The animal ecology of Cold Spring Beach, with remarks on the theory of adaptation. [Brief abstract.] Science xvi, pp. 346, 347.

Davis, S. E. [See Morgan & Davis (586).]

176. Dawydoff, C. Über die Regeneration der Eichel bei den Enteropneusten. Zool. Anz. xxv, pp. 551–557.
Summary, Zool. Centrlbl. 1902, p. 847.

177. Dean, Bashford. Historical evidence as to the origin of the paired limbs of Vertebrates. Amer. Natural. xxxvi, pp. 767–776.
Summary, J. R. Micr. Soc. 1903, p. 29.

178. ——. Biometric evidence in the problem of the paired limbs of the Vertebrates. T. c. pp. 837–847.
Summary, J. R. Micr. Soc. 1903, p. 24.

179. ——. A case of mimicry outmimicked? Concerning *Kallima* butterflies in Museums. Science xvi, pp. 832, 833.

180. *Debret, F. La sélection naturelle dans l'espèce humaine. Contribution à l'étude de l'hérédité convergente. (Thèse.) Paris, 1901, 8vo, 93 pp. [ex Zool. Anz. Bibl. 1902, p. 31].

181. *Dehnert, E. Vom Sterbelager des Darwinismus. Stuttgart, 1902, 8vo, 83 pp. [ex Zool. Anz. Bibl. 1903, p. 74].

182. Delage, Y. Les théories de la fécondation. Verh. Congr. Zool. v, pp. 121–140.

183. ——. L'acide carbonique comme agent de choix de la parthénogénèse expérimentale chez les *Astéries*. C.R. Ac. Sci. cxxxv, pp. 570–573.
Summary, J. R. Micr. Soc. 1903, p. 21.

184. ——. Sur le mode d'action de l'acide carbonique dans la parthénogénèse expérimentale. T. c. pp. 605–608.
Summary, J. R. Micr. Soc. 1903, p. 21.

185. ——. Effets de l'excision du madréporite chez les *Asteries*. T. c. pp. 841, 842.

186. [Delage, Y.] Nouvelles recherches sur la parthénogénèse expérimentale chez *Asterias glacialis*. Arch. Zool. exp. 1902, pp. 213–235.
Summary by Bergh, Zool. Zentrlbl. 1903, pp. 110–112.

187. ——. Quelques expériences et observations sur les *Astéries*. I. Régénération de l'hydropore. II. Quelques anomalies rares. III. Manuel opératoire de la mérogonie. T. c. pp. 237–240.

188. —— & Herouard, E. Traité de Zoologie Concrète. Tome ii, 2me partie. Les *Cœlentérés*, pp. x + 848.

189. —— [and others]. L'année biologique. Comptes rendus annuels des travaux de Biologie générale. v, 1899–1900. Paris, 1901, 8vo, lxxvi + 676 pp.

190. —— [——]. .....vi, 1901. Paris, 1903, 8vo, lxxii + 575 pp.
The abstracts in these two volumes are by a variety of authors and deal with most of the subjects at present under discussion.

Delamare, G. [See Charrin, Delamare & Moussu (134).]

191. Demokidoff, K. Zur Kenntnis des Baues des Insectenhodens. Zool. Anz. xxv, pp. 575–578.

192. Dendy, A. The Chatham Islands: a study in Biology. Mem. Manchester Soc. xlvi, No. xii, 29 pp.

193. Denis, R. Recherches sur le développement de l'oreille interne chez les Mammifères (*Vespertilio murinus*). Arch. Biol. xviii, pp. 377–493, pls. xv–xxi.

194. Deschamps, J. J. Principes de la Biologie rationelle. Bull. Soc. Philom. (9) iv, pp. 127–178.

195. *Detto, C. Über das logische Wesen der Descendenztheorie und die Untersuchungen von Hugo de Vries zu ihrer experimentellen Begrundung. Naturw. Wochenschr. xvii, pp. 229–233 [ex Zool. Anz. xxv, Bibl. p. 468].

196. *——. Ueber die deduktive Berechtigung und Ableitung des Mechanismus in der Biologie. Op. cit. xviii, pp. 37–41, 51–54 [ex Zool. Anz. xxvi, Bibl. p. 61].

197. De Vries, H. The origin of species by mutation. Science xv, pp. 721–729.
Botanical: translation by H. T. A. Hus, from Album der Natuur 1901.

198. Dewitz, J. Notizen die Lebenserscheinungen der Spermatozoën betreffend. Centrbl. Physiol. 1902, Heft 3.

199. D'Hollander, F. Le noyau vitellin de Balbiani et les pseudochromosomes chez les oiseaux. Verh. Anat. Ges. 1902, pp. 168–171.
Summary, J. R. Micr. Soc. 1902, p. 632.

200. Dickel, F. Über Petrunkewitsch's Untersuchungsergebnisse von Bieneneiern. Zool. Anz. xxv, pp. 20–27.

201. ——. Über die Entwicklungsweise der Honigbiene. T. c. pp. 39–56.

202. Dimon, Abigail Camp. Quantitative study of the effect of environment upon the forms of *Nassa obsoleta* and *Nassa trivittata* from Cold Spring Harbor, Long Island. Biometrika ii, pp. 24–43.

203. *Dodel, A. Entweder-Oder! Eine Abrechnung in Sachen der Frage "Moses oder Darwin" an der Jahrhundertwende. Stuttgart, 1902, 8vo, 176 pp.
From Zool. Anz. Bibl. 1902, p. 32. A work on this subject (or reprint?) by the same author has apparently gone through 5 editions.

DODERLEIN, L. [See VOELTZKOW (837).]

204. DOHRN, A. Studien zur Urgeschichte des Wirbelthier-Körpers. Mt. Stat. Neapel xv, pp. 555–654, pls. xxiv–xxx.
22. Weitere Beiträge zur Beurtheilung der Occipitalregion und der Ganglienleiste der *Selachier*.

205. DONCASTER, L. On the development of *Sagitta*; with notes on the anatomy of the adult. Quart. J. Micr. Sci. xlvi, pp. 351–398, pls. xix–xxi.

206. DORMOY, P. Aperçu sur les modifications cytologiques de la cellule intraparasitée chez les animaux. Bull. Soc. Nancy (3) ii, pp. 68–72.

207. DOWNING, E. R. Variation in the position of the adductor muscles of *Anodonta grandis* Say. Amer. Natural. xxxvi, pp. 395–400.

DRAGENDORFF, O. [See BARFURTH & DRAGENDORFF (40).]

208. DRIESCH, H. Neue Antworten und neue Fragen der Entwickelungsphysiologie. Anat. Hefte. Ergebn. xi, pp. 784–945.
Summary by BERGH, Zool. Zentrlbl. 1903, p. 444.

209. ——. Über ein neues harmonisch-äquipotentielles System und über solche Systeme überhaupt. Arch. Entwickmech. xiv, pp. 227–246.
Summary by BERGH, Zool. Centrlbl. 1902, p. 672.

210. ——. Studien über das Regulationsvermögen der Organismen. 6. Die Restitutionen der *Clavellina lepadiformis*. T. c. pp. 247–287.
Summary by BERGH, Zool. Centrlbl. 1902, p. 672.

211. ——. Neue Ergänzungen zur Entwickelungsphysiologie des Echinidenkeimes. T. c. pp. 500–531.
Summary by BERGH, Zool. Centrlbl. 1902, pp. 772, 773.

212. ——. Studien über das Regulationsvermögen der Organismen. 7. Zwei neue Regulationen bei *Tubularia*. T. c. pp. 532–538.

213. ——. Kritisches und polemisches. I. Die Metamorphosen der Entwicklungsphysiologie. Biol. Centrbl. xxii, pp. 151–159. II. Zur "Mutationstheorie." T. c. pp. 181–190. III. Anhänger und Gegner der Lehre von der Lebensautonomie. T. c. pp. 439–460.

214. ——. Zwei Beweise für die Autonomie von Lebensvorgangen [with discussion]. Verh. Congr. Zool. v, pp. 433–448.

215. ——. Physiology of development. Enc. Brit. xxviii, pp. 148–150.

216. DUBOIS, R. Sur l'autorégulation par l'acide carbonique du fonctionnement énergétique des organismes. C.R. Ac. Sci. cxxxv, pp. 58–60.

DUBOSCQ, O. [See LÉGER & DUBOSCQ (485, 486).]

217. DUERDEN, J. E. West Indian Madreporarian polyps. Mem. Ac. Washington viii, 7th Memoir, pp. 401–597, pls. i–xxv.

218. DUMEZ, R. Rapports du Cytoplasme et du noyau dans l'œuf de la *Cytherea chione* L. Cellule xix, pp. 435–453, 1 pl.

219. DUNGERN, E. Neue Versuche zur Physiologie der Befruchtung. Zeitschr. allg. Physiol. i, pp. 34–55.

220. *DÜRST, J. U. Versuch einer Entwicklungsgeschichte der Hoerner der Cavicornia nach Untersuchungen am Hausrinde. Forschung. Landwirth. Frauenfeld 1902.
Referred to by GADOW (263).

221. DYER, Sir W. T. THISELTON. Huxley. Enc. Brit. xxix, pp. 368–372.

EASTMAN, C. R. [See ZITTEL (918).]

222. EDWARDS, C. E. The physiological zero and the index of development for the egg of the domestic fowl, *Gallus domesticus*. Amer. J. Physiol. vi, pp. 351–398.

223. *EHLERS, E. Göttingen Zoologen. Festschr. Ges. Gottingen 1901, pp. 393–494.
Summary, Zool. Zentrlbl. 1903, pp. 1, 2.

224. ELDERTON, W. PALIN. Tables for testing the goodness of fit of theory to observation. Biometrika i, pp. 155–163.

225. *EMERY, C. Dopo vent' anni. Ancora una volta dell' indirizzo moderno delle Scienze naturali e particolarmente della Zoologia in Italia. Prefazione al corso di Zoologia. Bologna, 1901, 8vo, 31 pp.

226. ——. Was ist Atavismus? Verh. Congr. Zool. v, pp. 301–306.

227. *ERLANGER, C. v. Zoogeographie und Ornithologie von Abyssinien den Galla- und Somali-Ländern, 1902. Frankfurt. Ber. Senckenberg. Ges. 1902, 15 pp.
Abstract by MEISENHEIMER, Zool. Zentrlbl. 1903, p. 452.

228. EWART, J. C. Telegony. Enc. Brit. xxxiii, pp. 211–213.

229. ——. Telegony in dogs. Field Nat. Quart. i, pp. 59–65.

230. EYCLESHYMER, A. C. The formation of the embryo of *Necturus*, with remarks on the theory of concrescence. Anat. Anz. xxi, pp. 341–353.

231. ——. The nuclear changes in the striated muscle cell of *Necturus*. [Summary.] Amer. J. Anat. i, pp. 512, 513.

232. FÉRÉ, C. & PETTIT, A. Sur la structures des tératomes. Bull. Mus. Paris vii, pp. 360, 361.

233. FERMI, C. & REPETTO, R. Beitrag zur Verbreitung der proteolytischen Enzyme im Tierreiche. Centrbl. Bakter. I Abth. xxxi, pp. 403–410.

234. FICK, R. Vorschläge zur Minderung der wissenschaftlichen "Sprachverwirrung". Anat. Anz. xx, pp. 462, 463.
Cf. RÁDL (665).

235. *FICKEL, J. Die Literatur über die Tierwelt des Königreichs Sachsen. Zwickau, 1902, 71 pp.
Review by SIMROTH, Zool. Zentrlbl. 1903, p. 437.

FIGARI, F. [See MARIANO & FIGARI (539).]

236. FILHOL, H. Appareil à defilement pour préparations microscopiques du Dr Auguste Pettit. Bull. Mus. Paris vii, pp. 357–360.

237. FINN, F. General notes on variation in birds. J. Asiat. Soc. Bengal lxxi, pp. 154–184.

238. FISCHEL, A. Weitere Mittheilungen über die Regeneration der Linse. Arch. Entwickmech. xv, pp. 1–138, pls. i–iv.

239. FISCHER, E. Natürliche und künstliche Umformung der Lebewesen. Ber. St. Gall. Ges. 1901–1902, pp. 316–327.
Experiments on *Lepidoptera*; inheritance of acquired characters.

240. ——. Weitere Untersuchungen über die Vererbung erworbener Eigenschaften. Allg. Zeitschr. Ent. vii, pp. 129–134, 201–205, 241–246, 266–272, 301–306, 452–456, 476–483, 506–514, 521–525.

241. FISCHER, M. H. Further experiments on artificial parthenogenesis in Annelids. Amer. J. Physiol. vii, pp. 301–314.

242. *Fleischer, H. E. Lehrbuch der Zoologie fur Landwirthschaftsschulen und Anstalten verwandten Characters. 3 verb. Aufl. Braunschweig, 1902, 8vo, xii+530 pp., illustr. [ex Zool. Anz. xxvi, Bibl. p. 477].

243. Fleischmann, A. [& others]. Morphologische Studien über Kloake und Phallus der Amnioten. Morphol. Jahrb. xxx, pp. 540–675. I. Die Eidechsen und Schlangen, von Paul Unterhössel, pp. 541–581, pl. viii. II. Die Schildkröten und Krokodile, von Karl Hellmuth, pp. 582–613. III. Die Vögel von Dr Carl Pomayer, pp. 614–652, pl. ix. IV. Die Säugethiere; v die Stilistik des Urodäum und Phallus bei den Amnioten von Dr A. Fleischmann, pp. 653, 675, pl. x.

244. Foges, A. Zur Lehre von den secundären Geschlechtscharakteren. Arch. ges. Physiol. xciii, pp. 39–57.

245. Foot, Katharine, & Strobell, Ella Church. The spermatozoa of *Allobophora fœtida*. Amer. J. Anat. i, pp. 321–327, 1 pl.

246. Forel, A. Die psychischen Fahigkeiten der Ameisen und einiger anderer Insekten. Verh. Congr. Zool. v, pp. 141–169.
A separate work of 57 pp. appears also to have been published with the above title, cf. Review in Berlin. ent. Zeitschr. xlvi, p. 556.

247. ——. Beispiele phylogenetischer Wirkungen und Rückwirkungen bei den Instinkten und dem Körperbau der Ameisen als Belege für die Evolutionslehre und die psychophysiologische Identitätslehre. J. Psychol. Neurol. i, pp. 99–110.

248. *——. Gehirn und Seele. 8 Auflage. Bonn, 1902, 42 pp.

249. Forel, F. A. Le Léman. Monographie limnologique. III. livr. i. Lausanne, 1902, 411 pp.

250. Fountain, P. The great mountains and forests of S. America. London, 1902, 306 pp., illustrations.
Some observations on animals.

251. Fowler, G. H. Zoological distribution. I. Marine. Enc. Brit. xxxiii, pp. 931–938. [II. Terrestrial, Lydekker, pp. 938–941.]

252. *Frandsen, P. Studies on the reactions of *Limax maximus* to directive stimuli. Bull. Mus. Harvard 1901, pp. 185–227.
Review by Simroth, Zool. Zentrlbl. 1903, pp. 269–275.

253. Friedenthal, H. Neue Versuche zur Frage nach der Stellung des Menschen im zoologischen System. SB. Ak. Berlin 1902, pp. 830–835.

254. Friedmann, H. Zur Physiologie der Vererbung. Biol. Centrbl. xxii, pp. 773–778.
Brief notice by Fick, Zool. Zentrlbl. 1903, p. 365.

255. ——. Ueber die Chromosomen als Träger der Vererbungssubstanz. T. c. pp. 778–780.

Fröhlich, O. [See Grosser & Fröhlich (310).]

256. Froriep, A. Zur Entwickelungsgeschichte des Wirbeltierkopfes. Verh. Anat. Ges. 1902, pp. 34–46.

257. ——. Einige Bemerkungen zur Kopffrage. Anat. Anz. xxi, pp. 545–553.

258. ——. Ueber die Ganglienleisten des Kopfs und des Rumpfes und ihre Kreuzung in der Occipitalregion. Arch. Anat. 1901, pp. 371–394, pl. xvii.

259. *Fuchs, T. Über den Charakter der Tiefseefauna des Rothen Meeres auf Grund der von den österreichischen Tiefsee-Expeditionen gewonnenen Ausbeute. SB. Ak. Wien cv, pp. 249–258.
Summary, Zool. Centrlbl. 1902, p. 758.

Fuchs, R. F. [See also Triepel (815).]

260. Fürbringer, M. Morphologische Streitfragen. i. Nervus trochlearis. ii. Rabl's Methode und Behandlung der Extremitätenfrage. Morphol. Jahrb. xxx, pp. 85–274.

261. ——. Zur vergleichenden Anatomie des Brustchulterapparates und der Schultermuskeln. v. Teil. Jena. Zeitschr. xxxvi, pp. 289–736, pls. xviii–xxii.
Concluding part of this division relating to *Sauropsida*. Phylogeny of birds. Summary by Hartert, Zool. Centrlbl. 1902, pp. 814, 815.

262. *Fürth, O. von. Vergleichende chemische Physiologie der niederen Thiere. Jena 1903 (Decr. 1902), 8vo, xiv + 670 pp. [ex Zool. Anz. xxvi, Bibl. p. 196].
Review by Pütter, Zool. Zentrlbl. 1903, p. 449.

263. Gadow, H. The evolution of horns and antlers. P. Zool. Soc. London 1902, i, pp. 206–222.

264. ——. Origin of the Mammalia. Zeitschr. Morphol. iv, pp. 345–364.

265. Galeotti, G. Sugli innesti fra tessuti animali. Rivista dei lavori italiani dal 1896. Monit. Zool. ital. 1902, pp. 73–78.

266. *Gallardo, A. Les mathématiques et la biologie. 2 Congr. internat. Mathemat. Paris 1900, pp. 395–403 [ex Zool. Anz. Bibl. 1903, p. 70].

267. *——. Interpretacion dinámica de la division Cellular. Buenos Aires, 1902, 101 pp.
Summary by Marcus Hartog, Nature lxvii, p. 42.

268. ——. Carlos Berg. Reseña biographica. An. Mus. Buenos Aires vii, pp. ix–xl, portrait.

269. *Galloway, T. The experimental evidence for the inheritance of acquired characters in organisms. Cumberland Presbyt. Quart. i, 1902, pp. 230–260 [ex Zool. Anz. xxvi, Bibl. p. 377].

270. Galvagni, E. Beiträge zur Kenntniss der Fauna einiger dalmatinischer Inseln. Verh. Ges. Wien lii, pp. 362–388.

Gamble, F. W. [See Keeble & Gamble (416).]

271. *Garbowski, T. Morphogenetische Studien. Als Beitrag zur Methodologie Zoologischer Forschung. Jena, 1903 (Decr. 1902), 4to, viii + 189 pp., 6 pls. [ex Zool. Anz. xxvi, Bibl. p. 192].

272. Gardiner, J. Stanley. The fauna and geography of the Maldive and Laccadive Archipelagoes. Being the account of the work carried on, and of the collections made by an expedition during the years 1899 and 1900. Vol. i, Parts i and ii. Cambridge, 1901–1902, 222 pp., xiii pls.
See numerous articles in the special Records.

273. ——. Some notes on variation and protandry in *Flabellum rubrum*, and senescence in the same and other Corals. P. Cambridge Soc. xi, pp. 463–471.
Summary, J. R. Micr. Soc. 1903, p. 184.

274. ——. On the unit of classification for systematic biology, a reply to Mr Bernard. T. c. pp. 423–427.

275. Gaskell, Walter H. The origin of Vertebrates deduced from the study of *Ammocœtes*. x. On the origin of the auditory organ; the meaning of the 8th cranial nerve; together with a consideration of the origin of the cranial nerves as a whole, in accordance with the principles laid down in Part I. J. Anat. Physiol. norm. path. xxxvi, pp. 164–208.

276. Gaston, — [and others]. Hommage à M. Marey. Rev. Scient. xvii, pp. 129–138.

277. Gautier, A. La vie depuis les phénomènes de l'assimilation jusqu'à ceux de la conscience. Rev. Quest. Sci. (3) ii, pp. 429–441.

278. Geare, R. I. A list of the publications of the United States National Museum. Bull. U. S. Mus. No. 51, 168 pp.

279. Gebhardt, —. Ueber quantitative und qualitative Verschiedenheiten in der Reaction des Knochengewebes auf mechanische Einwirkungen. Verh. Anat. Ges. 1902, pp. 65–92.

280. *Geelmuyden, H. C. Die Wirkung des Lichtes auf Menschen und Thiere. Naturw. Wochenschr. xvii, pp. 151, 152 [ex Zool. Anz. xxv, Bibl. p. 191].

281. Geikie, Sir Archibald. Hugh Miller, his work and influence. Nature lxvi, pp. 426–430.

282. Gérard-Varet, L. Le jeu dans l'animal et dans l'homme. Rev. Scient. xvii, pp. 485–491.

283. Gerassimow, J. J. Die Abhängigkeit der Grosse der Zelle von der Menge ihrer Kernmasse. Zeitschr. allg. Physiol. i, pp. 220–258.

284. *Gerlache de Gomery, A. de. Quinze mois dans l'Antarctique. Voyage de la "Belgica." Bruxelles, 1901, 1 Carte, 106 illustt.
[See also Belgica (60).]

285. Giard, A. Sur le passage de l'hermaphrodisme à la séparation des sexes par castration parasitaire unilatérale. C.R. Ac. Sci. cxxxiv, pp. 146–149.

286. ——. Sur la spermatogenèse des *Diptères* du genre *Sciara*. T. c. pp. 1124–1127.

287. ——. Cænomorphisme et cænodynamisme. C.R. Soc. Biol. liv, pp. 1388–1391.

288. Giardina, A. Sui primi stadii dell' oogenesi, e principalmente sulle fasi di sinapsi. Anat. Anz. xxi, pp. 293–308.

289. ——. Note sul mecanismo della fecondazione e della divisione cellulare, studiato principalmente in uova di echini. I. Sulla divisione cellulare. Anat. Anz. xxi, pp. 561–581.
Summary, J. R. Micr. Soc. 1903, p. 26.

290. ——. Note sul meccanismo della fecondazione e della divisione cellulare, studiato principalmente in uova di echini. II. Sulla fecondazione. Op. cit. xxii, pp. 40–58.

291. Giglio-Tos, E. Sull' origine embrionale del nervo trigemino nell' uomo. Anat. Anz. xxi, pp. 85–105.

292. Gilman, D. C. The Carnegie institute. [Letter.] Nature lxvi, pp. 548, 549.

293. Glaser, O. C. The law of von Baer. Science xv, pp. 976–982.

294. GLEY, E. Xavier Bichat, son œuvre biologique. Rev. Scient. xviii, pp. 200–202.

295. ——. Xavier Bichat. Aperçu sur son œuvre biologique. Mem. Soc. biol. Paris liv, No. 26, pp. 17–22.

296. *GODLEWSKI, E. Junr. Regeneration in *Tubularia* after longitudinal splitting. Bull. Ac. Cracovie 1902, pp. 387–396.
Summary, Zool. Zentrlbl. 1903, p. 109.

297. *GODLEWSKI, E. O oddychanice Zarodków zwierzęcych. (Sur la respiration des embryons animaux.) Wszechświat xx, pp. 500–504, 516–522 [ex Zool. Anz. Bibl. 1902, p. 191].

298. GODMAN, F. D. Biologia Centrali-Americana; or contributions to the knowledge of the fauna and flora of Mexico and Central America. Parts CLXX–CLXXV. London, 1902.
See the special records, viz. F. D. GODMAN, *Aves*; A. GÜNTHER, *Batrachia*; F. O. P. CAMBRIDGE, O. P. CAMBRIDGE, R. I. POCOCK, *Arachnida*; D. SHARP, G. C. CHAMPION, P. P. CALVERT, L. BRUNER, *Insecta*.

299. GOETTE, A. Lehrbuch der Zoology. Leipzig, xii + 504 pp., 512 illustr.
Noticed J. R. Micr. Soc. 1903, p. 166.

300. GOLDSCHMIDT, R. Untersuchungen über die Eireifung, Befruchtung und Zelltheilung bei *Polystomum integerrimum* Rud. Zeitschr. wiss. Zool. lxxi, pp. 397–444, plates xxii–xxiv.

301. ——. Ueber Bau und Embryonalentwickelung von *Zoogonus mirus*. Centrbl. Bakter. Abth. I, xxxii, pp. 870–876.
Abstract by BRAUN, Zool. Zentrlbl. 1903, p. 535.

302. *GOLSKI, S. Dojrzewanie i zaplodnenie jajka u Ascidii. *Ciona intestinalis* F. Rospr. Ak. Krakow xxviii (1901), pp. 50–69 [ex Zool. Anz. Bibl. 1902, p. 359].

303. *GRAN, H. H. Das Plankton des norwegischen Nordmeeres von biologischen und hydrographischen Gesichtspuncten behandelt. Rep. Norwegian Fish. invest. ii. [ex Zool. Anz. Bibl. 1903, p. 76].

304. GRANDIDIER, G. Dans le sud de Madagascar. Bull. Mus. Paris 1902, pp. 174–178.

305. *GRASSET, J. Les limites de la biologie. Paris, iv + 188 pp.
Cf. LOISEL (517). Review, Nature lxvi, p. 293.

306. GRASSI, G. B. Das Malaria-problem vom zoologischen Standpunkte. Verh. Congr. Zool. v, pp. 99–114.

——. [See also LÜHE (526).]

307. GRAVIER, CH. Sur les Annélides polychètes d'eau douce. Bull. Mus. Paris 1902, pp. 25–30.
Adaptation.

GRAVIER, C. [See also PERRIER & GRAVIER (637).]

308. GREELY, A. W. Artificial parthenogenesis in Starfish produced by a lowering of temperature. Amer. J. Physiol. vi, pp. 296–304.

309. GREGORY, E. H. Beiträge zur Entwickelungsgeschichte der Knochenfische. Anat. Hefte Arb. xx, pp. 151–229, pls. vii–xv.

310. GROSSER, O. & FRÖHLICH, A. Beiträge zur Kenntnis der Dermatome der menschlichen Rumpfhaut. Morphol. Jahrb. xxx, pp. 508–537.

311. *Grotrian, R. Warum und Weil nach Otto Ule'scher Methode. Fur Lehrer und Lernende in Schule und Haus. III. Zoologie und Botanik. Ein Beitrag zur Reform des Unterrichts in der Naturgeschichte und zur Förderung einer denkenden Naturbetrachtung. 2 verm. und verbess. Aufl. Berlin 1901, 8vo, 250 pp. [ex Zool. Anz. Bibl. 1902, p. 42].

312. Grünberg, K. Untersuchungen über die Keim- und Nährzellen in den Hoden und Ovarien der *Lepidopteren*. Op. cit. xxvi, pp. 131–142.
Summary, Zool. Zentrlbl. 1903, p. 156, and J. R. Micr. Soc. 1903, p. 175.

Grundmann, E. [See Strahl & Grundmann (781).]

313. Gruvel, A. Sur une forme géante de Spermatozoïdes chez les Cirrhipèdes. Bull. Mus. Paris 1902, pp. 526, 527.

314. Guyer, M. F. Some notes on hybridism, variation and irregularities in the division of the germ-cells. Science xv, pp. 530, 531.

315. Häcker, Valentin. Ueber das Schicksal der elterlichen und grosselterlichen Kernanteile. Morphologische Beiträge zum Ausbau der Vererbungslehre. Jena. Zeitschr. xxxvii, pp. 297–400, pls. xvii–xx.
Review by Fick, Zool. Zentrlbl. 1903, pp. 365–370.

316. ——. Ueber die Autonomie der väterlichen und mütterlichen Kernsubstanz vom Ei bis zu den Fortpflanzungscellen. Anat. Anz. xx, pp. 440–452.

317. *Haeckel, E. Indische Reisebriefe. 4 Aufl. Berlin, 1903 (Dec. 1902), xvi+415 pp. [ex Zool. Anz. xxvi, Bibl. p. 194].

318. *——. Aus Insulinde. Malayische Reisebriefe. Bonn, 1901, 8vo, xi+260 pp. [ex Zool. Anz. xxv, Bibl. p. 52].

319. Hahn, G. Les multiples organes de locomotion des Vertébrés. Rev. Quest. Sci. (3) ii, pp. 147–172.

320. Halkin, H. Recherches sur la maturation, la fécondation et le developpement du *Polystomum integerrimum*. Arch. Biol. xviii, pp. 291–364, pls. x–xiv.

321. Haller, B. Lehrbuch der vergleichenden Anatomie. Lief. I. Jena, 1902, vi+424 pp., 412 figg.
Review by Spengel, Zool. Zentrlbl. 1903, pp. 3–8.

322. ——. Über die Urniere von *Acanthias vulgaris*, ein Beitrag zur Kenntnis sekundärer Metamerie. Morphol. Jahrb. xxix, pp. 283–316, pls. 15, 16.

323. Hamann, O. Litteratur 1902. [Anatomical.] 8vo, 104 pp. Anat. Anz. xxi, suppl.
A classified bibliographic list.

324. Hänig, D. P. Zur Psychophysik des Geschmacksinnes. Leipzig, 1901, 8vo, 50 pp., 7 illustr.

325. Hansemann, D. Untersuchungen über das Winterschlaforgan. [Verh. Berlin. Physiol. Ges.] Arch. Physiol. [Engelmann] 1902, pp. 160–166.

326. Hargitt, G. T. Notes on the regeneration of *Gonionema*. Biol. Bull. iv, pp. 1–12.

327. H[armer], S. F. Henri de Lacaze-Duthiers. Yearb. R. Soc. London 1902, pp. 245–250.

328. HARTERT, E. Aus den Wanderjahren eines Naturforschers [continuation]. Nov. Zool. ix, pp. 141–159 etc.
Also as a separate work, xv+329 pp., 13 pls. Summary by author, Zool. Centrlbl. 1902, pp. 817–820.

329. *HARTMANN, F. Die Orientierung. Die Physiologie, Psychologie, und Pathologie derselben auf biologischen und anatomischen Grundlagen. Leipzig, 1902, 8vo, 176 pp. [ex Zool. Anz. xxv, Bibl. p. 465].

330. HARTMANN, M. Studien am thierischen Ei. I. Ovarialei und Eireifung von *Asterias glacialis*. Zool. Jahrb. Anat. xv, pp. 793–812, pls. xlii, xliii.
Summary, Zool. Zentrlbl. 1903, p. 290, and in J. R. Micr. Soc. 1902, p. 437.

HARTOG, M. [See GALLARDO, A. (267).]

331. *HASSE, K. E. Erinnerungen aus meinem Leben. Zweite Aufgabe. Leipzig, 1902.

332. HATCHER, J. B. Reports of the Princeton University expeditions to Patagonia, 1896–1899, J. B. Hatcher in charge. Edited by William B. Scott. Vol. I. Narrative of the expeditions. Geography of Southern Patagonia. Princeton and Stuttgart, 1903, 4to, xvi+314 pp. 50 illustr. 1 map.
Besides this vol. some parts of vol. IV relating to Palaeontology have been published.

333. *HATSCHEK, B. Entgegnung [auf KATTOWITZ (414)]. Wiss. Beil. 15 Jahresber. Phil. Ges. Wien, pp. 35–38 [ex Zool. Anz. xxvi, Bibl. p. 192].

334. HAYWARD, J. W. Protoplasm: its origin, varieties and functions. Bristol, 1902, 12mo, 51 pp.

335. HAZEN, ANNAH P. The regeneration of an œsophagus in the Anemone, *Sagartia luciae*. Arch. Entwickmech. xiv, pp. 592–599, pl. xxxi.
Summary, Zool. Centrlbl. 1902, p. 772.

336. *HEADLEY, F. W. Problems of Evolution. New York, 1901, xv+373 pp.
Review by W. M. WHEELER, Psychological Review x, pp. 193–199.

337. HECK, L. Der Berliner Zoologische Garten als wissenschaftliche Tiersammlung. Verh. Congr. Zool. v, pp. 919–926.

338. HEIDENHAIN, M. Weitere Beiträge zur Beleuchtung des genetischen Verhältnisses zwischen molecularer und histologischer Structur. Anat. Anz. xxi, pp. 391–398.

339. ——. Das Protoplasma und die contractilen Fibrillärstructuren. Eine Antwort an Herrn Professor von Apáthy in Klausenburg. T. c. pp. 609–640.
Relates to APÁTHY (27). Criticism of his views as to cell, protoplasma etc.

HELLMUTH, K. [See FLEISCHMANN and others (243).]

340. HENNEGUY, L. F. Sur la formation de l'œuf et la fécondation de l'oocyte chez le *Distomum hepaticum*. C.R. Ac. Sci. cxxxiv, pp. 1235–1238.
Summary, J. R. Micr. Soc. 1902, p. 434.

341. HENSEN, V. Nachtrag zu der Arbeit über die quantitative Untersuchung der kleineren Planktonorganismen in Bd. v der Wiss. Meeresuntersuch. Wiss. Meeresuntersuch. (n. f.) vi, pp. 233, 234 (unnumbered).

342. HENSGEN, C. Biometrische Untersuchungen über die Spielarten von *Helix nemoralis.* Biometrika i, pp. 468–492.

343. HERBST, C. Ueber die formativen Beziehungen zwischen Nervensystem und Regenerationsprodukt. Verh. Congr. Zool. v, pp. 449–451.

344. *——. Vorlaufige Uebersicht über die Rolle der zur Entwickelung der Seeigellarven nothwendigen anorganischen Stoffe. Verh. Ver. Heidelberg vii, pp. 367–394.
Summary by BERGH, Zool. Zentrlbl 1903, pp. 112–115.

345. HERDMAN, W. A. Fifteenth Annual report of the Liverpool marine biological committee and their biological station at Port Erin. Tr. Liverpool biol. Soc. xvi, pp. 27–144.
Includes guide to the Aquarium at Port Erin, pp. 67–108.

346. HERRERA, A. L. Nouvelle nomenclature des êtres organisés et des mineraux. Liste des principaux genres des plantes et des animaux.
Published in connection with Mem. Soc. Ant. Alzate, but with separate pagination: pp. 73–80 published in May 1902.

347. ——. Le protoplasma de métaphosphate de chaux. Mem. Soc. Ant. Alzate xvii, pp. 201–213.

348. ——. Note sur l'imitation du protoplasma. Bull. Soc. zool. France xxvii, pp. 144–149.

349. ——. Sur les mouvements et la structure de l'albumine combinée avec l'acide phosphorique anhydre. T. c. pp. 158–161.

350. ——. Sur la structure de la gélatine traitée par l'acide métaphosphorique. T. c. pp. 177–180.

351. ——. Suite des recherches sur l'imitation du protoplasma. T. c. pp. 201–203.

352. ——. El Dr Alfredo Dugès. Mem. Soc. Ant. Alzate xvii, Revista, pp. 5–17.

353. HERRICK, C. J. A note on the significance of the size of nerve fibres in fishes. J. comp. Neurol. xii, pp. 329–334.

354. HERTWIG, O. Handbuch der Vergleichenden und experimentellen Entwickelungslehre der Wirbeltiere. Lieff. iv–ix.
Contributions by several zoologists. See WALDEYER (849).

355. ——. Über Wesen und Bedeutung der Befruchtung. SB. Ak. Munchen xxxii, pp. 57–73.
Brief notice by FICK, Zool. Zentrlbl. 1903, p. 370.

356. ——. Die Rolle des Urmunds bei dem Aufbau des Wirbeltierkörpers. Verh. Congr. Zool. v, p. 423.

357. HERTWIG, R. Die Protozoen und die Zelltheorie. Arch. Protistenk. i, pp. 1–40.

358. HESSE, R. Untersuchungen über die Organe der Lichtempfindung bei niederen Thieren. VIII. Weitere Thatsachen. Allgemeines. Zeitschr. wiss. Zool. lxxii, pp. 565–656, pl. xxxv.
Concludes the series. Summary by author, Zool. Zentrlbl. 1903, pp. 283–287.

359. *——. Abstammungslehre und Darwinismus. Leipzig, 1902, 8vo, 113 pp. [ex Zool. Anz. xxv, Bibl. p. 467].

HEYMONS, R. [See SAMTER & HEYMONS (702).]

360. HICKSON, S. J. Fertilisation. Tr. Manchester Micr. Soc. 1901, pp. 25–34.

361. [Hickson, S. J.] & Wadsworth, J. T. *Dendrocometes paradoxus.* Part i. Conjugation. Quart. J. Micr. Sci. xlv, pp. 325–362, pls. xvii, xviii.
Summary, J. R. Micr. Soc. 1902, p. 438.

362. Hilgendorf, F. Bericht etc. [in] Arch. Naturg.
The following parts appeared in 1902, viz. lxi (ii) Heft i, x+385 pp. relates to literature 1892–1894.—lxv (ii) 2 Heft, 2 Hälfte, pp. 331–1003, relates to *Arthropoda* literature of 1898.—lxvii (ii) 2 Heft, 1 Hälfte, pp. 1–288, *Insecta* 1900, part.

363. Hilton, W. A. The morphology and development of intestinal folds and villi in Vertebrates. Amer. J. Anat. i, pp. 459–504, pls. i–vii.

["Hirondelle" Expedition. See Monaco, Albert Prince de (573, 574).]

364. Hochstetter, F. Über Varietäten der Aortenbogen, Aortenwurzeln und der von ihnen entspringenden Arterien bei Reptilien. Morphol. Jahrb. xxix, pp. 415–438, pl. xxiv.

365. *Höber, R. Physikalische Chemie der Zelle und der Gewebe. Leipzig, 1902, 8vo, xii+344 pp.

366. Hoffmann, R. W. Über die Ernährung der Embryonen von *Nassa mutabilis* Lam. Ein Beitrag zur Morphologie und Physiologie des Nucleus und Nucleolus. Zeitschr. wiss. Zool. lxxii, pp. 657–720, pls. xxxvi–xxxviii.
Summary, Zool. Zentrlbl. 1903, pp. 267–269.

367. *Holbrook, R. Dante and the animal kingdom. London, 1902, 8vo, 396 pp.

368. Holmgren, E. Neue Beiträge zur Morphologie der Zelle. Anat. Hefte Ergebn. xi, pp. 274–329.

369. ——. Ueber die "Trophospongien" den Darmepithelzellen, nebst einer Bemerkung in Betreff einer von Prof. Browicz neulich publicirten Abhandlung über die Leberzellen. Anat. Anz. xxi, pp. 477–484.

370. ——. Einige Worte über das "Trophospongium" verschiedener Zellarten. Anat. Anz. xx, pp. 433–440.

371. Holmgren, N. Ueber den Bau der Hoden und die Spermatogenese von *Silpha carinata.* Anat. Anz. xxii, pp. 194–206. [*Coleoptera.*]

372. ——. Ueber die morphologische Bedeutung des Chitins bei den Insecten. Anat. Anz. xxi, pp. 373–378.
Summary, J. R. Micr. Soc. 1903, p. 33.

373. Houssay, F. Variations organiques chez des Poules carnivores de seconde génération. C.R. Ac. Sci. cxxxv, pp. 1357–1359.

374. ——. Sur la mue, l'excrétion et la variation du rein chez des poules carnivores de seconde génération. T. c. pp. 1061–1063.

375. Howes, G. B. The morphological method and progress. Rep. Brit. Ass. 1902 (pp. 618–638) and Nature lxvi (pp. 522–530).

376. ——. Atlas of practical elementary zootomy (being a revised edition of the zoological portion of the atlas of practical elementary biology). London, 1902, 24 pls.

377. Hubrecht, A. A. W. Keimblattbildung bei *Tarsius spectrum.* Verh. Congr. Zool. v, pp. 651–657, pls. 1, 2.

378. Hübner, O. Neue Versuche aus dem Gebiet der Regeneration und ihre Beziehungen zu Anpassungserscheinungen. Zool. Jahrb. Syst. xv, pp. 461–498, pls. xxviii, xxix.
Summary, Zool. Centrlbl. 1902, pp. 427, 428, by Bergh.

379. Huie, Lily H. Metabolism in some ice-bound cells. P. Scott. micr. Soc. iii, pp. 213–216.

380. Hülsen, K. Die Druckfestigkeit der langen Knochen. (Die mechanische Bedeutung der Beziehung der Länge zum Diameter der Knochen.) Verh. Congr. Zool. v, pp. 452–460.

381. Huntington, G. S. Present problems of myological research and the significance and classification of muscular variations. [Summary.] Amer. J. Anat. i, p. 511.

382. *Hutter, Franz. Wanderungen und Forschungen im Nord-Hinterland von Kamerun. Braunschweig, 1902, 570 pp., illustr.
Summary, Zool. Centrlbl. 1902, p. 681.

383. Hutton, F. W. The lesson of evolution. London, 1902, 100 pp.
Review, Nature lxvi, p. 219.

384. Huxley, T. H. [the late]. The scientific memoirs of Thomas Henry Huxley. Edited by Sir Michael Foster and Prof. E. Ray Lankester. Vol. iv. London, 1902, 689+xii pp.
Review, Nature lxvi, p. 241.

385. [Hyatt, A.] Memorial of. P. Boston Soc. xxx, pp. 413–433.
Tributes by various members of the Society.

386. Ihering, H. von. Natterer e Langsdorff. Exploradores antigos do Estado de S. Paulo. Rev. Mus. Paulista v, pp. 13–34.

387. ——. Bibliographia 1900–1901. Historia natural e Anthropologia do Brazil. T. c. pp. 683–739.

388. ——. Die Helminthen als Hilfsmittel der Zoogeographischen Forschung. Zool. Anz. xxvi, pp. 42–51.

389. Ikeda, Iwagi. Observations on the development, structure and metamorphosis of *Actinotrocha*. J. Coll. Tokyo xiii, Part 4, pp. 507–592, pls. xxv–xxx.
Cf. Masterman (548). Review in Amer. Natural. xxi, pp. 499, 500 by H. S. J.

390. Ikeda, Sakujiro. Contributions to the embryology of Amphibia. The mode of blastopore closure and the position of the embryonic body. J. Coll. Tokyo xvii, Part 3, pp. 1–90, pls. i–iv.

391. Imbert, A. Mode de fonctionnement économique de l'organisme. Scientia Series, No. 14, 97 pp., Paris, 1902.

392. Ishikawa, C. Über das rhythmische Auftreten der Furchungslinie bei *Atyephira compressa* De Haan. Arch. Entwickmech. xv, pp. 534–542, pl. xix.

393. *Jacobi, A. [Biogeographical Regions.] Zeitschr. Ges. Erdkunde Berlin xxxv, 1900, pp. 147–238.
Summary, J. R. Micr. Soc. 1902, p. 426. Review by Ortmann, Amer. Natural. xxxvi, pp. 157–159.

394. Jaekel, O. Die Zusammensetzung des Schultergürtels. Verh. Congr. Zool. v, pp. 610–612.

395. ——. Ueber verschiedene Wege phylogenetischer Entwickelung. T. c. pp. 1058–1117.

Jamieson, Clara. [See Jennings & Jamieson (400).]

396. Janda, V. Ueber die Regeneration des centr. Nervensystems und Mesoblastes bei *Rhynchelmis*. SB. Bohmisch. Ges. 1902, No. xi, 59 pp., 3 pls.
Abstract by Bergh, Zool. Zentrlbl. 1903, pp. 420, 421.

397. *Janson, O. Meeresforschung und Meeresleben. Leipzig, 1901, 8vo, v+146 pp. [ex Zool. Anz. Bibl. 1902, p. 50].

398. Janssens, F. A. La Spermatogénèse chez les Tritons. Cellule xix, pp. 1–114, pls. i–iii.
Summary, Zool. Centrlbl. 1902, p. 801.

399. Janssens, J. A. Die Spermatogenese bei den Tritonen nebst einigen Bemerkungen über die Analogie zwischen chemischer und physikalischer Thätigkeit in der Zelle. Anat. Anz. xxi, pp. 129–138.
Summary, Zool. Centrlbl. 1902, p. 750.

400. Jennings, H. S. & Jamieson, Clara. Studies on reaction to stimuli in unicellular organisms. x. The movements and reactions of pieces of Ciliate *Infusoria*. Biol. Bull. iii, pp. 225–234.
Abstract by Pütter, Zool. Zentrlbl. 1903, p. 594.

401. —— & Moore, E. M. Studies on reactions to stimuli in unicellular organisms. viii. On the reactions of Infusoria to carbonic and other acids, with especial reference to the causes of the gatherings spontaneously formed. Amer. J. Physiol. vi, pp. 233–250.

402. *Jickeli, C. F. Die Unvollkommenheit des Stoffwechsels für Vermehrung, Wachsthum, Differenzierung, Rückbildung und Tod der Lebewesen. Berlin, 1902, 8vo, xvi+353 pp. [ex Zool. Anz. xxv, Bibl. p. 557].

403. *——. Die unvollkommenheit des Stoffwechsel's als Grundprinzip für Werden und Vergehen im Kampf ums Dasein. Berlin, 1902, 8vo, 44 pp., illustr. [ex Zool. Anz. xxvi, Bibl. p. 478].

404. Johnston, Sir Harry. The Uganda protectorate. In two vols. London, 1902. Zoology, vol. i, chap. xii, pp. 352–470.

405. Johnston, J. B. Das Gehirn und die Cranialnerven der Anamnier. Anat. Hefte Ergebn. xi, pp. 973–1112.
Summary of recent work. Translated into German by Dr K. W. Genthe.

406. Jordan, D. S. The history of ichthyology. [Presidential address.] Science xvi, pp. 241–258.

407. ——. The colors of fishes. Amer. Natural. xxxvi, pp. 803–808.
Summary, J. R. Micr. Soc. 1903, p. 28.

408. *—— & Heath, H. Animal forms. New York, 1902, vi+258 pp.
Review, Amer. Natural. xxxvi, p. 821.

409. *Jordan, W. H. The feeding of animals. New York, 1901, 8vo, xvii+540 pp. [ex Zool. Anz. Bibl. 1902, p. 44].

410. Joseph, H. Untersuchungen über die Stützsubstanzen des Nervensystems, nebst Erörterungen über deren histogenetische und phylogenetische Deutung. Arb. Inst. Wien xiii, 66 pp., 4 pls.

411. ——. Beiträge zur Flimmerzellen- und Centrosomfrage. Op. cit. xiv, pp. 1–80, pls. i–iii.

412. Kaestner, S. Doppelbildungen an Vogelkeimscheiben. Vierte Mittheilung. Arch. Anat. 1902, pp. 117–148, pls. vii–ix.

413. Kathariner, L. Weitere Versuche über die Selbstdifferenzirung des Froscheies. Arch. Entwickmech. xiv, pp. 290–299.

414. *Kattowitz, M. Die Krisis des Darwinismus. Wiss. Beil. 15 Jahresber. Phil. Ges. Wien pp. 7–18 [ex Zool. Anz. xxvi, Bibl. p. 192].
Cf. Hatschek (333).

415. *Kearton, Cherry & Kearton, R. Gilbert White's Natural history of Selborne. Notes by R. Kearton. 123 illustrations from photographs taken direct from Nature by Cherry & R. Kearton. London, 1902, 8vo, 310 pp.

416. Keeble, F. & Gamble, F. W. The colour-physiology of higher Crustacea. P. R. Soc. London lxxi, pp. 69–71.

417. Keibel, F. Die Gastrulation und die keimblattbildung der Wirbelthiere. Anat. Hefte Ergebn. x, 1901, pp. 1002–1119.

418. ——. Bemerkungen zu Roux's Aufsatz: "das Nichtnotigsein der Schwerkraft fur die Entwickelung des Froscheies. Anat. Anz. xxi, pp. 581–591.
Relates to Roux (695).

419. ——. Die Entwickelung des Rehes bis zur Anlage des Mesoblast. Arch. Anat. 1902, pp. 292–314, pls. xvi–xviii.
Summary, Zool. Zentrlbl. 1903, p. 318.

420. Keissler, C. v. Ueber das Plankton des Aber- oder Wolfgang-Sees in Salzburg. Verh. Ges. Wien lii, pp. 305–327.

421. ——. Zur Kenntniss des Planktons des Alt-Ausser Sees in Steiermark. T. c. pp. 706–708.

422. Keith, Arthur. The extent to which the posterior segments of the body have been transmuted and suppressed in the evolution of man and allied Primates. J. Anat. Physiol. norm. path. xxxvii, pp. 18–40.

423. Kerr, J. Graham. The development of *Lepidosiren paradoxa.* Part iii. Development of the skin and its derivatives. Quart. J. Micr. Sci. xlvi, pp. 417–459, pls. xxv–xxviii.

424. *Kersten, H. Die "postvitale" Erklärung der organischen Zweckmassigkeit im Darwinismus und Lamarckismus. Zeitschr. Naturw. lxxiv, pp. 44–57.
Summary, Allg. Zeitschr. Ent. vii, p. 457.

425. Kidd, Walter. Certain habits of animals traced in the arrangement of their hair. P. Zool. Soc. London 1902, ii, pp. 145–158.

426. ——. Adaptation and selection in nature : their bearing on design. J. Victoria Inst. xxxiv, pp. 107–124.

427. King, Helen D. The follicle sacs of the Amphibian ovary. Biol. Bull. iii, pp. 245–254.

428. ——. The gastrulation of the egg of *Bufo lentiginosus.* Amer. Natural. xxxvi, pp. 527–548.

429. ——. Preliminary note on the formation of the first polar spindle in the egg of *Bufo lentiginosus.* Anat. Anz. xxi, pp. 414–417.

430. Kingsbury, B. F. The spermatogenesis of *Desmognathus fuscus.* Amer. J. Anat. i, pp. 99–136, pls. [*Amphibia.*]

Kinsley, A. T. [See Willard & Kinsley (885).]

431. Kirwan, C. de. La science de la vie et ses limites. Rev. Quest. Sci. (3) ii, pp. 405–427.

431a. Kishi, K. Das Gehörorgan der sogenannten Tanzmaus. Zeitschr. wiss. Zool. lxxi, pp. 456–485, pl. xxvi.

432. Klaatsch, H. Der kurze Kopf des musculus biceps femoris und der tenuissimus. Ein stammesgeschichtliches Problen. Morphol. Jahrb. xxix, pp. 217–282, pls. xiii, xiv. [Relation of man and apes.]

433. KLEINSCHMIDT, O. Ueber individuelles Variieren der Schädelform bei Eulen und beim Menschen. Verh. Congr. Zool. v, pp. 640–642.

434. *KLUNZINGER, C. B. Über die geologischen und anatomisch-physiologischen Kenntnisse und Anschauungen des Aristoteles. Jahresh. Ver. Wurttemb. lvii, SB. pp. lxxi–lxxiii.

435. ——. Sprachsunden in der Zoologie. Verh. Congr. Zool. v, pp. 900–909.

436. KNIGHT, FRANCIS A. The Sea-board of Mendip. An account of the History, Archæology and Natural History.... London, 1902 (xiv+495 pp.).
Brief lists of animals.

437. *KNIPOWITSCH, N. [Expedition für wissenschaftlich-practische Untersuchungen an der Murman-Kuste. Band I. Unter Mitwirkung von JAGODOWSKIJ und N. SCHICHAREW. In Russian.] St. Petersburg, 1902, pp. 1–605, illustt.
Summary by SCHULTZ, Zool. Zentrlbl. 1903, p. 323.

438. *KOBELT, W. Die Verbreitung der Thierwelt. Gemässigte Zone. Leipzig, 1902, 8vo, xiv+576 pp., 12 pls. [ex Zool. Anz. xxv, Bibl. p. 561].

439. KOEHLER, R. Revue annuelle de Zoologie. Rev. gen. Sci. xiii, pp. 344–352.

440. KOELLIKER, A. Weitere Beobachtungen über die Hofmann'schen Kerne am Mark der Vögel. Anat. Anz. xxi, pp. 81–84, pl. i.

441. ——. Zur Erinnerung an Rudolf Virchow. Op. cit. xxii, pp. 59–62.

KOHLBRUGGE. Zool. Rec. 1901. [(351): the reference should be to Arch. mikr. Anat. lviii, not Arch. Entwickmech.]

442. *KOKEN, E. Paläontologie und Descendenzlehre. Jena, 1902, 33 pp.
Summary, J. R. Micr. Soc. 1902, p. 634: by ZIEGLER, Zool. Centrlbl. 1902, pp. 432–435.

443. KÖLSCH, K. Untersuchungen über die Zerfliessungserscheinungen der ciliaten Infusorien (nebst Bemerkungen über Protoplasmastructur, Protoplasmabewegungen und Vitalfärbungen. Zool. Jahrb. Anat. xvi, pp. 273–422, pls. xxvi–xxviii.

444. KOPSCH, F. Über die kunstliche Befruchtung der Eier von *Cristiceps argentatus*. SB. Ges. naturf. Berlin 1902, pp. 33–36.
Summary, Zool. Zentrlbl. 1903, p. 167.

445. ——. Ueber die Bedeutung des Primitivstreifens beim Hühnerembryo und über die ihm homologen Teile bei den Embryonen der niederen Wirbeltiere. Verh. Congr. Zool. v, pp. 1018–1055.

446. ——. Bemerkungen zu Mitrophanows Berichtigungen. Anat. Anz. xxii, pp. 305–308.

447. *——. Art, Ort und Zeit der Entstehung der Dottersackentoblasts bei verschiedene Knochenfischen. Int. Monatsschr. Anat. xx, pp. 101–124.
Summary, Zool. Zentrlbl. 1903, p. 279.

448. KORFF, K. v. Zur Histogenese der Spermien von *Phalangista vulpina*. Arch. mikr. Anat. lx, pp. 232–260, pls. xiv, xv.
Summary, Zool. Centrlbl. 1902, p. 719 and J. R. Micr. Soc. 1903, p. 24.

449. *Korjinsky, S. [the late]. Heterogenese und Evolution. Zur Theorie der Entstehung der Arten. Mem. Ac. St. Petersb. ix, 1899, pp. 1–94.
In Russian and specially botanical. Summary by E. Schultz, Zool. Zentrlbl. 1903, pp. 13–15.

450. Korschelt, E. & Heider, K. Lehrbuch der vergleichenden Entwicklungsgeschichte der wirbellosen Tiere. Allgemeiner Teil. 1 Lief. Jena, 1902.
Review by O. Schultze, Biol. Centrbl. xxii, pp. 412–414; by Bergh, Zool. Centrlbl. 1902, pp. 429–431.

451. Kostanecki, C. Ueber die Reifung und Befruchtung des Eies von *Cerebratulus marginatus*. Bull. Ac. Cracovie 1902, pp. 270–277.
Abstract by Fick, Zool. Zentrlbl. 1903, p. 472.

452. ——. Sur les anomalies des figures mitotiques lors de la formation des globules polaires dans l'œuf de *Cerebratulus marginatus*. T. c. pp. 278–289.
Summary, J. R. Micr. Soc. 1902, p. 651.

453. ——. La fécondation Artificielle et la parthenogenèse expérimentelle sur les œufs de *Mactra*. T. c. pp. 363–386.
Summary by Bergh, Zool. Centrlbl. 1902, pp. 791–793.

Kowalevsky, Alexander. [See Lankester (467).]

454. Kraemer, H. On the continuity of protoplasm. P. Amer. Phil. Soc. xli, pp. 174–179, pls. xxi, xxii.

455. Krämer, A. Die Samoa-Inseln. Stuttgart, 1902, 4to, xii + 509 pp. [ex Zool. Anz. xxv, Bibl. p. 200].

456. Kropotkin, Prince. Mutual aid a factor of evolution. London, 8vo, 1902, xix + 348 pp.
Chaps. I, II. Mutual aid among animals.

457. Kükenthal, W. Leitfaden für das zoologische Praktikum. Jena, 1902, Zweite Aufl., 8vo, viii + 304 pp., illustr.

458. ——. Ergebnisse einer zoologischen Forschungsreise in den Molukken und Borneo. See X. CRUSTACEA, De Man (77).

459. *Kulagin, N. Die Entstehung der Geschlechter bei den Bienen. Moskau, 1901, 8 pp.
In Russian; summary, Zool. Zentrlbl. 1903, p. 165.

460. Kunstler, J. & Gineste, C. Contribution à l'étude de l'œil composé des Arthropodes. C.R. Ass. Franc. 1901, pt. 2, pp. 646–666.
Chiefly *Crustacea*.

461. Küster, E. Die Mendel'schen Regeln, ihre ursprungliche Fassung und ihre modernen Ergänzungen. Biol. Centrbl. xxii, pp. 129–136.

[Lacaze-Duthiers, Henri de. Obituary, see Pruvot, G. (655), Boutan (90), and Harmer (327).]

462. *Laloy, L. L'évolution de la vie, avec figs. dans le texte. Paris, 1902, 18mo, 240 pp., illustr.
Review, Rev. Scient. xviii, p. 755.

463. Lämmel, R. Ueber periodischen Variationen in Organismen. Biol. Centrbl. xxii, pp. 369–376.

464. Lankester, E. Ray. Report on the collections of Natural History made in the Antarctic regions during the voyage of the "Southern Cross." London, 1902, ix + 344 pp., liii pls.
A collection of descriptions by specialists. Review, Rev. Scient. xviii, p. 756.

465. [LANKESTER, E. RAY.] *Arthropoda.* Enc. Brit. xxv, pp. 689–701.

466. ——. On *Okapia*, a new genus of *Giraffidæ* from Central Africa. Trans. Zool. Soc. London xvi, pp. 279–314, pls. xxx–xxxii.
IV. The areas of tumescence on the Giraffine skull and the nature and origin of the horns of Pecora.

467. ——. Alexander Kowalevsky. Nature lxvi, pp. 394–396.

468. LATTER, OSWALD H. The egg of *Cuculus canorus.* An enquiry into the dimensions of the Cuckoo's egg and the relation of the variations to the size of the eggs of the foster-parent, with notes on coloration etc. Biometrika i, pp. 164–176.

469. LEBRUN, H. Maturation of the eggs of *Diemyctilus torosus.* Biol. Bull. iii, pp. 1, 2.
A preliminary note.

470. ——. La cytodiérèse de l'œuf. La vésicule germinative et les globules polaires chez les Anoures. Cellule xix, pp. 311–402.
Summary by FICK, Zool Centrlbl. 1902, pp. 802–806.

471. ——. La cytodiérèse de l'œuf. La vésicule germinative et les globules polaires chez les batraciens. Op. cit. xx, pp. 1–93, pls. i–iii.
Summary in Zool. Zentrlbl. 1903, pp. 92–99 by R. FICK.

472. LÉCAILLON, A. Sur la disposition, la structure et le fonctionnement de l'appareil reproducteur mâle des *Collemboles.* Bull. Soc. Philom. (9) iv, pp. 99–103.

473. ——. Sur le testicule d'*Anurida maritima* Lab. Bull. Soc. ent. France 1902, pp. 64–67. [*Collembola.*]

474. LECHE, W. Ein Fall von Vererbung erworbener Eigenschaften. Biol. Centrbl. xxii, pp. 79–82.

475. ——. Zur Entwicklungsgeschichte des Zahnsystems der Säugethiere, zugleich ein Beitrag zur Stammesgeschichte dieser Thiergruppe. II Theil: Phylogeny. 1 Heft. Die Familie der *Erinaceidæ.* Zoologica, Heft 37, pp. 1–103, pls. i–iv.
Review by FÜRBRINGER, Morphol. Jahrb. xxxi, pp. 116–121.

476. LE DANTEC, F. L'hérédite. Rev. Scient. xvii, pp. 289–297.

477. ——. La maturation de l'œuf. Rev. gen. Sci. xiii, pp. 290–293.

478. *LE DOUBLE, A. F. Rabelais, anatomiste et physiologiste. Paris, illustr.
Review, Rev. Scient. xviii, p. 339.

479. LEDUC, S. Cytogenese expérimentale. C.R. Ass. Franc. 1901, pt. 2, pp. 644–646.

480. LEE, ALICE, LEWENZ, MARIE A. & PEARSON, KARL. On the correlation of the mental and physical characters in man. Part II. P. R. Soc. London lxxi, pp. 106–114.
For Part I see PEARSON (629).

481. LEE, A. BOLLES. L'éclairage et l'emploi du condensateur dans la micrographie histologique. Cellule xix, pp. 403–433, 1 pl.

482. ——. Nouvelles recherches sur le nebenkern et la régression du fuseau caryocinétique. Op. cit. xx, pp. 179–216, 1 pl.
Summary, Zool. Zentrlbl. 1903, p. 145.

483. *[Lee, A. Bolles] & Henneguy, L. F. Traité des méthodes techniques de l'anatomie microscopique, histologie, embryologie et zoologie. Avec une préface de M. Ranvier. Troisième édition entièrement refondue et considérablement augmentée. Paris, 560 pp.

484. Léger, L. Note sur le développement des éléments sexuels et la fécondation chez le *Stylorhynchus longicollis* F. St. Arch. zool. exp. Notes (3) x, pp. lxiv–lxxiv.
Summary by R. Fick, Zool. Zentrlbl. 1903, pp. 287–289.

485. —— & Duboscq, O. Les éléments sexuels et la fécondation chez les *Pterocephalus*. C.R. Ac. Sci. cxxxiv, pp. 1148, 1149.
Summary, Zool. Zentrlbl. 1903, p. 289.

486. —— & ——. Sur la régénération épithéliale dans l'intestin moyen de quelques Arthropodes. Arch. zool. exp. Notes (3) x, pp. xxxvi–xli.

487. Legros, R. Contribution à l'étude de l'appareil vasculaire de l'*Amphioxus*. Mt. Stat. Neapel xv, pp. 487–554, pls. xx–xxiii.
Relations to vertebrates and invertebrates. Degraded or primitive.

488. Lendenfeld, R. v. Zur mimikristischen Tierfarbung. Biol. Centrbl. xxii, pp. 570–573.

489. *Lenhossek, M. von. Das Problem der geschlechtsbestimmenden Ursachen. Jena, 1902, 8vo, 99 pp. [ex Zool. Anz. Bibl. 1903, p. 73].

490. *Lepeschkin, W. W. [Zur Frage der Erblichkeit bei den einzelligen Organismen] [in Russian]. Trav. Soc. St. Petersb. xxxiii, pp. 181, 182.

491. Lerat, P. La première cinèse de maturation dans l'ovogénèse et la spermatogénèse du *Cyclops strenuus*. Anat. Anz. xxi, pp. 407–411.
Summary, Zool. Zentrlbl. 1903, p. 297, also in J. R. Micr. Soc. 1903, p. 39.

492. Lesbre, F. X. Observations de deux vaches, un coq et une cane pygomèles, avec considérations générales sur la pygomélie. Ann. Soc. Agric. Lyon (7) ix, pp. 85–120.

493. Levaditi, C. Le leucocyte et ses granulations. Scientia Series. Nos. 15, 16, 159 pp. Paris, 1902.

494. Levander, K. M. Beiträge zur Fauna und Algenflora der süssen Gewässer ander Murmanküste. Acta Soc. Faun. Fenn. 1901, 35 pp.

495. ——. Zur Kenntniss des Planktons und der Bodenfauna einiger seickter Brackwasserbuchten. T. c. 34 pp.

496. ——. Uebersicht der in der Umgebung von Esbo-Löfo im Meereswasser Vorkommenden Thiere. T. c. 1901, 20 pp.

Lewenz, Marie A. [See Lee, Lewenz & Pearson (480).]

Lewis, W. H. [See Loeb & Lewis (513).]

497. Leydig, F. Horæ zoologicæ. Zur vaterländischen Naturkunde ergänzende, sachliche und geschichtliche Bemerkungen. Jena, 1902.
Review by Escherich, Allg. Zeitschr. Ent. vii, p. 285.

498. Lillie, F. R. Differentiation without cleavage in the egg of the Annelid *Chætopterus pergamentaceus*. Arch. Entwickmech. xiv, pp. 477–499, pls. xxvii, xxviii.
Summary by Bergh, Zool. Centrlbl. 1902, pp. 779, 780.

499. ——. Notes on regeneration and regulation in Planarians (continued from Amer. Natural. xxxiv). Amer. J. Physiol. vi, pp. 129–141.

500. Limon, M. Étude histologique et histogénique de la glande interstitielle de l'ovaire. Arch. anat. micr. v, pp. 154–190, pls. vii, viii.

501. *——. Étude histologique et histogénique de la glande interstitielle de l'ovaire. Trav. Lab. Med. Nancy 1901, pp. 1–63, 2 pls.
Summary, Zool. Zentrlbl. 1903, p. 318.

502. *——. Note sur les vacuoles de la Granulosa des follicules de de Graaf. Bibliogr. anat. 1902, Heft 3, 7 pp.
Summary, Zool. Zentrlbl. 1903, p. 319.

503. Linden, La Comtesse M. von. Le dessin des ailes des *Lépidoptères* recherches sur son évolution dans l'ontogenèse et la phylogenèse des espèces son origine et sa valeur systématique. Ann. Sci. nat. xv, pp. 1–196, pls. i–xx.
Summary by the author in Zool. Centrlbl. 1902, pp. 378–382.

504. ——. Morphologische und physiologische Ursachen der Flügelzeichnung und Färbung der Insekten mit besonderer Berücksichtigung der Schmetterlinge. Verh. Congr. Zool. v, pp. 831–839. [*Lepidoptera.*]

505. ——. Experimentelle Untersuchungen über die Vererbung erworbener Eigenschaften. Biol. Centrbl. xxii, pp. 62–64.

506. ——. Zusammenfassende Darstellung der experimentellen Ergebnisse über den Einfluss der Temperatur während der Puppenentwickelung auf die Gestaltung, Färbung und Zeichnung der Schmetterlinge. Die Vererbung erworbener Zeichnungscharaktere. Zool. Centrlbl. 1902, pp. 581–599.

507. Liversidge, A. Presidential address. J. R. Soc. N. S. Wales xxxv, pp. 1–29.

508. Livini, F. A proposito di una nuova classificazione delle ghiandole proposta dal Prof. G. Paladino. Monit. Zool. ital. 1902, pp. 41–47, and 129–136.
Cf. Paladino (612, 613).

509. *Lo Bianco, S. Die pelagischen Tiefenfänge der Maja in der Nähe von Capri. Leipzig, 1902, 85 pp.
Summary by Zschokke, Zool. Zentrlbl. 1903, pp. 260–264.

510. Loeb, J. Ueber Eireifung, natürlichen Tod und Verlängerung des Lebens beim unbefruchteten Seesternei (*Asterias forbesii*) und deren Bedeutung für die Theorie der Befrüchtung. Arch. ges. Physiol. xciii, pp. 59–76.

511. ——. Über die Einwände des Herrn Ariola gegen meine Versuche über Künstliche Parthenogenese. Arch. Entwickmech. xiv, pp. 288, 289.
Relates to Ariola (30).

512. ——. Maturation, natural death and the prolongation of the life of unfertilised starfish eggs (*Asterias forbesii*) and their significance for the theory of fertilisation. Biol. Bull. iii, pp. 295–311.

513. —— & Lewis, W. H. On the prolongation of the life of the unfertilised eggs of sea-urchins by potassium cyanide. Amer. J. Physiol. vi, pp. 305–317.

514. Loew, O. Zur Theorie der primären Protoplasma-Energie. Biol. Centrbl. xxii, pp. 733–736.

515. *Loewenfeld, L. & Kurella, H. Grenzfragen des Nerven- und Seelenlebens. Wiesbaden, 1902.
Summary, Anat. Anz. xxii, p. 63.

516. *Lohmann, H. Neue Untersuchungen über den Reichthum des Meeres an Plankton und über die Brauchbarkeit der verschiedenen Fangmethoden. Zugleich auch ein Beitrag zur Kenntniss des Mittelmeerauftriebs. Wiss. Meeresuntersuch. vii, 1902, pp. 1–87, pls. i–iv.
Summary by Zschokke, Biol. Centrbl. 1903, pp. 324–330.

517. Loisel, G. Biologie et morale. Simples réflexions à propos d'un livre récent. Rev. Scient. xviii, pp. 449–456.
Relates to Grasset (305).

518. ——. Sur l'origine épithélio-glandulaire des cellules séminales. C.R. Ac. Sci. cxxxiv, pp. 853–855.
Summary, J. R. Micr. Soc. 1902, p. 293.

519. ——. Revue annuelle d'embryologie. Rev. gen. Sci. xiii, pp. 1139–1147, 1188–1199.

520. *——. Spermatogenesis in Sparrow. J. Anat. Physiol. xxxviii, pp. 112–177, 4 pls.
Summary, J. R. Micr. Soc. 1903, p. 23.

521. Loring, J. A. Notes on the destruction of animal life in Alaska. Rep. New York Zool. Soc. vi, pp. 141–144.
The Vol. referred to contains other information—mostly anonymous—about Alaskan Zoology.

522. Loyez, Marie. Les premiers stades du développement de la vésicule germinative chez les Reptiles (*Sauriens* et *Chéloniens*). Bull. Soc. Philom. (9) iv, pp. 63–76.

523. Lozeron, H. Sur la répartition verticale du plancton dans le lac de Zurich, de Décembre 1900 à Décembre 1901. Vierteljahrschr. Ges. Zurich xlvii, pp. 115–198.

524. Lubosch, W. Über die Eireifung der Metazoen insbesondere über die Rolle der Nucleolarsubstanz und die Erscheinung der Dotterbildung. Anat. Hefte Ergebn. xi, pp. 709–783.
A review of recent work. Brief notice by Fick, Zool. Zentrlbl. 1903, p. 371.

525. ——. Ueber die Nukleolarsubstanz des reifenden Tritoneies nebst Betrachtungen über das Wesen der Eireifung. Jena. Zeitschr. xxxvii, pp. 217–296, pls. xii–xvi.
Review by Fick, Zool. Zentrlbl. 1903, pp. 389–391.

526. Lühe, M. [Summary of Grassi's recent works on Malaria.] Zool. Centrlbl. 1902, pp. 615–618.

527. Lydekker, R. Zoological distribution. ii. Terrestrial. Enc. Brit. xxxiii, pp. 938–941. [i. Marine, Fowler, pp. 931–938.]

528. Maas, O. Experimentelle Untersuchungen über die Eifurchung. SB. Ges. Munchen xvii, pp. 14–33.

529. MacBride, E. W. The development of *Echinus esculentus*, together with some points in the development of *E. miliaris* and *E. acutus*. Phil. Trans. cxcv, pp. 285–327.
See also Verh. Congr. Zool. v, pp. 693–697.

530. *Mach, E. Die Analyse der Empfindungen und das Verhaltniss des Physischen zum Psychischen. 3 vermehote Auflage. Jena, 1902, 8vo, 9+286 pp., 36 illustt.

Machowski, J. [See Nusbaum & Machowski (602).]

531. MACLAUCHLAN, J. Museum and Art Insurance. Museums J. i, pp. 345–357.

MACMUNN, C. A. [See POULTON & MACMUNN (650).]

532. MAGGI, L. La tachigenesi e gli studi universitari. Rend. Ist. Lombardo xxxv, pp. 823–834.

533. MAGNUS, R. Die Bedeutung des Ganglions bei *Ciona intestinalis*. Mt. Stat. Neapel xv, pp. 483–486.

534. MALARD, A. E. Des variations mensuelles de la faune et de la flore maritimes de la baie de la Hougue (Novembre et Décembre). Bull. Mus. Paris 1902, pp. 30–35, 190–197.

535. MALENGREAU, F. Sur les nucléines du Thymus. Seconde communication. Cellule xix, pp. 285–309.

536. MALL, F. P. On the development of the connective tissues from the connective tissue syncytium. Amer. J. Anat. i, pp. 329–365.

537. MANDOUL, H. Sur la cause des colorations changeantes des téguments. C.R. Ac. Sci. cxxxv, pp. 65, 66.

538. MAREŠ, F. Das Energieprinzip und die energetische Betrachtungsweise in der Physiologie. Biol. Centrbl. xxii, pp. 282–288, 310–319.

539. *MARIANO, F. & FIGARI, F. Nota preventiva sul trapianto degli organi. Boll. Acc. med. Genova xvii, pp. 131–134 [ex Zool. Anz. Bibl. 1903, p. 72].

540. MARSH, C. D. The plankton of freshwater Lakes. Tr. Wisconsin Ac. xiii, 1901, pp. 163–187.

541. MARSHALL, F. H. A. On variation in the number and arrangement of the male genital apertures in the Norway lobster (*Nephrops norvegicus*). P. Zool. Soc. London 1902, i, pp. 2–12.

542. *MARTENS, E. v. Ueber die Abgrenzung zoogeographischer Reiche. Jena, Naturw. Wochenschr. 1901, 14 pp.

543. MARTIN, C. J. Thermal adjustment and respiratory exchange in Monotremes and Marsupials. A study in the development of Homoethermism. Phil. Trans. cxcv, pp. 1–38.

544. MARTINOTTI, C. Sur un noyau de cellules cérébrales semblables aux granules du cervelet. Anat. Anz. xxii, pp. 33–39.

545. MARUCCI, V. Ricerche sperimentali sui maschi polimorfi di alcune forme di *Acari* "cryptostigmata." Boll. Soc. zool. Ital. xi, pp. 69–78, pls. i, ii.

546. MASSART, J. Versuch einer Einteilung der nicht-nervösen Reflexe. Biol. Centrbl. xxii, pp. 9–23, 41–52, 65–79.

547. MASTERMAN, A. T. Elementary Text-book of Zoology. London, 12mo, 1901, xiv + 602 pp., 364 illustr.

548. ——. Review of Mr Iwagi Ikeda's observations on the development, structure and metamorphosis of *Actinotrocha*. Quart. J. Micr. Sci. xlv, pp. 485–492.

Cf. IKEDA (389).

549. MATRUCHOT, L. Application d'un caractère d'ordre éthologique à la classification naturelle. C.R. Ac. Sci. cxxxv, pp. 988–991.

550. MAY, W. Die neueren Forschungen über die Bildung der Korallenriffe. Zusammenfassende Übersicht. Zool. Centrlbl. 1902, pp. 229–245.

551. [May, W.] Erasmus Darwin. Verh. Ver. Karlsruhe xv, pp. 117–138.

552. Mayer, A. G. Effects of natural Selection and Race-tendency upon the color-patterns of *Lepidoptera*. Bull. Mus. Brooklyn i, pp. 31–86, pls. i, ii.

553. Mayer, P. [and others]. Zoologischer Jahresbericht für 1901. Herausgegeben von der zoologischen Station zu Neapel. Berlin, 1902, 8vo.
Arranged according to taxonomical divisions, which are separately paged. A section "Allgemeine Biologie und Entwickelungslehre" is by the Editor, P. Mayer.

554. McClung, C. E. The accessory chromosome—Sex determinant? Biol. Bull. iii, pp. 43–84.

555. ——. The spermatocyte divisions of the *Locustidæ*. Kansas Univ. Bull. i, pp. 185–231, pls. vii–x.
Summary, J. R. Micr. Soc. 1903, p. 37.

556. McPherson, W. The zones of the Chalk near Brighton with an introductory sketch of the existing zones of life in Britain. Rep. Brighton Soc. 1902, pp. 19–38.

557. Mell, P. H. Biological Laboratory Manual. New York and London, 1902, 8vo, xii+321 pp., 127 illustr.

558. Mendelssohn, M. Les phénomènes électriques chez les êtres vivants. Scientia Series, No. 13, 99 pp., Paris, 1902.
Summary, Zool. Centrlbl. 1902, p. 754.

559. Merkel, F. & Bonnet, R. Ergebnisse der Anatomie und Entwickelungsgeschichte. xi. 1901. Wiesbaden, 1902, 8vo, xi+1187 pp. [This is Anat. Hefte Zweite Abth. cited as Anat. Hefte Ergebn. in our pages.]

560. Merzbacher, L. Untersuchungen über die Regulation der Bewegungen der Wirbelthiere. 1 Beobachtungen an Fröschen. Arch. Ges. Physiol. lxxxviii, pp. 453–474.
Summary by Pütter, Zool. Centrlbl. 1902, pp. 478–480.

561. Meves, F. Struktur und Histogenese der Spermien. Anat. Hefte Ergebn. xi, pp. 437–516.

562. ——. Ueber die Frage, ob die Centrosomen Boveri's als allgemeine und dauernde Zellorgane aufzufassen sind. Verh. Anat. Ges. 1902, pp. 152–159.

563. ——. Ueber oligopyrene und apyrene Spermien und über ihre Entstehung, nach Beobachtungen an *Paludina* und *Pygæra*. Arch. mikr. Anat. lxi, pp. 1–84, pls. i–viii.
Summary, Zool. Centrlbl. 1902, pp. 721–725, by Goldschmidt, and in J. R. Micr. Soc. 1903, p. 23.

564. ——. Ist der Wirkungsgrad der mechanischen Nutzarbeit des tierischen Organismus mit dernjenigen der Wärmekraftmaschinen vergleichbar? Verh. Congr. Zool. v, pp. 313–335.

565. Michel, A. L'expérimentation sur les préembryons et son importance pour la morphologie générale. Rev. Scient. xvii, pp. 456–462.

Milne-Edwards. [See Perrier (636).]

566. Minchin, E. A. Protoplasm. Enc. Brit. xxxii, pp. 40–42.

567. Minot, C. S. The problem of consciousness in its biological aspects. [Presidential address.] Nature lxvi, pp. 300–304.
Also Science xvi, pp. 1–11. Criticism by J. M. Bentley, t. c. pp. 386–391. Also, in French, Rev. Scient. xviii, pp. 193–200.

568. MITCHELL, P. C. Evolution. Enc. Brit. xxviii, pp. 342–345.

569. ——. Heredity. Op. cit. xxix, pp. 256–261.

570. MITROPHANOW, P. Beiträge zur Entwicklung der Wasservögel. Zeitschr. wiss. Zool. lxxi, pp. 189–210, pls. ix, x.
Summary, J. R. Micr. Soc. 1902, p. 294.

571. MOLL, J. W. Die Mutationstheorie. II. Teil. Biol. Centrbl. xxii, pp. 505–519, 537–551, 577–596.
Part I, cf. Zool. Rec. 1901. Dealing with the views of de Vries.

572. *MOLSBERG, P. A. v. Streifzuge ins Gebiet der Philosophie und Naturwissenschaften. Band I, 8vo, 1902, 5+151 pp.

573. MONACO, ALBERT, PRINCE DE. Resultats des campagnes scientifiques accomplies sur son yacht Hirondelle...publiés avec le concours de M. Jules Richard. Fasc. XXI, see ECHINODERMA, HEROUARD. Fasc. XXII, Echantillons d'eaux et de fonds, par J. THOULET. 76 pp., 3 pls.

574. ——. Le dernier voyage scientifique de l'Hirondelle. Rev. Scient. xvii, pp. 1–12, 40–49, 138–144.

574A. ——. Sur la troisième campagne de la Princesse Alice II. C.R. Ac. Sci. cxxxiv, pp. 961–964.

575. *——. La carrière d'un navigateur. Paris, 1902, 8vo, 396 pp.

576. MONTGOMERY, T. H. On phylogenetic classification. P. Ac. Philad. liv, pp. 187–232.

577. [MONTGOMERY, T. H. Zool. Rec. XXXVIII, Gen. Sub. (454). A study of the chromosomes of the germ cells of Metazoa. Tr. Amer. phil. Soc. xx, pp. 154–236, pls. iv–viii.] Summary by GOLDSCHMIDT, Zool. Centrlbl. 1902, pp. 245–247.

MOORE, E. M. [See JENNINGS & MOORE (401).]

578. MORGAN, E. H. Nouvelles recherches sur l'autotomie. [Abstract.] Rev. Scient. xvii, pp. 442, 443.

579. MORGAN, T. H. The relation between normal and abnormal development of the embryo of the Frog, as determined by injury to the yolk-portion of the egg. Arch. Entwickmech. xv, pp. 238–313, pls. viii–xii.

580. ——. The internal influences that determine the relative size of double structures in *Planaria lugubris*. Biol. Bull. iii, pp. 132–139.

581. ——. Regeneration of the appendages of the hermit-crab and crayfish. Anat. Anz. xx, pp. 598–605.

582. ——. The dispensibility of gravity in the development of the toad's egg. Op. cit. xxi, pp. 313–316.
Summary, J. R. Micr. Soc. 1902, p. 537.

583. ——. Further experiments on the regeneration of the tail of Fishes. Arch. Entwickmech. xiv, pp. 539–561.

584. ——. Experimental studies of the internal factors of regeneration in the earthworm. T. c. pp. 562–591.
Summary by BERGH, Zool. Centrlbl. 1902, p. 780.

585. ——. The reflexes connected with autotomy in the hermit-crab. Amer. J. Physiol. vi, pp. 278–282.

586. —— & DAVIS, S. E. The internal factors in the regeneration of the tail of the tadpole. Arch. Entwickmech. xv, pp. 314–326.

587. Moser, Fanny. Beiträge zur vergleichenden Entwicklungsgeschichte der Wirbeltierlunge. (Amphibien, Reptilien, Vögel, Säuger.) Arch. mikr. Anat. lx, pp. 587–668, pls. xxx–xxxiii.

Moser, Jefferson S. [See Agassiz (6).]

588. Moszkowski, Max. Ueber den Einfluss der Schwerkraft auf die Entstehung und Erhaltung der bilateralen Symmetrie des Froscheies. Arch. mikr. Anat. lx, pp. 17–65.

589. ——. Zur Analysis der Schwerkraftswirkung auf die Entwicklung des Froscheies. Op. cit. lxi, pp. 348–390, pl. xix.

590. Mouton, H. Recherche sur la digestion chez les Amibes et sur leur diastase intracellulaire Thèses Fac. Sci. Paris, No. 1106, 1902, 60 pp., 1 pl.

591. *Mrázek, A. Ein Beitrag zur Kenntnis der Fauna der Warmhäuser. SB. Bohmisch. Ges. 1902, pp. 1 etc. [ex Zool. Anz. xxvi, Bibl. p. 192].

592. *Müller, F. C. Geschichte der organischen Naturwissenschaften im neunzehnten Jahrhundert. Medizin und deren Hilfswissenschaften, Zoologie und Botanik. Berlin, 1902, 8vo, xv + 714 pp.
Summary, J. R. Micr. Soc. 1902, p. 170.

Murray, Sir John. [See Agassiz (6).]

593. Musset, G. Les collectionneurs de bêtes sauvages (1047–1572). Bull. Mus. Paris 1902, pp. 242, 243.

594. *Nalepa, A. Grundriss der Naturgeschichte des Thierreiches für die unteren Classen der Mittelschulen und verwandter Lehranstalten. Wien, 1902, 218 pp., illustrations.
Review, Verh. Ges. Wien lii, p. 351.

595. Nansen, F. [and others]. The second international conference for the exploration of the Sea, Christiania, 1901. J. Mar. Biol. Ass. vi, pp. 389–412.

596. Nestler, K. Das Thierleben der Alpenseen. Progr. 2 städt. Realschule, Leipzig, 1902 [ex Zool. Anz. Bibl. 1903, p. 82].

597. Neumann, O. Kurze Mitteilung über die zoologischen Resultate meiner Expedition durch Nordost-Afrika 1900–1901. Verh. Congr. Zool. v, pp. 201–208.
Chiefly *Mammalia*. Summary, Zool. Centrlbl. ix, pp. 682, 683.

598. Nichols, M. Louise. The spermatogenesis of *Oniscus asellus* Linn., with especial reference to the history of the chromatin. P. Amer. Phil. Soc. xli, pp. 77–112, pls. xi–xviii.

599. Niessing, K. Kurze Mitteilungen und Bemerkungen über Spermatogenese. Anat. Anz. xxii, pp. 112–118.

600. *Nitsche, P. Der Import von lebenden Fischen. Rathschläge und Winke für die Einfuhrung von Reptilien, Amphibien, Seewasserthieren und Wasserpflanzen für Aquarien- und Terrarienzwecke; gleichzeitig eine Anweisung für jeden Seereisenden, sich leicht einen reichlichen Nebenverdienst zu schaffen. Berlin, 1901, 8vo, 112 pp. [ex Zool. Anz. Bibl. 1902, p. 34].

601. Nowack, Kurt. Neue Untersuchungen über die Bildung der beiden primären Keimblätter und die Entstehung des Primitivstreifens beim Hühnerembryo. Inaug. Dissert. Berlin 13 February, 1902, 45 pp.

602. Nusbaum, J. & Machowski, J. Die Bildung der concentrischen Körperchen und die phagocytotischen Vorgänge bei der Involution der Amphibien Thymus nebst eininge Bemerkungen über die Kiemenreste und Epithelkörper der Amphibien. Anat. Anz. xxi, pp. 110–127.

603. Nussbaum, M. Ueber Kern- und Zelltheilung. Arch. mikr. Anat. lix, pp. 647–684.
Summary, J. R. Micr. Soc. 1902, p. 160.

604. *Ortleb, A. & G. Illustrirte Anleitung zum Sammeln, Präpariren und Aufbewahren von Eiern, Käfern, Schmetterlingen, Raupen, Conchylien, Pflanzen, Samen, Hölzern, Mineralien und Petrefakten. Berlin, 1901, 8vo, 147 pp., 84 illustt.

605. Ortmann, A. E. The geographical distribution of freshwater Decapods and its bearing upon ancient Geography. P. Amer. Phil. Soc. xli, pp. 267–400.

606. Osborn, H. F. The law of adaptive radiation. Amer. Natural. xxxvi, pp. 353–363.

607. ——. Homoplasy as a law of latent or potential homology. T. c. pp. 259–271.

608. Ostenfeld, C. H. & Schmidt, J. Plankton fra det Røde Hav og Adenbugten. Vid. Medd. 1901, pp. 141–182.

609. Ostwald, O. Zur Theorie des Planktons. Biol. Centrbl. xxii, pp. 596–605, 609–638.

610. Ostwald, W. Zur Theorie der Schwebevorgänge sowie der specifischen Gewichtsbestimmungen schwebender Organismen. Arch. ges. Physiol. xciv, pp. 251–272.

611. Palacký, J. Über Länderfaunen. Verh. Deutsch. zool. Ges. 1902, pp. 137–152.
Summary, Zool. Centrlbl. 1902, p. 759 and J. R. Micr. Soc. 1903, p. 167.

612. Paladino, G. In difesa della nuova classificazione delle glandole da me proposta. Monit. Zool. ital. 1902, pp. 79–83 and 190–195.
Cf. Livini (508).

613. ——. Per una migliore classificazione delle glandole. Rend. Acc. Napoli vii, 1901, pp. 217–221.

614. Pantel, J. & Sinéty, R. de. Sur l'évolution de la Spermatide chez le *Notonecta glauca*. C.R. Ac. Sci. cxxxv, pp. 997–1000.
This and the two following papers are summarised by Goldschmidt, Zool. Zentrlbl. 1903, p. 488.

615. —— & ——. Sur l'évolution de l'acrosome dans la spermatide du *Notonecte*. T. c. pp. 1124–1126.

616. —— & ——. Sur l'origine du Nebenkern et les mouvements nucléiniens dans la spermatide de *Notonecta glauca*. T. c. pp. 1359–1362.

617. *Pappenheim, A. Färberisches zur Kenntnis des sogenannten Chromatinkorns (Kernpunktes) von Protisten. Berlin. klin. Wochenschr. xxxix, pp. 1095, 1096 [ex Zool. Anz. xxvi, Bibl. p. 323].

618. Patten, W. On the origin of Vertebrates. With special reference to the structure of the Ostracoderms. Verh. Congr. Zool. v, pp. 180–192.

619. [PATTEN, W.] On the structure and classification of the *Trematastpidæ*. Amer. Natural. xxxvi, pp. 379-393.
Relations of Vertebrates and Invertebrates. Criticised by C. R. EASTMAN, t. c. pp. 505–507.

620. PATTERSON, R., CARPENTER, G. H., HALBERT, J. N., JOHNSON, W. F., NICHOLS, A. R., ORR, H. L., PRAEGER, R. L., SHARFF, R. F., WELCH, R. & WRIGHT, J. Zoology, pp. 148–242 [in] A Guide to Belfast and the Counties of Down and Antrim. Belfast, 1902, 283 pp.

621. *PAULI, W. Der Kolloidale Zustand und die Vorgänge in der lebendigen Substanz. Braunschweig, 1902, 8vo, 32 pp. [ex Zool. Anz. xxv, Bibl. p. 557].

622. *PAULY, A. Wahres und Falsches an Darwin's Lehre. München, 1902, 18 pp.
Summary, Allg. Zeitschr. Ent. vii, p. 539.

623. PEARL, RAYMOND. The movements and reactions of fresh-water Planarians: a study in animal behaviour. Quart. J. Micr. Sci. xlvi, pp. 509–714.

624. PEARSON, K. Variation of the egg of the sparrow (*Passer domesticus*). Biometrika i, pp. 256, 257.

625. ——. On the systematic fitting of curves to observations and measurements. Part 1. T. c. pp. 265–303. Part 2. Op. cit. ii, pp. 1–23.

626. ——. On the modal value of an organ or character. T. c. pp. 260, 261.

627. ——. On the fundamental conceptions of biology. T. c. pp. 320–344.

628. ——. Mathematical contributions to the theory of evolution. XI. On the influence of natural selection on the variability and correlation of the organs. P. R. Soc. London lxix, pp. 330–333.

629. ——. On the correlation of intellectual ability with the size and shape of the head. (Preliminary notice.) T. c. pp. 333–342.
For Part II. see LEE, LEWENZ & PEARSON (480).

630. ——. Note on Mr Bateson's paper "heredity, differentiation and other conceptions of biology": a consideration of Prof. Karl Pearson's paper "on the principle of homotyposis." T. c. p. 450.

——. [See also LEE, LEWENZ & PEARSON (480).]

PÉE, P. VAN. [See VAN PÉE.]

631. PEEBLES, FLORENCE. Further experiments in regeneration and grafting of *Hydroids*. Arch. Entwickmech. xiv, pp. 49–64.
Summary by BERGH, Zool. Centrlbl. 1902, p. 770.

632. *PÉREZ, C. Contribution à l'étude des métamorphoses. Thèse. Lille, 1902, 8vo, 239 pp.
Review, Rev. Scient. xvii, p. 754.

633. PERKINS, H. F. The development of *Gonionema murbachii*. P. Ac. Philad. liv, pp. 750–790, pls. xxxi–xxxiv.

634. PERRIER, E. La tachygénèse. Verh. Congr. Zool. v, pp. 996–1000.

635. ——. La fixation héréditaire des attitudes avantageuses. T. c. pp. 336–338.

636. *[PERRIER, E.] Henri et Alphonso Milne-Edwards. Avec liste des ouvrages et mémoires publiés en 1856 à 1900 par A. Milne-Edwards. Arch. Mus. Paris ii, Bull. pp. xxix–lxiii.

637. —— & GRAVIER, C. La Tachygénèse ou accélération embryogénique, son importance dans les modifications des phénomènes embryogéniques ; son rôle dans la transformation des organismes. Ann. Sci. nat. xvi, pp. 1–374.

638. PETRUNKEWITSCH, A. Die Reifung der parthenogenetischen Eier von *Artemia salina*. Anat. Anz. xxi, pp. 256–263.
Abstract by FICK, Zool. Zentrlbl. 1903, p. 381.

639. PETTIT, A. Georges Pouchet (1833–1894). C.R. Soc. Biol. liv, 14 pp. separate pagination.

——. [See also FÉRÉ & PETTIT (232).]

640. PION, A. L'alimentation comparée des Passereaux d'Amerique et du Moineau d'Europe. Rev. Scient. xvii, pp. 297–301.

641. PIPER, H. Die Entwickelung von Magen, Duodenum, Schwimmblase, Leber, Pankreas und Milz bei *Amia calva*. Arch. Anat. 1902, Suppl. pp. 1–78, pls. i–iv.

642. PIZON, A. Rôle du pigment dans le phénomène de la vision. Verh. Congr. Zool. v, p. 339.

643. *PLATE, L. Die Abstammungslehre. Gemeinverständliche darwinistische Vorträge und Abhandlungen. Herausgegeben von Dr W. BREITENBACH in Odenkirchen. Heft. I. 1901.
Intended to be the first of a series on organic evolution. Cf. ESCHERICH in Allg. Zeitschr. Ent. vii, p. 215.

[" Pola" Red Sea expedition, see ANON. (23).]

POMAYER, C. [See FLEISCHMANN and others (243).]

644. POMPILIAN, MARIETTE. Recherches sur les propriétés fondamentales du système nerveux. C.R. Soc. Biol. liv, pp. 586–588.

645. ——. Explication du repos compensateur et de la période réfractaire. T. c. pp. 588, 589.

646. ——. Explication de l'inhibition. T. c. pp. 589, 590.

647. PORTA, A. Die Funktion der Leber bei den Insekten. Vorläufige Mitteilung. Allg. Zeitschr. Ent. vii, pp. 427–429.

648. POULTON, E. B. Mimicry and Natural Selection. Verh. Congr. Zool. v, pp. 171–179.

649. ——. Darwin, Charles Robert. Enc. Brit. xxvii, pp. 382–386.

650. —— & MACMUNN, C. A. Colours of animals. I. Bionomics, by E. B. P. II. Chemistry, by C. A. MacM. T. c. pp. 146–151.

651. PRATT, H. S. A course in invertebrate Zoölogy. A guide to the dissection and comparative study of invertebrate animals. Boston and London, 1902, xii+210 pp.
Reviews, Nature lxvi, p. 292 ; and in Amer. Natural. xxxvi, p. 502, by M. A. B.

652. *PREBLE, E. A. A biological investigation of the Hudson Bay region. N. Amer. Fauna xxii, 140 pp., 14 pls.
Summary, Zool. Zentrlbl. 1903, p. 253.

[Princeton University Exp. to Patagonia. See HATCHER (332).]

653. Prowazek, S. Ein Beitrag zur Krebspermatogenese. Zeitschr. wiss. Zool. lxxi, pp. 445–456, pl. xxv.
Summary, Zool. Centrlbl. 1902, pp. 463, 464.

654. ——. Zur Vierergruppenbildung bei der Spermatogenese. Zool. Anz. xxv, pp. 27–29.

655. Pruvot, G. Henri de Lacaze-Duthiers. Arch. Zool. exp. 1902, pp. 1–64, list of writings pp. 65–78.

656. Przibram, H. Beobachtungen über Adriatische Hummer im Aquarium (und vorläufige Mittheilung über Regenerationsversuche). Zool. Anz. xxv, pp. 76–82.

657. ——. Versuch zur chemischen Charakterisierung einiger Thierklassen des naturlichen Systems auf Grund ihres Muskelplasmas. Beitr. chem. Physiol. ii, pp. 143–147.

658. ——. Die neue Anstalt für experimentelle Biologie in Wien. Verh. Ges. deutsch. Naturf. lxxiv, Theil II, pp. 152–155.

659. Pütter, A. Die Anpassung des Säugetierauges an das Wasserleben. Verh. Congr. Zool. v, pp. 613–620.

660. Rabaud, E. Les états pathologiques et les états tératologiques. Bull. Soc. Philom. (9) iv, pp. 77–98.

661. Rabl, C. Zur Frage der Entwicklung des Glaskörpers, Anat. Anz. xxii, pp. 573–581.
Summary, Zool. Zentrlbl. 1903, p. 304.

662. *——. Die Entwicklung des Gesichtes: Tafeln zur Entwicklungsgeschichte der auesseren Koerperform der Wirbelthiere. Part I. das Gesicht der Saugethiere. Leipzig, 1902.
Review, Nature lxvi, p. 368: also Zool. Zentrlbl. 1903, p. 206. Noticed J. R. Micr. Soc. 1903, p. 24.

663. Rádl, E. Über specifische Strukturen der nervösen Centralorgane. Zeitschr. wiss. Zool. lxxii, pp. 31–99, pls. iii–v.
Summary by Hesse, Zool. Centrlbl. 1902, pp. 833, 834.

664. ——. Ueber die Lichtreaktionen der Arthropoden auf der Drehscheibe. Biol. Centrbl. pp. 728–732.

665. ——. Bemerkungen zu den Vorschlägen von R. Fick, die wissenschaftliche Sprachverwirrung betreffend. Anat. Anz. xxi, pp. 27–29.

666. Ramón y Cajal, P. Algunas reflexiones sobre la doctrina de la evolución orgánica de los corpusculos piramidales del cerebro. Bol. Soc. espan. ii, pp. 179–190.

667. Redeke, H. C. Variationsstatistische Untersuchungen über Fischrassen. Zusammenfassende Übersicht. Zool. Centrlbl. 1902, pp. 645–670.

668. Regaud, C. Sur l'existence de cellules séminales dans le tissu conjonctif du testicule, et sur la signification de ce fait. C.R. Soc. Biol. liv, pp. 745, 746.
Relates to Stephan (766).

669. Reh, L. Die Zoologie im Pflanzenschutz. Verh. Deutsch. zool. Ges. 1902, pp. 186–192.

670. ——. Die Verschleppung von Tieren durch den Handel; ihre zoologische und wirtschaftliche Bedeutung. Biol. Centrbl. xxii, pp. 119–128.
Summary, Zool. Centrlbl. 1902, p. 313.

671. Reibisch, J. Über den Einfluss der Temperatur auf die Entwicklung von Fisch-Eiern. Wiss. Meeresuntersuch. vi, 1902, pp. 213–232, pl. vi.
Summary, Zool. Zentrlbl. 1903, pp. 309, 310.

672. Reichenbach, H. Ueber Parthenogenese bei Ameisen und andere Beobachtungen an Ameisenkolonien in künstlichen Nestern. Biol. Centrbl. xxii, pp. 461–465. [*Hymenoptera.*]

673. Reichenow, A. Über Begriff und Benennung von Subspecies. Verh. Congr. Zool. v, pp. 910–914.

674. Reinke, J. Bemerkungen zu O. Bütschli's "Mechanismus und Vitalismus." Biol. Centrbl. xxii, pp. 23–29, 52–60.

Repetto, R. [See Fermi & Repetto (233).]

675. Retterer, E. Structure et évolution de l'ébauche squelettogène des membres des Vertébrés. C.R. Soc. Biol. liv, pp. 1149–1152.

676. ——. Ébauche squelettogène des membres et développement des articulations. J. Anat. Physiol. xxxviii, pp. 473–509.

677. Retzius, G. Weiteres zur Kenntnis der Sinneszellen der Evertebraten. i. Fortgesetzte Untersuchungen uber die Sinneszellen der Polychäten. Biol. Untersuch. x, pp. 25–33, pls. viii–xii.

678. ——. Weitere Beiträge zur Kenntniss der Spermien des Menschen und einige Säugethiere. Biol. Untersuch. x, pp. 45–60, pls. xv–xvii.

679. ——. Ueber einen Spiralfaserapparat am Kopfe der Spermien der Selachier. T. c. pp. 61–64, pl. xviii.

680. Rhumbler, L. Zur Mechanik des Gastrulationsvorganges insbesondere der Invagination. Eine entwickelungsmechanische Studie. Arch. Entwickmech. xiv, pp. 401–476, pl. xxxvi.
Summary by Bergh, Zool. Centrlbl. 1902, pp. 674–676.

681. ——. Der Aggregatzustand und die physikalischen Besonderheiten des lebenden Zellinhaltes. i Teil. Zeitschr. allg. Physiol. i, pp. 279–388. ii Teil. Op. cit. ii, pp. 183–340.
Summary by Pütter, Zool. Zentrlbl. 1903, pp. 8–12 and 65–68.

682. ——. Die Doppelschalen von *Orbitolites.* Arch. Protistenk. i, pp. 193–296.
Includes 2 supplements on the movements and function of nuclei.

683. *Ribbert, H. Über Vererbung. Kaisergeburtstagsrede. Marburg, 1902, 8vo, 32 pp. [ex Zool. Anz. xxv, Bibl. p. 334].

684. Richard, J. Campagne scientifique de la Princesse Alice en 1901. Bull. Soc. zool. France xxvii, pp. 81–104.
Summary, Zool. Centrlbl. 1902, p. 604.

685. Riche, —. Rudolf Virchow. Rev. Scient. xviii, pp. 594–596.

686. *Richthoffen, F. von [and others]. Deutsche Südpolar-Expedition auf dem Schiff "Gauss" unter Leitung von Erich von Drygalski. Heft. i. Berlin, 1902, 108 pp. [ex Zool. Anz. xxv, Bibl. p. 338].

687. Robert, A. Recherches sur le developpement des Troques. Arch. Zool. exp. 1902, pp. 269–538, pls. xii–xlii.
Abstract by Meisenheimer, Zool. Zentrlbl. 1903, pp. 496–501.

688. *Robertson, W. Heredity and variation. In-and-inbreeding. Agric. J. Cape Good Hope xxi, pp. 547–550 [ex Zool. Anz. xxvi, Bibl. p. 340].

689. Römer, F. Die Meeresfauna von Spitzbergen und ihre Beziehungen zu den Meeresströmungen. Ber. Senckenberg. Ges. 1902, Theil I, pp. 139–143.

690. —— & Schaudinn, F. Fauna arctica. [See CRUSTACEA, Mrázek (180); and INSECTA, Breddin (159), Friese (480).]

691. Rörig, A. Korrelationen zwischen gewissen Organen der Cerviden und den Geweihen derselben. Verh. Congr. Zool. v, pp. 529–536.

692. Rosa, D. Die progressive Reduktion der Variabilität und ihre Beziehungen zum Aussterben und zur Entstehung der Arten. Im Einverständnis mit dem Verfasser aus dem italienischen übersetzt von Dr Heinrich Bosshard. Jena, 8vo, 106 pp.
Published in 1902, though dated 1903.

693. ——. Il Rev. Padre Kircher trasformista. Boll. Mus. Torino 1902, No. 421, 5 pp.

694. Roule, L. L'hermaphrodisme normal des Poissons. C.R. Ac. Sci. cxxxv, pp. 1355–1357.

695. Roux, W. Die Nichtnöthigsein der Schwerkraft für die Entwickelung des Froscheies. Arch. Entwickmech. xiv, pp. 300–304.
Cf. Keibel (418).

696. ——. Bemerkungen über die Achsenbestimmung des Froschembryo und die Gastrulation des Froscheies. T. c. pp. 600–624.

697. Rowley, Hannah T. Histological changes in *Hydra viridis* during regeneration. Amer. Natural. xxxvi, pp. 579–583.

698. Ruge, E. Die Entwicklungsgeschichte des Skeletes der vorderen Extremität von *Spinax niger*. Morphol. Jahrb. xxx, pp. 1–27, pl. i.

699. *Ruppin, A. Zur Geschichte des biogenetischen Grundgesetzes. Naturw. Wochenschr. xviii, pp. 133–137 [ex Zool. Anz. xxvi, Bibl. p. 192].

700. *Sacharoff, U. Das Eisen als das thätige Princip der Enzyme und der lebendigen Substanz. Jena, 1902, 8vo, 83 pp. [ex Zool. Anz. xxv, Bibl. p. 557].
Abstract, Amer. Natural. xxxvi, p. 665.

701. Salmon, D. E. Eighteenth Annual Report of the Bureau of Animal Industry for the year 1901. U. S. Dep. Agric. Washington 1902, 706 pp.

702. Samter, M. & Heymons, R. Die Variationen bei *Artemia salina* Leach, und ihre Abhängigkeit von äusseren Einflüssen. Abh. Ak. Berlin 1902, 62 pp.
Summary by Zschokke, Zool. Zentrlbl. 1903, pp. 337–342.

703. Sarasin, P. & F. Materialen zur Naturgeschichte der Insel Celebes. III. Ueber die geologische Geschichte der Insel Celebes auf Grund der Thierverbreitung. Wiesbaden, 1901, 4to, vi+169 pp., xv plates of maps.

704. —— & ——. Materialen zur Naturgeschichte der Insel Celebes. IV. Wiesbaden, 1901, 4to, xi+344+28 pp.

705. *Sarudnyi, N. Eine Excursion nach Ost-Persien. Zapiski Russk. Geogr. Obshch. xxxvi, 1901, 360 pp.
Summary, Zool. Centrlbl. 1902, p. 605.

Saunders, Miss E. R. [See Bateson & Saunders (48).]

706. SCHAPER, A. Beiträge zur Analyse des thierischen Wachsthums. Eine Kritische und experimentelle Studie. I Theil: Quellen, Modus und Lokalisation des Wachsthums. Arch. Entwickmech. xiv, pp. 307–400, pls. xv–xxv.
Summary by PÜTTER, Zool. Centrlbl. 1902, p. 755.

707. ——. Ueber die Fähigkeit des fertigen Dottersackepithels geformte Dotterelemente in sich aufzunehmen. Eine experimentelle Untersuchung. Anat. Anz. xxii, pp. 129–142.

708. SCHAPIRO, J. Ueber Ursache und Zweck des Hermaphroditismus, seine Beziehungen zur Lebersdauer und Variation mit besonderer Berücksichtigung einiger Nachtschneckenarten. Biol. Centrbl. xxii, pp. 97–108, 136–151.

709. SCHARFF, R. F. Ueber den Einfluss der Pyrenäen auf die Tierwanderungen zwischen Frankreich und Spanien. Verh. Congr. Zool. v, pp. 356–362.
Summary, Zool. Centrlbl. 1902, p. 682.

710. ——. Some remarks on the Atlantis problem. Rep. Brit. Ass. 1902 (pp. 653, 654).

711. *——. Some remarks on the Atlantis problem. Geol. Mag. xix, pp. 455, 456.

712. SCHENK, L. Meine Methode der Geschlechtsbestimmung. Verh. Congr. Zool. v, pp. 363–367. With discussion by HAUCHECORNE and others and answer by SCHENK, pp. 368–402.

713. SCHIEMENZ, P. Die Zoologie im Dienste der Fischerei. Verh. Congr. Zool. v, pp. 579–583.

714. SCHIMKEWITSCH, W. Experimentelle Untersuchungen an meroblastischen Eiern. II. Die Vögel. Zeitschr. wiss. Zool. lxxiii, pp. 167–277, pls. x–xvi.

715. ——. Ueber direkte Teilung unter Künstlichen Bedingungen. Biol. Centrbl. xxii, pp. 605–608.
Summary, Zool. Zentrlbl. 1903, p. 106, and J. R. Micr. Soc. 1902, p. 635.

716. ——. Ueber die Entwickelung des Hühnchens unter Künstlichen Bedingungen. Anat. Anz. xx, pp. 507–510.

717. ——. Ueber den atavistischen Charakter der Linsenregeneration bei Amphibien. Op. cit. xxi, pp. 48–50.

718. *——. Die biologischen Grundlagen der Zoologie. 2. vermehrte Auflage. St. Petersburg, 1902, 419 pp., 260 illustt. [in Russian].

SCHMIDT, J. [See OSTENFELD & SCHMIDT (608).]

719. SCHMITT, F. Über die Gastrulation der Doppelbildungen der Forelle, mit besonderer Berücksichtigung der Concrescenztheorie. Verh. Deutsch. zool. Ges. 1902, pp. 64–83.
Summary, Zool. Centrlbl. 1902, p. 798, and J. R. Micr. Soc. 1903, p. 161.

720. SCHNEIDER, K. C. Lehrbuch der vergleichenden Histologie der Tiere. Jena, 1902, xiv + 988 pp., illustrations.

721. SCHOCKAERT, R. L'ovogénèse chez le *Thysanozoon brocchi*. Deuxième partie. Cellule xx, pp. 101–175, pls. i–iv.
Summary, Zool. Zentrlbl. 1903, p. 182.

722. SCHOENFELD, H. La spermatogenèse chez le taureau et chez les mammifères en général. Arch. Biol. xviii, pp. 1–72, pls. i, ii.

723. SCHÖNE, G. Vergleichende Untersuchungen über die Befestigung der Rippen an der Wirbelsäule mit besonderer Berücksichtigung ihrer Lage zur Arteria vertebralis. Morphol. Jahrb. xxxi, pp. 1–43, pl. i.

724. SCHREINER, K. E. Über die Entwicklung der Amniotenniere. Zeitschr. wiss. Zool. lxxi, pp. 1–188, pls. i–viii.
Summary, Zool. Zentrlbl. 1903, p. 309.

725. SCHUCKING, A. Ueber veränderliche osmotische Eigenschaften der Membranen von Seethieren. Arch. Physiol. [Engelmann] 1902, pp. 533–541.
Aplysia and *Sipunculus.*

726. SCHULTZ, E. Ueber das Verhältnis der Regeneration zur Embryonalentwicklung und Knospung. Biol. Centrbl. xxii, pp. 360–368.

727. ——. Aus dem Gebiete der Regeneration. II. Uber die Regeneration bei *Turbellarien.* Zeitschr. wiss. Zool. lxxii, pp. 1–30, pls. i, ii.

728. SCHULTZE, O. Was lernen uns Beobachtung und Experiment über die Ursachen männlicher und weiblicher Geschlechtsbildung bei Tieren und Pflanzen. SB. Ges. Wurzburg xi, 1902, pp. 70–78.
Abstract by FICK, Zool. Zentrlbl. 1903, p. 519.

729. SCHULZE, F. E. Bericht der Kommission für Terminologie. Verh. Congr. Zool. v, pp. 874–881.

730. ——. Nomenclaturfragen. 4. Subspecies und Varietas. Zool. Anz. xxv, pp. 147–150.

731. *SCHUPPE, —. Der Zusammenhang von Leib und Seele, das Grundproblem der Psychologie. [in] Grenzfragen des Nerv.-Seelenlebens xiii.
Cf. Anat. Anz. xxi, p. 272.

732. *SCHWARZE, W. Beiträge zur Kenntniss der Symbiose im Tierreich. Hamburg, 1902, Progr. (Johanneum) 40 pp.
Summary, Zool. Centrlbl. 1902, pp. 331–334, by ESCHERICH.

733. SEDGWICK, A. Embryology. Enc. Brit. xxviii, pp. 137–148, with an appendix by H. A. E. DRIESCH, q.v., pp. 148–150.

[SELENKA, EMIL. See WALKHOFF (850). Obituary. See VOIT (840).]

734. SELYS LONGCHAMPS, MARC DE. Recherches sur le développement des *Phoronis.* Arch. Biol. xviii, pp. 495–597.
Summary, J. R. Micr. Soc. 1902, p. 435.

735. SEMPER, C. Reisen im Archipel der Philippinen. [See INSECTA (1253) and MOLLUSCA, BERGH (41), VON MOELLENDORFF (355).]

736. *SERGI, G. Some ideas concerning biological heredity. Translated by I. W. Howerth. The Monist xii, pp. 1–20 [ex Zool. Anz. Bibl. 1902, p. 48.]

737. SETON, E. T. The national Zoo at Washington, a study of its animals in relation to their natural environment. Rep. Smithson. Inst. 1901, pp. 697–716, xiii pls.

738. SHARP, D. [and others]. The Zoological Record, XXXVIII. Being records of Zoological literature relating chiefly to the year 1901. London, 8vo, 1902.
Arranged taxonomically with separate paginations. The section on "General Subjects" is by J. A. THOMSON.

739. [SHARP, D.] Fauna Hawaiiensis. Vol. III, pt. 3. [See INSECTA, KIRKALDY (705) & SPEISER (1322).]
Review, Rev. Scient. xvii, pp. 497, 498.

740. SHERBORN, C. D. Index animalium, sive Index nominum que ab A. D. MDCCLVIII generibus et speciebus imposita sunt. Sectio prima, a kalendis Januariis MDCCLVIII usque ad finem Decembris MDCCC. Cambridge, 1902, lx + 1195 pp.

["Siboga" expedition see WEBER (862).]

741. *SIEBERT, O. Hermann Lotzés Gedanken über Vererbung und Anpassung. Naturw. Wochenschr. xvii, pp. 181–184 [ex Zool. Anz. xxv, Bibl. p. 195].

742. SIMPSON, J. Y. The relation of binary fission to variation. Biometrika i, pp. 400–407 and Rep. Brit. Ass. lxxi, pp. 688, 689.

743. SIMROTH, H. Neue Arbeiten über die Morphologie, Systematik und Biologie der *Gastropoden*. Zusammenfassende Übersicht. Zool. Centrlbl. 1902, pp. 265–305.

744. ——. Ueber Gebiete kontinuierlichen Lebens und über die Entstehung der Gastropoden. Biol. Centrbl. xxii, pp. 239–256, 262–278.

745. ——. Ueber die Ernährung der Tiere und der Weichtiere im besonderen. Verh. Congr. Zool. v, pp. 777–785.

746. ——. Über das natürliche System der Erde. Verh. Deutsch. zool. Ges. 1902, pp. 19–42.

747. ——. Über den Ursprung der Wirbelthiere, der Schwämme und der geschlechtlichen Fortpflanzung. T. c. pp. 152–162.
Summary, J. R. Micr. Soc. 1903, p. 166, and Zool. Zentrlbl. 1903, p. 146.

748. *——. Die Ernahrung der Thiere im Lichte der Abstammungslehre. Odenkirchen, 1901, 8vo, 49 pp. [ex Zool. Anz. Bibl. 1902, p. 44].

749. SINÉTY, R. DE. Recherches sur la Biologie et l'anatomie des *Phasmes*. Cellule xix, pp. 117–278, pls. i–v.
"Parthénogénese; mues; tubes de Malpighi; prétendus ganglions sympathiques de la 1re paire; Membranes trachéolaires; appareil génital (spermatogénèse spécialement, d'apres les principales familles d'*Orthoptères*)."

750. SKORIKOW, A. S. Die Erforschung des Potamoplanktons in Russland. Biol. Centrbl. xxii, pp. 551–570.

751. *SLEESWIJK, R. Der Kampf des thierischen "Organismus" mit der pflanzlichen "Zelle." Amsterdam, 1902, 8vo, 139 pp., 10 cuts.

752. SMITH, AMELIA C. The influence of temperature, odors, light and contact on the movements of the earthworm. Amer. J. Physiol. vi, pp. 459–486.

753. SOBOTTA, J. Über die Entstehung des Corpus luteum der Säugetiere. Anat. Hefte Ergebn. xi, pp. 946–972.

754. ——. Die Entwicklung des Eies der Maus vom Schlusse der Furchungsperiode bis zum Auftreten der Amniosfalten. Arch. mikr. Anat. lxi, pp. 274–330, pls. xv–xvii.

755. SOKOLOWSKY, A. Theodor Boveri, das Problem der Befruchtung. Biol. Centrbl. xxii, pp. 278–282.

756. SOLGER, B. Über die "intracellulären Fäden" der Ganglienzellen des elektrischen Lappens von *Torpedo*. Morphol. Jahrb. xxxi, pp. 104–115, pl. v.
Summary, J. R. Micr. Soc. 1903, p. 162.

["Southern Cross." See LANKESTER (464).]

757. SOUTHWELL, T. Notes and letters on the Natural History of Norfolk more especially on the birds and fishes. From the MSS. of Sir Thomas Browne, M.D. (1605–1682). With notes by Thomas Southwell. London, 1902, 8vo, xxvi + 102 pp.

758. SPEMANN, H. Experimentell erzeugte Doppelbildungen. Verh. Congr. Zool. v, pp. 461–463.

759. ——. Entwickelungsphysiologische Studien Am *Triton*-Ei. II. Arch. Entwickmech. xv, pp. 448–534, pls. xiv–xviii.

760. *SPENGEL, J. W. Was uns die Bienen über Vererbung lehren. Deutsche Rev. 1902, 9 pp. [ex Zool. Anz. xxv, Bibl. p. 334].

761. SPRINGER, M. L'énergie de croissance. [Abstract.] Rev. Scient. xviii, pp. 602–604.

762. SPULER, A. Ludwig Stieda: Geschichte der Entwicklung der Lehre von den Nervenzellen und Nervenfasern während des 19. Jahrhunderts. I. Teil: von Sömmering bis Deiters. Biol. Centrbl. xxii, pp. 465–480.
Summary of a work that appeared in Festschr. für C. von Kupffer, Jena, 1899.

763. STAHR, H. Ueber die papilla foliata beim wilden und beim domesticirten Kaninchen. Anat. Anz. xxi, pp. 354–361.

764. *STANDFUSS, M. Zur Frage der Gestaltung und Vererbung aus 28 jahriger Experimente. Ins.-Börse xix, pp. 155, 156 & 163 [ex Zool. Anz. xxv, Bibl. p. 334].

765. STEINBRÜCK, H. Über die Bastardbildung bei *Strongylocentrotus lividus* ♂ und *Sphærechinus granularis* ♀. Arch. Entwickmech. xiv, pp. 1–48.
Summary by BERGH, Zool. Centrlbl. 1902, p. 774.

766. STEPHAN, P. Remarques sur les formes tératologiques des cellules séminales. C.R. Soc. Biol. liv, pp. 634–636.
Cf. REGAUD (668).

767. ——. Sur quelques points relatifs à l'évolution de la vesicule germinative des Téléostéens. Arch. anat. micr. v, pp. 22–37, pl. ii.

768. ——. A propos de l'hermaphrodisme de certains poissons. C.R. Ass. Franc. 1901, pt. 2, pp. 554–570.

769. ——. De l'hermaphrodism chez les Vertébrés. Ann. Fac. Marseille xii, No. 2, pp. 1–158, 1 pl.

770. ——. Sur les homologies de la cellule interstitielle du testicule. C.R. Ac. Sci. cxxxiv, pp. 299–302.

771. STEUER, A. Mittheilungen aus der k. k. zoologischen Station in Triest. No. 4. Beobachtungen über das Plankton des Triester Golfes im Jahre 1901. Zool. Anz. xxv, pp. 369–371.

772. ——. ..... No. 5. Quantitative Planktonstudien im Golf von Triest. T. c. pp. 372–375.

773. STEVENS, N. M. Regeneration in *Tubularia mesembryanthemum*. Arch. Entwickmech. xv, pp. 317–326.
Summary, Zool. Centrlbl. 1902, p. 771.

774. ——. Experimental studies on eggs of *Echinus microtuberculatus*. T. c. pp. 421–428, pl. xiii.
Summary by BERGH, Zool. Zentrlbl. 1903, p. 416.

775. [STEVENS, N. M.] Regeneration in *Antennularia ramosa.* T. c. pp. 429–447.
Abstract by BERGH, Zool. Zentrlbl. 1903, p. 413.

776. STEWART, C. Descriptive and illustrated Catalogue of the physiological series of comparative anatomy contained in the Museum of the Royal College of Surgeons of England. Vol. II. [Nervous system.] Second edition. London, 1902, 8vo, ix + 518 pp.

777. STIEDA, L. Bericht über die anatomische, histologische und embryologische Litteratur Russlands (1900–1902). Anat. Hefte Ergebn. xi, pp. 583–705.

778. ——. Der Embryologe Sebastian Graf von Tredern und seine Abhandlung über das Hühnerei. Anat. Hefte Arb. xviii, pp. 1–70, pls. i, ii.

779. STILES, C. W. Bericht uber die Thätigkeit der Kommission für Nomenklatur. Verh. Congr. Zool. v, pp. 882–890.
For the Rules see t. c. pp. 927–972.

780. *STÖLZLE, R. A. von Kölliker's Stellung zur Descendenzlehre. Ein Beitrag zur Geschichte moderne Naturphilosophie. Münster, 1901, 8vo, 172 pp.
Summary by author in Biol. Centrbl. xxii, pp. 159, 160.

781. STRAHL, H. & GRUNDMANN, E. Versuche uber das Wachstum der Keimblatter beim Hühnchen. Anat. Anz. xxi, pp. 650–657.

782. *STRASBURGER, E. Über Befruchtung. Botan. Zeit. 1901, 8 pp.
Botanical. Discusses nature of fertilisation. Brief notice by FICK, Zool. Zentrlbl. 1903, p. 372.

783. STRASSER, H. Développement du carpe chez les Anoures et l'apparition des extrémités des membres chez les Vertébrés en général. Arch. Sci. Nat. 1902, pp. 544–548.

STROBELL, ELLA CHURCH. [See FOOT & STROBELL (245).]

784. *STUDER, TH. Die prähistorischen Hunde in ihrer Beziehung zu den gegenwartig lebenden Rassen. Abh. Schweiz. pal. Ges. xxviii, 1901, 137 pp., 9 pls.
Summary by F. RÖMER, Zool. Centrlbl. 1902, pp. 830–832.

785. SULLY-PRUDHOMME, —. Les causes finales. Septième et dernière lettre à M. Charles Richet. Rev. Scient. xvii, pp. 513–522.
RICHET replies "L'effort vers la vie et les causes finales." T. c. pp. 522–524.

786. SUTTON, W. S. On the morphology of the chromosome group in *Brachystola magna.* Biol. Bull. iv, pp. 24–39.

787. SWAEN, A. & BRACHET, A. Étude sur le premier phase du developpement des organes dérivés du mésoblaste, chez les poissons Téléostéens. Arch. Biol. xvi, pp. 173–311, pls. xi–xvi. Deuxième partie. Op. cit. xviii, pp. 73–190, pls. iii–vi.
Summary, Zool. Centrlbl. 1902, pp. 472–478, by MEISENHEIMER.

788. TANDLER, J. Zur Entwicklungsgeschichte der Kopfarterien bei den Mammalia. Morphol. Jahrb. xxx, pp. 275–373, pls. iii–v.

789. TANGL, F. Beiträge zur Energetik der Ontogenese. I Mittheilung. Die Entwicklungsarbeit im Vogelei. Arch. ges. Physiol. xciii, pp. 327–376.

790. TASCHENBERG, O. Bibliotheca Zoologica. Sechzehnte Lief. pp. 4845–5164 [Palæozoologie]. Leipzig, 1902.

791. TEICHMANN, E. Ueber Furchung befruchteter Seeigeleier ohne Beteilung des Spermakerns. Jena. Zeitschr. xxxvii, pp. 105–132, pls. vii–x.

792. TELLYESNICZKY, KOLOMAN. Zur Kritik der Kernstrukturen. Arch. mikr. Anat. lx, pp. 681–706.
Summary, J. R. Micr. Soc. 1903, p. 27.

793. THACHER, HENRIETTA F. The regeneration of the *Pharynx* in *Planaria maculata*. Amer. Natural. xxxvi, pp. 633–641.
Summary, Zool. Zentrlbl. 1903, pp. 115, 116, and J. R. Micr. Soc. 1902, p. 651.

794. THAYER, ABBOTT H. The meaning of the white under sides of animals. Nature lxv, pp. 596, 597.

795. THÉEL, H. A singular case of hermaphrodism in *Holothurids*. Bih. Svenska Ak. xxvii, No. 6, 38 pp., 2 pls.
Destruction of superfluous eggs and tissues.

796. THIELE, J. Zur Cölomfrage. Zool. Anz. xxv, pp. 82–84.
Summary, J. R. Micr. Soc. 1902, p. 175.

797. THILENIUS, G. Ergebnisse einer Reise durch Oceanien. Reiseerfahrungen.—Ausrustung. Zool. Jahrb. Syst. xvii, pp. 425–443.
A journey to N. Zealand to obtain material for the embryology of *Hatteria*. Remarks on preservation and transmission.

798. THILO, O. Maschine und Tierkörper. Verh. Congr. Zool. v, pp. 501–503.

799. *——. Das Einsammeln und Aufbewahren zoologischer Gegenstände. KB. Ver. Riga xlv, pp. 104–118 [ex Zool. Anz. 1903, p. 61].

800. THOMPSON, I. C. On the plankton of the Indian Ocean. Rep. Brit. Ass. 1902, pp. 643, 644.

800A. THOMSON, A. The relation of structure and function as illustrated by the form of the lower epiphysial suture of the femur. J. Anat. Physiol. norm. path. xxxvi, pp. 95–105.

801. THOMSON, J. A. Reproduction. Enc. Brit. xxxii, pp. 209–215.

——. [General Subjects, Zool. Rec. see SHARP (738).]

802. ——. The Science of Life. An outline of the history of biology and its recent advances. London, "Victorian era series."
Review, Museums J. ii, p. 270.

803. *THORNTON, J. Elementary biology : descriptive and experimental. London, 1902, 8vo, 278 pp., 180 illustr.

THOULET, J. [See Prince ALBERT DE MONACO (573).]

804. TICHOMIROW, A. Eigenthümlichkeiten der Entwicklung bei Künstlicher Parthenogenese. Zool. Anz. xxv, pp. 386–391.
Summary, J. R. Micr. Soc. 1902, p. 428.

805. TIMS, H. W. M. On the succession and homologies of the molar and premolar teeth in the Mammalia. J. Anat. Physiol. norm. path. xxxvi, pp. 321–343.

806. TOBLER, L. Der Achselbogen des Menschen, ein Rudiment des Panniculus carnosus der Mammalier. Morphol. Jahrb. xxx, pp. 453–507.

TODD, R. A. [See ALLEN & TODD (10).]

807. Tomás, D. C. Contribución al estudio de la anatomia filosófica. Ley de la monogastria. Bol. Soc. espan. ii, pp. 361–370.

808. Tönniges, C. Beiträge zur Spermatogenese und Oogenese der *Myriopoden.* Zeitschr. wiss. Zool. lxxi, pp. 328–358, pls. xix, xx.
Summary, J. R. Micr. Soc. 1902, p. 304.

809. Tornier, G. Ueberzählige Bildungen und die Bedeutung der Pathologie für die Biontotechnik (mit Demonstrationen). Verh. Congr. Zool. v, pp. 467–500.

810. ——. Entstehn [sic] eines Schweinehinterfusses mit fünf Zehen und der Begleiterscheinungen. Arch. Entwickmech. xv, pp. 327–353.

811. Torrey, J. C. The early development of the mesoblast in *Thalassema.* Anat. Anz. xxi, pp. 247–256.

812. Torrey, H. B. Prepotency in polydactylous cats. Science xvi, pp. 554, 555.
Summary, J. R. Micr. Soc. 1902, p. 24.

813. Treadwell, A. L. Notes on the nature of "artificial parthenogenesis" in the egg of *Podarke obscura.* Biol. Bull. iii, pp. 235–240.
Summary, Zool. Zentrlbl. 1903, p. 116.

814. Trembley, M. Correspondance inédite de Réaumur et Abraham Trembley. Act. Soc. helvet. lxxxv, pp. 154–162.
Summary, Arch. Sci. Nat. 1902, pp. 528–531.

815. *Triepel, H. Einführung in die physikalische Anatomie. Wiesbaden, 1902, x+232 pp.
Elaborate review by R. F. Fuchs in Biol. Centrbl. xxii, pp. 780–788.

816. *Trotter, A. Studi cecidologici. ii. Le ragioni biologiche della cecidogenese. Nuov. Giorn. Botan. ital. viii, pp. 557–575 [ex Zool. Anz. Bibl. 1903, p. 84].

817. *Tschermak, E. Der gegenwartige Stand der Mendel'schen Lehre und die Arbeiten von W. Bateson. Zeitschr. Landwirths. Oesterr. 1902, 28 pp. [ex Zool. Anz. xxvi, Bibl. p. 424].

818. *Tur, J. O niektórych zboazeniach w embryogenii Kurczęcia. [Anomalies, embryology.] Wsczchświat, Warszawa xx, 1901, pp. 313–315 [ex Zool. Anz. xxv, Bibl. 1902, p. 15].

819. *——. O regeneracyi. T. c. pp. 552–556 [ex Zool. Anz. xxv, Bibl. p. 192].

820. *——. Sur l'application d'une méthode graphique aux recherches embryologiques. Bibliog. anat. x, pp. 128–130.

821. Tydeman, G. F. Description of the ship and appliances used for scientific exploration. Siboga-Expeditie, Livr. iv, 32 pp., 3 pls.

822. Ulmer, G. Über das Formalin als Konservierungsmittel in der Zoologie. Period. Blätt. Realienunterr. Lehrm. vii, Heft 4.
Summary, Allg. Zeitschr. Ent. vii, 379.

Unterhössel, P. [See Fleischmann and others (243).]

["Valdivia" expedition, see Chun (136).]

823. *Van der Stricht, O. Les pseudochromosomes dans l'oocyte de Chauve-souris. Communication préliminaire. C.R. Ass. Anat. Montpellier 1902, 7 pp.
Summary, Zool. Zentrlbl. 1903, p. 319.

824. [VAN DER STRICHT, O.] Le spermatozoïde dans l'œuf de chauve-souris (*V. noctula*). Verh. Anat. Ges. 1902, pp. 163–168.
Brief notice by FICK, Zool. Zentrlbl. 1903, p. 396. Summary, J. R. Micr. Soc. 1902, p. 633.

825. VANEY, C. Contributions à l'étude des larves et des metamorphoses des *Diptères*. Ann. Univ. Lyon, n. s., i, Fasc. 9, 178 pp., iv pls.

826. —— & CONTE, A. Sur la distribution géographique et l'adaptation aux eaux douces de quelques formes marines. C.R. Ac. Sci. cxxxiv, pp. 115–117. Also C.R. Soc. Biol. liv, pp. 47, 48.

——. [See also CONTE & VANEY (149).]

827. *VANHOFFEN, E. Biologische Beobachtungen auf der Possession-Insel. [in] Ber. wiss. Arbeiten deutsch. Südpolar-Exp. Berlin, 1902, pp. 42–44.
Summary, Zool. Centrlbl. 1902, p. 684.

828. VAN LINT, A. Qu'est-ce qui détermine le sexe? Paris, 1902, 76 pp.
Summary, J. R. Micr. Soc. 1902, p. 535.

829. VAN PÉE, P. Recherches sur l'origine du corps vitré. Arch. Biol. xix, pp. 317–385, pls. x, xi.
Summary, Zool. Zentrlbl. 1903, p. 304.

830. VERHOEFF, W. Zur vergleichenden Morphologie der Coxalorgane und Genitalanhange der Tracheaten. Zool. Anz. xxvi, pp. 60–77.
Summary by author, Zool. Zentrlbl. 1903, pp. 186–188.

831. VERRILL, A. E. The Bermuda islands: their scenery, climate, productions, physiography, natural history and geology; with sketches of their early history and the changes due to man. Tr. Connect. Ac. xi, pp. 413–956, pls. lxv–civ.

832. *VERWORN, M. Die Biogenhypothese. Eine Kritisch-experimentelle Studie über die Vorgange der lebendigen Substanz. Jena, 1903 (Novr. 1902), 8vo, v+114 pp. [ex Zool. Anz. Bibl. 1903, p. 71].

833. VIGUIER, C. Influence de la température sur le développement parthénogénétique. C.R. Ac. Sci. cxxxv, pp. 60–62.

834. ——. Sur la parthénogenèse artificielle. T. c. pp. 197–199.
Summary, J. R. Micr. Soc. 1903, p. 22.

[VIRCHOW, RUDOLF.] Obituary, see KOELLIKER (441) and RICHE (685).

835. VOELTZKOW, A. Wissenchaftliche Ergebnisse der Reisen in Madagaskar und Ostafrika in den Jahren 1889–95 von Dr A. Voeltzkow. Band II. Abh. Senckenb. Ges. xxvi, 586 pp., 40 pls.
Some of the memoirs that make up this work are dealt with in the special Records. The two following are by VOELTZKOW himself.

836. ——. Die von Aldabra bis jetzt bekannte Flora und Fauna. T. c. pp. 539–565.
Summary, Zool. Centrlbl. 1902, p. 685.

837. ——. Beiträge zur Entwicklungsgeschichte der Reptilien. I. Biologie und Entwicklung der äusseren Körperform von *Crocodilus madagascariensis* Grand. T. c. pp. 1–150, pls. i–xvii.—II. Die Bildung der keimblätter von *Podocnemis madagascariensis* Grand. T. c. pp. 269–310, pls. xxvi–xxix.—III. Zur Frage nach der Bildung der Bauchrippen. T. c. pp. 311–336.—IV. Keimblätter, Dottersack und erste Anlage des Blutes und der Gefässe bei *Crocodilus madagascariensis* Grand. T. c. pp. 337–418, pls. xxxii–xxxviii.
No. III. is in conjunction with Prof. L. DÖDERLEIN.

838. Voigt, M. Beiträge zur Methodik der Planktonfischerei. Forschber. Plon ix, pp. 87–97.

839. Voïnov, D. N. La spermatogenèse chez le *Cybisterræselii.* [*Coleoptera.*] C.R. Ac. Sci. cxxxv, pp. 201–203.
Summary, J. R. Micr. Soc. 1903, p. 36.

840. Voit, C. Emil Selenka. SB. Bayer Ak. 1902, pp. 241–248.

841. *Volterra, V. Sui tentativi di applicazione delle Matematiche alle scienze biologiche e sociali. Roma, 1901, 8vo, 26 pp. [ex Zool. Anz. Bibl. 1903, p. 70].

842. Vosseler, J. Über Anpassung und chemische Vertheidigungsmittel bei nordafrikanischen *Orthopteren.* Verh. Deutsch. zool. Ges. 1902, pp. 108–121.

843. ——. Beiträge zur Faunistik und Biologie der *Orthopteren* Algeriens und Tunesiens. Zool. Jahrb. Syst. xvi, pp. 337–404, pls. xvii, xviii.
Reprint, Mt. Nat.-Kab. Stuttgart, No. 22. Summary, J. R. Micr. Soc. 1903, p. 174.

844. ——. Beiträge zur Faunistik und Biologie der *Orthopteren* Algeriens und Tunesiens. ii. Theil. Zool. Jahrb. Syst. xvii, pp. 1–99, pls. i–iii.
Review of this and the preceding by v. Adelung, Zool. Zentrlbl. 1903, pp. 128–134.
Reprint, Mt. Nat.-Kab. Stuttgart, No. 23.

Wadsworth, J. T. [See Hickson & Wadsworth (361).]

845. *Wagner, F. von. Schmarotzer und Schmarotzerthum in der Thierwelt. Eine erste Einführung in die thierische Schmarotzerkunde. Leipzig, 1902, 8vo, 151 pp. [ex Zool. Anz. xxv, Bibl. p. 557].

846. *Wagner, W. Ueber Farbung und Mimicry bei Thieren. Trudui St. Peterb. Obshch. xxxi, 76 pp., 1 pl.
Summary, Zool. Centrlbl. 1902, p. 334.

847. *——. Biologische Methode in der Zoopsychologie. Op. cit. xxxiii, 96 pp.

848. *——. Psychologie der Tiere. Gemeinverständliche Vorlesungen. 2 Auflage. Moskau, 1902, 209 pp. [in Russian].

849. Waldeyer, W. Die Geschlechtszellen [in] Hertwig, O. Handbuch der Vergleich. und exper. Entwickelungslehre der Wirbelthiere. i, pp. 86–284 (incomplete).

850. Walkhoff, O. [in] Selenka. Studien über Entwickelungsgeschichte der Tiere. Neuntes Heft. Menschenaffen. Der Unterkiefer der Anthropomorphen und des Menschen in seiner funktionellen Entwickelung und Gestalt. Wiesbaden, 1902, 4to, pp. 209–327.

851. *Wallace, A. R. Darwinism. Exposition of the theory of Natural selection with some of its applications. London, 1902, 8vo, 514 pp., maps, illustr. [New edition.]

852. *Wallace, R. Biogenesis and heredity. A discussion of theories and the advancement of a modification of the chemical theory with applications. Med. Rec. N. York lxii, pp. 763–765 [ex Zool. Anz. xxvi, p. 340].

853. *——. Studies on heredity. New York Med. J. lxxvi, pp. 853–857 [ex Zool. Anz. xxvi, Bibl. p. 340].

854. WALLENGREN, H. Inanitionserscheinungen der Zelle. Untersuchungen an Protozoen. Zeitschr. allg. Physiol. i, pp. 67–128, pls. i, ii.

855. WARD, H. B. The fresh-water biological stations of the world. Stud. Lab. Nebraska xl, pp. 39–66.
Summary, Zool. Centrbl. 1902, pp. 314–316, by ZSCHOKKE.

856. WASSILIEFF, A. Ueber künstliche Parthenogenesis des Seeigeleies. Biol. Centrbl. xxii, pp. 758–772, 19 figg.

857. WASMANN, E. Noch ein Wort zu Bethe's Reflextheorie. Biol. Centrbl. xxii, pp. 573–576.
Relates to BETHE (75).

858. ——. Zur näheren Kenntnis der termitophilen *Dipteren*-gattung *Termitoxenia* Wasm. Verh. Congr. Zool. v, pp. 852–873, 1 pl.

859. ——. Neues über die zusammengesetzten Nester und gemischten Kolonien der Ameisen. [Continuation.] Allg. Zeitschr. Ent. vii, pp. 2 etc. [*Hymenoptera.*]
This has been published also separately extending to 78 pp., 1 pl.

860. WATERHOUSE, C. O. Index Zoologicus. An alphabetical list of names of genera and subgenera proposed for use in Zoology as recorded in the "Zoological Record" 1880–1900: together with other names not included in the "Nomenclator Zoologicus" of S. H. Scudder. Compiled (for the Zoological Society of London) by Charles Owen Waterhouse and edited by David Sharp. London, 1902, 8vo, xii + 421 pp.
About 40,000 names.

861. *WEBER, A. Une methode de reconstruction graphique d'épaisseurs et quelques-unes de ses applications à l'embryologie. Bibl. Anat. Nicolas. xi, pp. 43–55 [ex Zool. Anz. Bibl. 1903, p. 62].

862. WEBER, M. Siboga-Expeditie. Introduction et description de l'expedition. Siboga-Expeditie Livr. III. Leiden, 1902, 4to, 159 pp., 3 pls.
This Livr. includes a list of the stations by M. G. F. TYDEMAN the Commander of the vessel. He also gives in Livraison IV a description of the ship and appliances used.

863. *——. Der indo-australische Archipel und die Geschichte seiner Tierwelt. Jena, 1902, 46 pp.
Summary by MEISENHEIMER, Zool. Zentrlbl. 1903, pp. 254–257.

864. WEDEKIND, W. Die Parthenogenese und das Sexualgesetz. Verh. Congr. Zool. v, pp. 403–409.
Brief notice by FICK, Zool. Zentrlbl. 1903, p. 373.

865. *WEISKE, A. Bedeutung der Kinematik im Aufbau des Thierkörpers. Naturw. Wochenschr. xvii, pp. 186, 187 [ex. Zool. Anz. xxv, Bibl. p. 192].

866. WEISMANN, A. Vorträge über Descendenztheorie gehalten an der Universität zu Freiburg im Breisgau. 2 Vols. Jena, 1902, Vol. I, xii + 456 pp. Vol. II. vi + 462 pp.
Review by ESCHERICH, Allg. Zeitschr. Ent. vii, pp. 282–284.

867. WEITLANER, F. Tagebuchnotizen eines Schiffsarztes über das Meeresleuchten. Verh. Ges. Wien lii, pp. 270–277.

868. WELDON, W. F. R. Variation and selection. Enc. Brit. xxxiii, pp. 633–637.

869. [WELDON, W. F. R.] Prof. De Vries on the origin of species. Biometrika i, pp. 365–374. [Chiefly botanical.]

870. ——. On the ambiguity of Mendel's categories. Biometrika ii, pp. 44–45. [Botanical.]

871. WERNER, R. Ueber einige experimentell erzeugte Zellteilungsanomalien. Arch. mikr. Anat. lxi, pp. 85–122, pl. ix.
Summary, J. R. Micr. Soc. 1902, p. 635.

872. *WESENBERG-LUND, C. Sur l'existence d'une faune relicte dans le lac de Furesö. Bull. Ac. Danemark 1902, pp. 259–303.
Summary by ZSCHOKKE, Zool. Zentrlbl. 1903, pp. 330–333.

873. *WETTSTEIN, R. VON. Über directe Anpassung. Naturw. Wochenschr. xviii, pp. 151–154 [ex Zool. Anz. xxv, Bibl. p. 192].

874. *——. Der Neu-Lamarckismus und seine Beziehungen zum Darwinismus. Vortrag. Jena, 1902, 8vo, 30 pp. [ex Zool. Anz. xxvi, Bibl. p. 75].

875. *——. Der gegenwartige Stand der Rassenfrage. Land. Forstwirth. Zeit. xvi, pp. 173–179 [ex Zool. Anz. xxvi, Bibl. p. 200].

876. *WETZEL, G. Das Vorkommen von Kernen der Granulosazellen in den Ovarialeiern von *Pelias berus*. Verh. Physiol. Ges. Berlin vii, pp. 101–104.
Summary, Zool. Zentrlbl. 1903, p. 311.

877. WHEELER, W. M. A neglected factor in evolution. Science xv, pp. 766–774.
Adlerz's views as to numbers, colonies etc.

878. ——. Natural history, 'œcology' or 'ethology'? T. c. pp. 971–976.
The same volume has numerous notes on the term œcology or ecology.

879. WHITE, C. A. The mutation theory of Prof. de Vries. Rep. Smithson. Inst. 1901, pp. 631–640.
Account of the Vol. published by De Vries last year [Zool. Rec. Gen. Subj. (137)].

880. WHITE, TAYLOR. A philological study in Natural History. Tr. N. Zealand Inst. xxxiv, p. 135–145.

[WHITE, GILBERT, Natural History of Selborne, see GRANT ALLEN (11) and KEARTON (415).]

881. WHITEAVES, J. F. Bibliography of Canadian Zoology for 1900, exclusive of entomology. Tr. R. Soc. Canada 1901, Sect. iv, pp. 87–91.

882. WHITMAN, C. O. A biological farm. For the experimental investigation of heredity, variation and evolution, and for the study of life-histories, habits, instinct and intelligence. Biol. Bull. iii, pp. 214–224.
Also Science xvi, pp. 504–510.

883. *WIEDERSHEIM, R. Vergleichende Anatomie der Wirbelthiere. 5 vielfach umgearbeitete und stark vermehrte Auflage. Jena, 1902, xix + 686 pp.
Cf. Anat. Anz. xxi, p. 591. Noticed, J. R. Micr. Soc. 1903, p. 28.

884. WILDER, H. H. Palms and soles. Amer. J. Anat. i, pp. 423–441.

885. *WILLARD, J. T. & KINSLEY, A. T. On the effect of oxygen on animal life. Tr. Kansas Ac. xvii, pp. 38–41 [ex Zool. Anz. xxvi, Bibl. p. 189].

886. WILLEY, A. Zoological results based on material from New Britain, New Guinea, Loyalty Islands and elsewhere. Part VI. Cambridge, 1902, 4to, pp. xii and 691–830.
This part completes the work. It includes a personal narrative,

887. WILLISTON, S. W. On certain homoplastic characters in aquatic air-breathing vertebrates. Kansas Univ. Bull. i, pp. 259–266.

888. WILSON, E. B. The cell in development and inheritance. Second edition revised and enlarged. New York, 1902, 8vo, xii + 483 pp.
Apparently only a reissue of the 1900 work with altered date.

889. ——. Experimental Studies on Echinoderm eggs (parthenogenesis). Congr. Zool. v, p. 506.

890. ——. Mendel's principles of heredity and the maturation of the germ-cells. Science xvi, pp. 991–993.

891. ——. The Marine biological Laboratory and the Carnegie Institution. Some matters of fact. Science xvi, pp. 591, 592. Cf. WHITMAN, t. c. pp. 529 and 665.

891A. WINDLE, B. C. A. Twelfth report on recent teratological literature. J. Anat. Physiol. norm. path. xxxvi, pp. 296–308.

892. WINIWARTER, H. VON. Nachtrag zu meiner Arbeit über Oogenese der Säugetiere. Anat. Anz. xxi, pp. 401–407.
Summary, J. R. Micr. Soc. 1903, p. 22.

893. WINKLER, G. Die Regeneration des Verdauungsapparates bei *Rhynchelmis limosella* Hoffm. SB. Bohmisch Ges. 1902, No. xii, 34 pp., 2 pls.

894. *WINKLER, HANS. Über Merogonie und Befruchtung. Jahrb. wiss. Botan. xxxvi, 1901, pp. 751–775.
Summary by BERGH, Zool. Centrlbl. 1902, p. 170.

895. WITCHELL, C. A. Some instances of intelligence in animals. P. Cotteswold Club xiv, pp. 119–125.

896. WOLFENDEN, R. NORRIS. The Plankton of the Faröe Channel and Shetlands. Preliminary notes on some *Radiolaria* and *Copepoda*. J. Mar. Biol. Ass. vi, pp. 344–372, pls. i–iv.

897. *WOLFF, G. Mechanismus und Vitalismus. Leipzig, 1902, 8vo, 36 pp. [ex Zool. Anz. xxv, p. 330].

898. WOLFF. M. Ueber die Ehrlich'sche Methylenblaufärbung und uber Lage und Bau einiger peripherer Nervenendigungen. Arch. Anat. 1902, pp. 155–188, pl. xi.

899. WOODS, F. A. Origin and migration of the germ-cells in *Acanthias*. Amer. J. Anat. i, pp. 307–320.

900. WRIGHT, E. P. Naturalists of Ireland. I. Alexander Henry Haliday [with portrait]. Irish Natural. xi, pp. 197–199.

901. YATSU, N. On the development of *Lingula anatina*. J. Coll. Tokyo xvii, Part 4, pp. 1–112, pls. i–viii.

902. ——. Notes on histology of *Lingula anatina*. Brugière. T. c. Part 5, pp. 1–29, pls. i, ii.

903. YERKES, R. Habit-formation in the green crab, *Carcinus granulatus*. Biol. Bull. iii, pp. 241–244.

904. *——. The formation of habits in the turtle. Pop. Sci. Monthly 1902, pp. 519–525.
Summary by WERNER, Zool. Centrlbl. 1902, pp. 545, 546.

905. ——. [Review of LOEB's] comparative physiology of the brain and comparative psychology. Science xv, pp. 18–23.

906. YUNG, É. Des variations quantitatives du Plankton dans le lac Léman. C.R. Ac. Sci. cxxxiv, pp. 1319–1321.

907. ZACHARIAS, O. Zur Fauna der Umgebung von Buitenzorg. Biol. Centrbl. xxii, pp. 383, 384.

908. ——. Zur biologischen Charakteristik des Schwarzsees bei Kitzbühel in Tirol. T. c. pp. 701–703.
Summary, Zool. Zentrlbl. 1903, p. 264.

909. ——. Mitteilung über das Plankton des Achensees in Tirol. Biol. Centrbl. xxiii, p. 162.

910. ——. In memoriam. Zur Würdigung der Verdienste, Friedrich A. Krupp's um die zoologische Wissenschaft. Zool. Anz. xxvi, pp. 113–120.

911. ——. Das Plankton des Laacher Sees. T. c. pp. 395, 396.

ZARUDNY. [See SARUDNYI (705).]

ZEDERBAUER, E. [See BREHM & ZEDERBAUER (101).]

912. ZIEGLER, H. E. Lehrbuch der vergleichenden Entwickelungsgeschichte der niederen Wirbeltiere, in systematischer Reihenfolge und mit Berücksichtigung der experimentellen Embryologie. Jena, 1902, xii + 366 pp.
Reviews, Anat. Anz. xxi, p. 558, and in Nature lxvii, suppl. pp. viii, ix.

913. *——. Ueber den derzeitigen Stand der Descendenzlehre in der Zoologie. Jena, 1902, 54 pp. illustt.
Summary by von WAGNER, Biol. Centrbl. xxii, pp. 217, 218; and Zool. Zentrlbl. 1903, p. 522.

914. ZIEGLER, K. Zur Postgenerationsfrage. Anat. Hefte Arb. xix, pp. 1–57.

915. ZIETZSCHMANN, O. Ueber Rückbildungsvorgänge am Schwanze des Saugethierembryo mit besonderer Berücksichtigung der Verhältnisse am Medullarrohre. Arch. Anat. 1902, pp. 225–272, pl. xv.

916. ZINGERLE, H. Über Störungen der Anlage des Centralnervensystems, auf Grundlage der Untersuchung von Gehirn-Rückenmark-Missbildungen. Arch. Entwickmech. xiv, pp. 65–226, pls. iv–xiv.

917. ZITTEL, K. A. VON. Text-book of Palæontology. Translated and edited by C. R. EASTMAN. Vol. II, viii + 283 pp., illustt.

II.—SUBJECT-INDEX.

1. TEXT-BOOKS, GENERAL WORKS, ESSAYS, EVOLUTION.

a. General works on Zoology. General text-books:—

Special text-books are recorded under the subjects to which they refer.

Abstracts of recent works on biology, DELAGE (189, 190).
Annual Review of Zoology, KOEHLER (439).
General Natural History, 4th edition, AUBERT (31).
General work, BRONN (109).
Traité de Zoologie concrète, *Cœlentérés*, DELAGE & HEROUARD (188).
"Cambridge Natural History," vol. x, BEDDARD (59).

Text-book of Zoology, GOETTE (299); Text-book, KUKENTHAL (457).—Of invertebrate Zoology, PRATT (651).—Of agricultural Zoology, FLEISCHER (242). — Palæontology, ZITTEL translated by EASTMAN, vol. ii (917).—"Second book of Zoology," JORDAN & HEATH (408).—Elementary text-books, MASTERMAN (547), NALEPA (594), THORNTON (803).

Huxley's memoirs reprinted, HUXLEY (384).

b. Philosophical:—

Fundamental conceptions, PEARSON (627).

Final causes, SULLY-PRUDHOMME & RICHET (785).

Philosophy and Natural Science, MOLSBERG (572).

Rational biology, DESCHAMPS (194).

Limits of biology, GRASSET (305).—Limits of knowledge in biology, GAUTIER (277), KIRWAN (431).

Biology and Zoology, SCHIMKEWITSCH (748).

Biology and ethics, LOISEL (517).

Recent and future Zoology, DAVENPORT (173).

Evolution and design, HUTTON (383).—Adaptation and design, HAHN (319).—Design, in Darwinism and Lamarckism, KERSTEN (424).

Inadequacy of Darwinism and Lamarckism. Wolff's views, KERSTEN (424). See also **c**.

The physics of Anatomy, TRIEPEL (815).

Mathematics in biology, GALLARDO (266), VOLTERRA (841).

Mathematics of proportions of bones, HÜLSEN (380).

Use of curves, PEARSON (625).—Modal value, PEARSON (626).—Tables for testing relation of facts and theory, mode of construction, ELDERTON (224).

Biogenesis, RUPPIN (699), R. WALLACE (852).

Summary of Driesch's "Regulationen," by J. A. THOMSON, Nature lxvii, pp. 50–52.

Autonomy of vital processes, DRIESCH (214).

Theoretical inadequacy of metabolism, JICKELI (402, 403).

Consciousness, MINOT (567).

Correlation, LEE, LEWENZ, & PEARSON (480).—Correlation, structure and function, OSBORN (606).—Correlation between horns and other organs, RÖRIG (691).

Structure and function, A. THOMSON (800A).

Organisations as mechanisms, THILO (798).—Mechanismus in Biology, DETTO (196).—Comparison of the animal organism and heat driven machines, MEWES (564).

Mechanism and Vitalism, BÜTSCHLI (121), REINKE (674), G. WOLFF (897).

Kinesis and structure, WEISKE (865).

Neo-vitalism, BENEDIKT (62).

Cænomorphism and Cænodynamism, GIARD (287).

c. Evolution:—

Evolution: ADLERZ (4), BALDWIN & WHEELER (34), HEADLEY & WHEELER (336), MITCHELL (568), LALOY (462), WHEELER (877), ZIEGLER (913).

Laws of development, DRIESCH (209–212).

Organic evolution, WEISMANN (866).

Evolution, historical, STÖLZLE (780).

Evolution theories, DRIESCH (213).

Ætiology of organic evolution, BÜTSCHLI (121).

Evolution in the Animal Kingdom, PLATE (643).

Descent and Darwinism, HESSE (359).—Descendence theory, DETTO (195); Darwinism and teleology, BREUER (105), KATTOWITZ (414), HATSCHEK (333).

Darwinism; BRAASCH (94), DEHNERT (181), PAULY (622), A. R. WALLACE (851).—Darwinism and Neo-Lamarckism, WETTSTEIN (874).—Moses or Darwin, DODEL (203).

Mutation; DE VRIES (197), MOLL (571), WELDON (869), WHITE (879).—De Vriesian species, COCKERELL (145).

Palæontology and organic evolution, KOKEN (442).

Account of succession of life on the earth, HUTTON (383).

Factors of cerebral evolution, RAMÓN Y CAJAL (666).

d. Variation:—

GUYER (314), WETTSTEIN (875).

Change of function and ætiological variation; second generation, HOUSSAY (373).

Nature of variation, BOAS (80).

Muscular variation, HUNTINGTON (381).

Tables for calculation of numerous kinds of variation, CAMERANO (128).

Variation and selection, WELDON (868).

Variation and origin of species, ROSA (692).

Variation and adaptation, Metampy, BIDDER (76).

Variation, symmetry, fertility, in abnormal species, DAVENPORT (174).

External conditions and variation of *Artemia*, SAMTER & HEYMONS (702).

Correlation of variation with functions, DOWNING (207).

Binary fission and variation, SIMPSON (742).

Experiments on polymorphic males of *Acari*, MARUCCI (545).

Recent work on variation in fishes, REDEKE (667).

Special cases.—Nerves in man, BARDEEN (37).—In finger-muscles, BÜHLER (115).—Of skulls of *Strix*; Neanderthal and *Pithecanthropus* skulls, KLEINSCHMIDT (433).—In birds, FINN (237).—Variation and inheritance, Cuckoo's egg, LATTER (468).—In egg of *Passer*, PEARSON (624).—In reptilian Aorta, HOCHSTETTER (364).—Bony plates of *Zeus*, BYRNE (123).—*Helix*, measurements, HENSGEN (342).

e. Adaptation, Convergence, Environment:—

Adaptation, VOSSELER (842–844), WETTSTEIN (873), DAVENPORT (175).

Homoplasy, OSBORN (607).—Homoplasy, aquatic air-breathing vertebrates, WILLISTON (887).

Adaptation of eye to vision in water, PÜTTER (659).

Adaptation of marine forms to fresh water, VANEY & CONTE (826), GRAVIER (307), WESENBERG-LUND (872).

Environment, DIMON (202).

Adaptation and selection, KIDD (426).

f. Selection and Protection:—

Natural selection, WALLACE (851).—Selection and mimicry, POULTON (648).

Direct and indirect selection, correlation, PEARSON (628).

Protection, natural selection, THAYER (794).

Natural selection and colour-pattern, A. G. MAYER (552).

Metabolism and the struggle for existence, JICKELI (402, 403).

g. Ethology:—

YERKES (904).—Ethology, the term, WHEELER (878).

Ecology, its orthography, Science xv, pp. 593, 594, 792, and BATHER, t. c. pp. 747, 993.

Ethology (Natural History), the study of, DAHL (161).

Mutual aid, KROPOTKIN (456).—Symbiosis, SCHWARZE (732).

Lake faunas, bionomics, F. A. FOREL (249).

Parasitism, elementary text-book, WAGNER, F. VON (845).
Industry, animal, COUPIN (152).
Feeding of animals, W. H. JORDAN (409).—Carnivorous habits, SIMROTH (745).
Mechanics of motion, AMANS (14).
Habits and arrangement of hair, KIDD (425).
Games of animals, GÉRARD-VARET (282).
Food of *Passeres* in N. America and Europe, PION (640).
Ant-colonies, WASMANN (859).—Hymenoptera and honey, BOUVIER (91).

h. Phylogeny, Organogeny (phyletic):—

[Only the wider phylogenetic speculations are here included. References to those limited to single classes should be sought for in the corresponding Records.]

Phylogeny, PATTEN (619).
Phylogeny, general considerations, multiplicity of paths, JAEKEL (395).
Origin of Vertebrates, part x, GASKELL (275), PATTEN (618).—Origin of Mammalia, GADOW (264).
Relations of man and animals, FRIEDENTHAL (253), TOBLER (806).—Relation of man and apes, KLAATSCH (432).
Fossil man, BRANCO (96).
Amphioxus, LEGROS (487).
Changes in segments of Man and *Primates*, KEITH (422).
Phylogeny of Circulatory System, BERGH (65).
Nature and origin of horns of *Pecora*, DÜRST (220), GADOW (263), LANKESTER (466).—Correlation between horns and other organs, RÖRIG (691).
Development, functional of lower jaw, in Anthropomorphic apes and man, WALKHOFF (850).
Mammary structures and Phylogeny of mammals, BRESSLAU (104).—Phylogeny of mammals, Teeth, LECHE (475).
Phylogeny of Birds, FÜRBRINGER (261).

i. Isolated questions:—

Marine life and marine exploration, JANSON (397).
Luminescence of the sea, WEITLANER (867).
Coral-reef formation, MAY (550).
Ætiology of gall-formation, TROTTER (816).
Mimicry, POULTON (648), WAGNER (846).
Telegony, BAHADUR (33), EWART (228, 229).
Biological farm, WHITMAN (882).

k. Historical and biographical:—

History of Biology, THOMSON (802).
History of Medicine and Zoology in 19th century, MÜLLER (592).
Fresh-water biological stations, historical, WARD (855).
Cell-theory, mechanical theory of life, BYRAM (122).
Ichthyology, history of, JORDAN (406).
Dog, history of, STUDER (784).
Gastropoda, recent work at, SIMROTH (743).
Saxony, zoology in, FICKEL (235).
Gottingen zoologists, EHLERS (223).
Italy, zoology in, EMERY (225).—Lamarckism in Italy, F. A. Bonelli, CAMERANO (127).
Old collectors 1047–1572, MUSSET (593).
Malay, zoological theories, ANNANDALE (22).
Old Brazilian explorers Natterer and Langsdorff, portraits, IHERING (386).

Aristotle's Knowledge, KLUNZINGER (434).
Berg, Carlos, GALLARDO (268).
Bichat, Xavier, GLEY (294, 295).
Dante and zoology, HOLBROOK (367).
Darwin, Charles, POULTON (649).
Darwin, Erasmus, MAY (551).
Dugès, Alfredo, Biography of, and bibliographic list, HERRERA (352).
Haliday, Alexander Henry, WRIGHT (900).
HASSE, K. E., Autobiographical (331).
Huxley, DYER (221), CLODD (143).
Hyatt, A., HYATT (385).
Kircher, an old, A.D. 1675, evolutionist, ROSA (692).
Kowalevsky, A., LANKESTER (467).
Krupp, F. A., ZACHARIAS (910).
Lacaze-Duthiers, BOUTAN (90), HARMER (327), PRUVOT (655).
Leydig, F., Autobiographical, historical, list of writings, LEYDIG (497).
Marey, addresses to, GASTON and others (276).
Miller, Hugh, GEIKIE (281).
Milne-Edwards, PERRIER (636).
Pouchet, Georges, PETTIT (639).
Rabelais as anatomist and physiologist, LE DOUBLE (478).
Réaumur & Trembley, TREMBLEY (814).
Selenka, Dr Emil, Biol. Centrbl. xxii, p. 97.
Tredern, Graf Sebastian von, on egg of chick, A.D. 1808, STIEDA (778).
Virchow, Rudolf, KOELLIKER (441), RICHE (685).

l. Pedagogic and popular :—

Pedagogic, DAHL (165), GROTRIAN (311).
Scientific education, etc., LIVERSIDGE (507).
Philosophical use of terms general import in Zoology, etc., APÁTHY (27), HEIDENHAIN (339).
Philology, common names various languages, WHITE (880).
Zoology, official French program text-books, CAUSTIER (132), DAGUILLON (160).
Gilbert White's Selborne, new editions, GRANT ALLEN (11), KEARTON (415).
Natural history of Thames Valley, CORNISH (151).
Zoological Gardens, AFLALO (5), SETON (737).

m. Nomenclature :—

Rules of Nomenclature as adopted at the Congress of Zoologists. Verh. Congr. Zool. v, pp. 927–972.
Report of Committee of International Congress, STILES (779).—The Rules of the International Congress, DAHL (162, 163).
Index of generic names, WATERHOUSE (860); of names of species, SHERBORN (740).
Pronunciation and Orthography, KLUNZINGER (435).
Multiplicity of languages difficulty, FICK (234); Multiplicity of language, RÁDL (665).—Limitation of languages in Zoology, VON ADELUNG (3).
Nomenclature of species and taxonomy, BERNARD (71), GARDINER (272).
Nomenclature of unstable forms, BERNARD (70).
Designation of varieties, SCHULZE (730); of subspecies, REICHENOW (673); Species and subspecies, J. A. ALLEN (12), CLARK (140).
Fixing types, ALLEN and others, Science xvi, p. 114.—Nomenclature, types of genera, CAMBRIDGE (126).
New system of nomenclature, HERRERA (346).

Nomenclature, COCKERELL (144), COOK (150), DAHL (163, 164), DALL (166).

Instructions as to explanations of illustrations and as to abbreviations of terms to be used, SCHULZE (729).

Terminology, BATHER (49).

n. Taxonomy:—

Phylogenetic classification, MONTGOMERY (576).

Classification by ethology, MATRUCHOT (549).

Classification by muscle-plasma, PRZIBRAM (657).

Species in corals, BERNARD (72).

o. Museums. Methods. Economical:—

Institution for experimental Biology, PRZIBRAM (658).

Laboratory Manual, MELL (557).

Technical methods, LEE & HENNEGUY, 3rd ed. (483).

New apparatus for microtechnology, APÁTHY (26).

Methods. Zeitschr. wiss. Mikr. contains numerous articles on microscopical procedure and adjuncts which are not here specially recorded.

Collector's manual, ORTLEB, A. & G. (604).

Instructions for collecting [ANON.] (25).

Preservation and transmission, THILENIUS (797).

Apparatus for public exhibition of microscopical objects, FILHOL (236).

Formalin as a preservative agent, ULMER (822).

Somatometrichy, CAMERANO (129).—Measuring compasses, ANDRES (18).

Museums, THILO (799).—Museums Insurance, MACLAUCHLAN (531).

Berlin Zoological Garden from a scientific aspect, HECK (337).

Marine aquarium, NITSCHE (600).

Carnegie Institute, management, WILSON & WHITMAN (891), GILMAN (292).

Siboga expedition, the ship and appliances, TYDEMAN (821).

Biological Reports; Report of the Liverpool Biol. Ass. xvi, HERDMAN (345).—Report of Secretary of Agriculture U. S., ANON (24).—Report Bureau Animal Industry U. S., SALMON (701).

Zoology in relation to the fishery economy, SCHIEMENZ (713).—To plants, REH (669).

Malaria and mosquitoes, LÜHE (526), see also XIII. INSECTA, pp. 92 and 254.—Introductions by commerce, REH (670).

Galls, TROTTER (816), see also XIII. INSECTA, p. 88.

p. Bibliography and Records:—

Bibliography of Zoology, TASCHENBERG (790).

Zoology, 1902, CARUS (131).

Records for 1901, SHARP (738).

Record, biological, for 1901, PAUL MAYER (553).

Records, Berichts etc., HILGENDORF (362).

Lists of works arranged according to subjects, with summaries and comments, DELAGE (189, 190).

Anatomical literature, HAMANN (323).

Saxony, zoological literature, FICKEL (335).

Russian literature, anatomical, embryological, 1900–1902, STIEDA (777).

Publications of U. S. Nat. Mus., GEARE (278).

Bibliography, Canada, 1900, WHITEAVES (881).

Brazilian Natural History and Anthropology 1900–1901, VON IHERING (387).

2. Distribution, Expeditions, Travels, Plankton.

a. General :—

Distribution, marine, Fowler (251), terrestrial, Lydekker (527).
Regions, Jacobi (393).
Limitation of zoogeographical regions, Martens (542).
Realms and distribution, Osborn (606).
Regions and geological changes, Simroth (7[illegible]46).
Distribution and ancient Geology, Simroth ([illegible]744).
Atlantis, Scharff (710, 711).
Origin of Land-faunas, Palacký (611).
Relict-faunas, Wesenberg-Lund (872).
Distribution in temperate zone, Kobelt (438[illegible]).
Zones of life in Britain, McPherson (556).
Currents and marine fauna of Spitzbergen, Römer (689).
Life in Alpine lakes, Nestler (596).
Fauna of hothouses, Mrázek (591).
Parasitic worms and geographical distribution, Ihering (388).
Ancient geography, Ortmann (605).
Exploration of the Sea, International Conference at Christiania, translation, Nansen (595).

b. Expeditions :—

International exploration of the North Sea, Brandt (98).
"Albatross" exp. to Tropical Pacific, Agassiz (6).
"Belgica," Antarctic region (60).
German South pole expedition, "Gauss," Richthoffen (686).—German South polar exp., Possession island, Vanhöffen (827).
"Hirondelle," Prince de Monaco (573–575).
"Pola," Red Sea and Mediterranean, expedition to, Anon (23).
"Princess Alice II," Prince de Monaco (57[illegible]4a), Richard (684).
"Princeton" exp., Patagonia, Hatcher (33[illegible]
"Siboga" exp., Weber & Tydemann (862).
"Valdivia" expedition, Chun (136).

c. Travels :—

Faunistic Travel, Hartert, various (328).
Murman coast, North Russia, Knipowitsch (437).
Hudson's Bay, Preble (652).
N.E. Africa, Neumann (597).—Cameroons, Hutter (382).—Abyssinia, Somaliland, Erlanger (227).
Madagascar, Grandidier (304).
Turkestan, Almásy (13).
Persia, Sarudnyi (705).
Indian Seas, Alcock (9).
India, Haeckel (317).
Borneo, Beccari (58).—Malay Archipelago, Haeckel (318).—Borneo and Moluccas, Kükenthal (457).
Samoa Islands, Krämer (455).
S. America, Fountain (250).

d. Faunas. Special Regions :—

Arctic Fauna, Römer & Schaudinn (690).
Spitzbergen, Marine fauna and marine currents, Römer (689).
Exe Estuary, Fauna, Allen & Todd (10).—Mendip, Knight (436).—Norfolk, Sir Thomas Browne, Southwell (757).
Pyrenees and the faunas of France and Spain, Scharff (709).
Fauna of Lake Léman, F. A. Forel (249).

Dalmatian islands, fauna of, GALVAGNI (270).
Madeira, BIDDLE (77).
Cape Verde and Canaries, marine zoology, RICHARD (684).
Tropical North Atlantic, MONACO (574a).
Red Sea, deep-sea fauna of, FUCHS (259).
Uganda, JOHNSTON (404).
Madagascar, Aldabra islands and E. Africa, VOELTZKOW (835, 836).
Maldive and Laccadive islands, GARDINER (272).
Java, the fauna of, ZACHARIAS (907).
Philippine islands, SEMPER (735).
Dutch East Indies Marine fauna, Siboga exp., WEBER & TYDEMAN (862).
Celebes, SARASIN & SARASIN (703, 704).
New Britain etc., WILLEY (886).
Hawaii, SHARP (739).
Tropical Pacific, "Albatross" expedition to, AGASSIZ (6).
Chatham islands, DENDY (192).
Antarctic, "Belgica" (60), GERLACHE DE GOMERY (284), LANKESTER, "Southern Cross" (464).
Patagonia, HATCHER (332).
Obi River, Narum, ANIKIN (21).—Barents or Murman Sea, BREITFUSS (102).
Alaska, LORING (521).
South-east U. S., fauna of, ADAMS (2).
Bermudas, Natural History and Physiography, VERRILL (831).
Central America, GODMAN (298).

e. Plankton :—

BRANDT (97), BREHM & ZEDERBAUER (101), CAR (130), CLEVE (141, 142), KEISSLER (420, 421).
Definition and theory of plankton, O. OSTWALD (609).
Abundance, methods, Mediterranean Plankton, LOHMANN (516).
Seasonal variations in, MALARD (534).—Monthly variation, Bay de la Hougue, MALARD (534).
Quantitative, HENSEN (341).
Some apparatus, VOIGT (838).
Methods of collecting : Plankton of Mediterranean, LOHMANN (516).
Plankton of Esbo-Löfo, LEVANDER (496) ; of Faröe Channel, Shetlands, WOLFENDEN, *Radiolaria*, *Copepoda* (896) ; Ostsee, APSTEIN (28) ; Gulf of Triest, STEUER (771, 772) ; near Capri, LO BIANCO (509) ; Messina, CIALONA (139) ; Red Sea and Aden, OSTENFELD & SCHMIDT (608) ; Indian Ocean, THOMPSON (800).
Freshwater : MARSH (540), SKORIKOW (750) ; Murman Coast, LEVANDER (494).
Finland, brackish water, LEVANDER (495).
Lake Plankton : LOZERON (523) ; distribution and periodicity in Achensee, BREHM (100) ; Schwarzsee, Tyrol, ZACHARIAS (908) ; Achensee, ZACHARIAS (909) ; Léman, YUNG (906) ; Laacher lake, ZACHARIAS (911).
Alpine lakes, BUFFA (114).

3. MORPHOLOGY.

a. General :—

Anatomical literature of 1902, HAMANN (323).
Summaries of recent work in anatomy and development, MERKEL & BONNET (559).
Russian literature, 1900–1902, bibliography abstracts, STIEDA (777).
Introduction to "physical anatomy," TRIEPEL (815).

Text-book of Vertebrate Comparative Anatomy, WIEDERSHEIM (883) 5th ed.
Atlas of zootomy, HOWES (376).
Text-book, Comparative Anatomy, vol. ii, BOURNE (88).
Text-book, Comparative Anatomy, HALLER (321).
Elements Insect Anatomy, COMSTOCK & KELLOGG (147).
Presidential address: Morphology etc., CHUN (138).
Morphological method and progress, HOWES (375).
Morphology, GARBOWSKI (271).
Homoplasy, potential homology, OSBORN (607).
Coelom question, THIELE (796).
Endoderm and Ectoderm, differentiation not respected in imago of Insects, VANEY (825).
Secondary metamerism, HALLER (322).
Length and diameter, bones, HÜLSEN (380).—Bony tissue, effect of Mechanical agencies on, GEBHARDT (279).
Limbs and articulations, RETTERER (675, 676).
Mammalian segments, suppression in man and mammals, KEITH (422).
Sense organs, unity of throughout Vertebrates, BURCKHARDT (119).
Morphology of Vertebrate limbs, DAMANY (167).—Evolution of limbs, determinants, STRASSER (783).—Origin of paired limbs, BASHFORD DEAN (177, 178), RUGE (698).- Paired limbs, origin; nervus trochlearis, FÜRBRINGER (260).
Teeth, LECHE (475); molar and premolar, TIMS (805).
Morphology of ribs, *Reptilia*, SCHÖNE (723).
Shoulder-girdle, FÜRBRINGER (261), JAEKEL (394).
Pulmonary arteries, BREMER (103).
Cephalic arteries of mammals, TANDLER (788).
Primitive mouth of Vertebrates, HERTWIG (356).
Alimentary canal, TOMÁS (807).—Intestinal folds and villi, HILTON (363).
Phallus and Urodäum, *Amniota*, FLEISCHMANN and others (243).
Palms and soles, WILDER (884).
Glands, classification of, PALADINO (612, 613), LIVINI (508).
Coxal organs and Gonapophyses, *Tracheata*, VERHOEFF (830).
Torsion and detorsion in *Gasteropoda*, BOUTAN (89), ROBERT (687).

b. Histology:—(see also **4** and **5**).

Textbook arranged according to classification of animals, SCHNEIDER (720).
Illumination, use of condenser in histology, LEE (481).
Molecular and histological structure, HEIDENHAIN (338).
Histology of nervous system, historical, SPULER (STIEDA) (762).
Value of size of nerve-fibres, HERRICK (353).
Nervous system, neuroglia, histogenesis and phylogeny, JOSEPH (410).
Nervous centres, RÁDL (663).
Nerve-endings, WOLFF (898).
Connective tissue, histogenesis, MALL (536).
Nuclear changes during histogenesis, EYCLESHYMER (231).
Histology and osteogenetic power of dura mater, COCO (146).
Histology and histogenesis of ovary, LIMON (500).
Interstitial gland, ovary of mammals, LIMON (500, 501).
Vacuoles of Granulosa of follicles of De Graaf, LIMON (502).
Structure of Chitin, BIEDERMANN (77A), N. HOLMGREN (372).
Walls of vessels, Arthropods, BERGH (64).
Thymus and gills *Amphibia*, histological processes, NUSBAUM & MACHOWSKI (602).
Histology of *Lingula*, blood corpuscles, spindle bodies etc., YATSU (902).
Intracellular threads ganglion-cells of electric organ of *Torpedo*, SOLGER (756).

c. Teratology;—

The anatomy of particular monsters is not included.

Recent literature, WINDLE (891A).
Pathology and Teratology, RABAUD (660).
Etiology of malformations and asymmetry, TORNIER (809), ZINGERLE (916).
Pygomely, LESBRE (492).
Polydactyly in pig, nature of, TORNIER (810).
Experimentally produced double formations, SPEMANN (758).—Double embryos, trout, concrescence theory, SCHMITT (719).

4. PHYSIOLOGICAL.

a. General:—

Text-book chemical physiology invertebrates, FÜRTH (262).
Text-book of chemics of cell and tissues, HÖBER (365).
Physiology of the living substance, VERWORN (832).
Oxygen and life, WILLARD & KINSLEY (885).
Colloidal conditions and vital processes, PAULI (621).
The principle of economy in function, IMBERT (391).
Change of function in carnivorous fowls, HOUSSAY (374).
Influence of carbonic acid on function, DUBOIS (216).
Season, effect of on organisms, LÄMMEL (463).
Faculty of vital movement, BERNSTEIN (73).
Energy, embryology, TANGL (789).—Physiology of production of energy, MAREŠ (538).—Nature of Protoplasma-energy, LOEW (514).
Osmotic properties of membranes of marine animals, SCHÜCKING (725).
Enzyme, Proteolytic in the Animal Kingdom, FERMI & REPETTO (233).—Iron in enzyme, and living matter, SACHAROFF (700).
Growth, SCHAPER (706); SPRINGER (761).—Statistics of human growth, DAFFNER (159).
Albumen and phosphoric acid, HERRERA (349).—Gelatine and metaphosphoric acid, HERRERA (350).

b. Particular Functions:—

Heat production in warm-blooded animals, *Echidna* and *Ornithorhynchus*, MARTIN (543).
Liver-Function in Insects, PORTA (647).
Histolysis of eggs and tissues, THÉEL (795).
Fasting in cold-blooded animals, BERLESE (67).
Hibernation, BERETTA (63).—Winter-sleep Organ, HANSEMANN (325).
Metamorphosis, theory, PÉREZ (632), VANEY (825).—Physiology of metamorphosis, BERLESE (68).—Histolysis in metamorphosis of Insects; see INSECTA, p. 82.
Floating, theory of, specific gravity, W. OSTWALD (610).
Electrical phenomena in animals, MENDELSSOHN (558).

c. Colour and Pigment:—

Chromatophores, CHUN (137).
Colour-physiology of *Crustacea*, KEEBLE & GAMBLE (416).
Colours of fishes, general, JORDAN (407).
Interference coloration, MANDOUL (537).
Protective coloration, LENDENFELD (488).
Sexual coloration, BARRETT-HAMILTON (41).

d. Nervous and Sensory: Psychology:—

Descriptive Catalogue, R. Coll. of Surgeons, nervous system, STEWART (776).

Reaction of inorganic matter to stimulus, BOZE (85).
Function of central nervous system, frog, BABÁK (32).
Central nervous system, historical, BURCKHARDT (120).
Fundamental properties, nervous system, POMPILIAN (644–646).
Reflex action, MAGNUS (533).—Discrimination of non-nervous reflexes, MASSART (546).
Theory of vision, BOHN (81).—Function of pigment in vision, PIZON (642).
Eye of deep sea fishes, BRAUER (99).
Sense of taste, psychology, HÄNIG (324).
Space perception, Japanese dancing-mice, v. CYON (158), KISHI (431a).
Orientation, HARTMANN (329).
Regulation of movements in Vertebrates, MERZBACHER (560).
Sense-cells, invertebrates, RETZIUS (677).
Response to stimuli, BOSE (84, 85).—Responses to stimuli, unicellular organisms, JENNINGS & MOORE (401); JENNINGS & JAMIESON (400).—Reactions of *Limax* to stimuli, FRANDSEN (252).—Planarian movement and reactions, PEARL (623).—Movements of earthworm, influence of stimuli on, SMITH (752).
Light, effects of, GEELMUYDEN (280).—Perception of light by invertebrates, HESSE (358).—Reaction of Arthropods to light, RÁDL (664).
Topographic sensibility of skin, GROSSER & FRÖHLICH (310).
Sense-hairs of *Lepidopterous* larvæ, HILTON (363).
Habit formation, *Carcinus*, YERKES (903).
Brain and Soul, A. FOREL (248).
Psycho-biology, LOEWENFELD & KURELLA (515).
Intellectual ability and size of head in man, PEARSON (629).
Factors of cerebral evolution, RAMÓN Y CAJAL (665).
Mind and body, SCHUPPE (731).
Animal psychology, WAGNER (848).—Method in Zoopsychology, WAGNER (847).—Reflex action, BETHE (75), WASMANN (857).—Intelligence, WITCHELL (895).
YERKES on LOEB (905).
Autotomy, MORGAN (585).

5. PROTOPLASM AND CELL.

a. General:—

Cell-theories and *Protozoa*, criticism of recent views, R. HERTWIG (357).

b. Protoplasm:—

HAYWARD (334), Protoplasm, MINCHIN (566).
Continuity of protoplasm, KRAEMER (454).
Structure and movements of protoplasm; influence of external agents and reagents, KÖLSCH (443).
Artificial protoplasm, HERRERA (347, 348, 351).
Protoplasma and enzyme, BOKORNY (82).

c. Cell, structure and function:—See also 3 b, histology; and 6.

The cell; Text-book, WILSON (888).
The living cell, RHUMBLER (681).
Cerebral cells, MARTINOTTI (544).
Cytology, Thymus, MALENGREAU (535).
Leucocyte, account of, LEVADITI (493).
Cell-formation; experiments; LEDUC (479).
Nerve-cells, morphology, E. HOLMGREN (368).

Trophospongium of cell, E. HOLMGREN (369, 370).
Morphology of cell, some recent work, E. HOLMGREN (368).
Size of cell and abundance of nuclear contents, GERASSIMOFF (283).
Properties of cells, as regards reagents, ALBRECHT (7, 8).—Chemistry, text-book, HÖBER (365). Chemical and physical activity in cell, JANSSENS (399).
Intracellular diastasis, MOUTON (590).
Cell-division, BETHE (74), BOUIN (86), GIARDINA (289).
Interpretation of cell-division, GALLARDO (267).
Influence of artificial conditions on Cell-division; SCHIMKEWITSCH (715).
Multipolar mitosis, BOVERI (93).
Irregularities in division, GUYER (314).
Nucleus- and Cell-division, NUSSBAUM (603).
Modifications in parasitised cells, DORMOY (206).
Inanition, WALLENGREN (854).
Anomalies experimentally produced, WERNER (871).
Cell-processes in ice-bound *Euglena*, HINE (379).
Mitosis *Cerebratulus*, KOSTANECKI (452).—Cell-process in early stage of *Lepas*, BIGELOW (78).—Telophase *Amœba*, DANGEARD (169).

d. Nucleus, Nucleolus, Centrosome, etc.:—

Structure of nucleus, TELLYESNICZKY (792).
Movements and function of nucleus, RHUMBLER (682).
Nuclei, ovarial eggs of *Pelias*, WETZEL (876).
Conjugation and nuclei, *Dendrocometes*, HICKSON & WADSWORTH (361).
Nuclear changes, EYCLESHYMER (231).—In *Cyclops*, HÄCKER (315).
Nucleus, nucleolus, embryo of *Nassa*, HOFFMAN (366).
Nuclear changes in Protozoa; vitelline nuclei of eggs, CONTE & VANEY (149).—Nuclear processes in *Trepomonas*, DANGEARD (170).—Nuclear division, *Amœba*, DANGEARD (169).
Hoffmann's nuclei, BERLINER (69).—Hoffmann nuclei in spinal cord, birds, KOELLIKER (440).
Chromatin-granules, PAPPENHEIM (617).
Centrosome: DARBISHIRE (172), JOSEPH (411).
Cleavage centrosomes artificially produced in Echinoderm eggs, WILSON (889).
Boveri's Centrosome, import of, MEVES (562).
Ciliate epithelium and centrosome, JOSEPH (411).
Double nuclei (male and female autonomy), HÄCKER (316).

6. OVUM AND SPERMATOZOON.

a. General:—(see also 7 and 8):

The sexual cells, WALDEYER (849).
Chromosomes, germ cells *Metazoa*, MONTGOMERY (577).
Origin of chromosomes, *Asterias*, HARTMANN (330).
Spermatogenesis and oogenesis in *Myriopoda*, TÖNNIGES (808).
Germ-cells, BEARD (56); Origin and history, BEARD (52); early history, BEARD (53); Migration, BEARD (57); of *Pristiurus*, BEARD (54); origin of in *Acanthias*, WOODS (899).
Maturation, fertilisation and cell-division in *Polystomum*, GOLDSCHMIDT (300).
Maturation, fecundation, and development, *Polystomum*, HALKIN (320).
Maturation and fertilisation, *Ciona*, GOLSKI (302); *Cerebratulus*, KOSTANECKI (451).
Ovum and spermatozoon in Insects, see also INSECTA, p. 82.

b. Ovum, oogenesis:—(See also **a**):

Chromosomes and nucleoli, germinal vesicle, LOYEZ (522).

Germinal vesicle and polar bodies, *Anoura*, LEBRUN (470), *Batrachia*, id. (471).—Germinal vesicle, *Teleosteans*, STEPHAN (767).

Pseudochromosomes, *Aves*, D'HOLLANDER (199).

Movements of Chromatine during growth of ovocyte, *Helix*, ANCEL (15).

Oogenesis: mammalia, WINIWARTER (892); *Annelida* and *Cephalopoda*, BERGMANN (66); *Insecta*, GIARDINA (288); Oogenesis, *Thysanozoon*, part 2, SCHOCKAERT (721).

Pseudochromosomes, egg of Bat, VAN DER STRICHT (823).

Oogenesis and fertilisation, *Distomum*, HENNEGUY (340).

Follicles, Amphibian ovary, KING (427).

Corpus luteum, recent work, SOBOTTA (753).

Degeneration of egg-follicles, BÜHLER (117).—Degenerating follicles, fishes, BÜHLER (116).

c. Spermatozoon, Spermatogenesis:—(See also **a**):

Recent work, MEVES (561).

Vital phenomena of spermatozoon, DEWITZ (198).

Individuality of chromosomes, etc., SUTTON (786).—Accessory chromosome, MCCLUNG (554).

Spermatozoa of mammals and man, RETZIUS (678).

Spiral fibre in head of Selachians, RETZIUS (679).

Spermatozoa of *Allobophora fœtida*, FOOT & STROBELL (245).

Dimorphic spermatozoa, BEARD (51); Mammals, BALLOWITZ (36).—Variations of spermatozoa, BROMAN (107, 108).—Aberrant forms, STEPHAN (766), REGAUD (668); Atypical spermatozoa, BROMAN (108); Giant form, *Cirrhipedia*, GRUVEL (313).—Oligopyrene, apyrene, eupyrene, spermatozoa, *Paludina*, *Pygæra*, MEVES (563).

Spermatogenesis, LERAT (491), NIESSING (599); in Mammals, SCHOENFELD (722); in *Phalangista*, v. KORFF (448); in Sparrow, LOISEL (520); *Amphibia*, KINGSBURY (430); *Triton*, JANSSENS (398, 399); in *Orthoptera*, SINÉTY (749); in *Locustidæ*, MCCLUNG (555); in *Gryllus*, accessory chromosome, BAUMGARTNER (50); in *Cybister*, VOINOW (839); *Silpha*, N. HOLMGREN (371); in *Notonecta*, acrosome, Nebenkern in Spermatid, movements of nuclein, PANTEL & SINÉTY (614–616); in *Anurida*, LÉCAILLON (473); in Crab, PROWAZEK (653); in *Oniscus*, chromatin, NICHOLS (598).

Mitochondria (Nebenkern); exchanges of nuclein; calottes, corpuscules, chromatophiles, PANTEL & SINÉTY (616).

Chromatin reduction, *Myriapoda*, BOUIN (87).—Spindle, etc., LEE (482).—Tetrad-groups, PROWAZEK (654).

Seminal cells and glandular epithelium, LOISEL (518), JOSEPH (411).

Interstitial elements of testis, STÉPHAN (770).

d. Maturation:—(See also **a**):

LE DANTEC (477), LERAT (491); BRYCE, *Echinus* (111); in *Metazoa*, LUBOSCH (524); in Batrachian, LEBRUN (469).

Maturation mitoses and heredity, WILSON (890).

Maturation and prolongation of life of egg, LOEB (512).

Maturation, nuclear substance, LUBOSCH (525).

In parthenogenetic eggs, *Artemia*, PETRUNKEWITSCH (638).

Cytoplasm and nucleus, egg of *Cytherea*, DUMEZ (218).

KING, first polar spindle, *Bufo* (429).

e. Fertilisation:—(See also **a**):

BOVERI (92), DELAGE (182), DUNGERN (219), O. HERTWIG (355), HICKSON (360), SOKOLOWSKY (755), STRASBURGER (782).

Theory of fertilisation and artificial parthenogenesis, LOEB (510).
Chemotaxis in fertilisation, BULLER (118).
Partial fertilisation, TEICHMANN (791).
Fertilisation of immature egg, BATAILLON (44).
Artificial fertilisation, *Cristiceps*, KOPSCH (444).
Fertilisation in *V. noctula*, VAN DER STRICHT (824); in *Pterocephalus*, LÉGER & DUBOSCQ (485); Fertilisation in *Echini*, GIARDINA (290).
Fertilisation of eggs producing male bees, DICKEL (200, 201).

7. EMBRYOLOGY, DEVELOPMENT.

a. General:—

General account, SEDGWICK (733); Physiology of development, DRIESCH (215).
Recent work reviewed, DRIESCH (208).
Annual review, LOISEL (519).
Summary of recent work, MERKEL & BONNET (559).
Russian literature, 1900–1902, abstracts, bibliography, STIEDA (777).
L. Sebastian Graf von Tredern's work, A.D. 1808, on egg and chick, STIEDA (778).
Intellectual conditions for, BROOKS (110).
Method of reconstruction, WEBER (861).
Graphic method in embryology, TUR (820).
Text-book, invertebrate embryology, KORSCHELT & HEIDER (450).
Handbook of comparative embryology, O. HERTWIG (354).
Of comparative ontogeny of lower vertebrates, ZIEGLER (912).
Regeneration and ontogeny, DELAGE (185), SCHULTZ (726).
Von Baer's law, GLASER (293).
Tachygenesis, the causes of palingenesis and cænogenesis, PERRIER (634).—Tachygenesis, metamerism, etc., PERRIER & GRAVIER (637).—Tachygenes, MAGGI (532).
Cænomorphism and Cænodynamism, GIARD (287).
Concrescence, EYCLESHYMER (230), SCHMITT (719).
Abnormalities in early stages, BONNEVIE (83).—Anomalies in development of chick, TUR (818).
Influence of temperature, development of eggs of fishes, REIBISCH (671).
Respiration of embryos, GODLEWSKI (297).
Duplication, in early stages, KAESTNER (412).
Physiological zero, egg of *Gallus*, EDWARDS (222).
Early stages of embryology in *Protochordata* and *Cœlenterata*, HUBRECHT (377).
Embryology and fission in *Planaria*, CURTIS (157).

b. Particular species, stages, and organs:—

Primitive streak of chick, general considerations, KOPSCH (445), (446) as to MITROPHANOW.
Germinal layers and primitive streak, chick, NOWACK (601).
Gastrulation, germ-layers, KEIBEL (417).
Roe-deer, early stages, KEIBEL (419).—Mouse, early stages, SOBOTTA (753).
Of aquatic birds, MITROPHANOW (570).
Embryology of Reptiles, VOELTZKOW & DÖDERLEIN (837); of *Amphibia*, BRACHET (95), SAKUJIRO IKEDA (390); of *Salmonidæ*, GREGORY (309); early stages, Teleostean fishes, SWAEN & BRACHET (787).
Trigeminal nerve, man, GIGLIO-TOS (291).

Origin of head-skeleton "Mesectoderm," BUCHS (113).

Development of head, terms, FRORIEP (257).—Development of head-region vertebrates, RABL (662), FRORIEP (256).—Occipital region, FRORIEP (258).

Auditory mechanism, *Mammalia*, DENIS (193).

Lung of vertebrates, MOSER (587).

Degenerative process, tail, ZIETZSCHMANN (915, 916).

Blastopore, *Tropidonotus*, BALLOWITZ (35).

Gastrulation, *Bufo*, KING (428).

Development of kidney of *Amniota*, SCHREINER (724).

Development of brain and cranial nerves in *Anamniota*, JOHNSTON (405).

Embryology of *Lepidosiren*, KERR (423).—Entoblast yolk sac, fishes, KOPSCH (445).—Head of *Selachians*, DOHRN (204).—Alimentary organs, *Amia*, PIPER (641).

Molgula and allies, DAMAS (168).

Development, incl. early stages, of *Phoronis* (*Actinotrocha*), IWAGI IKEDA (389), MASTERMAN (548); of *Phoronis*, SELYS (734), IKEDA (389); of *Sagitta*, DONCASTER (205); of *Trochus*, ROBERT (687).—Embryonic and postembryonic *Lingula*, YATSU (901).—Cell-division in earliest stages, *Lepas*, BIGELOW (78).—Segmentation line, *Atyephira* (*Crustacea*), ISHIKAWA (392).—Mesoblast, *Thalassema*, J. C. TORREY (811).—Embryology of *Zoogonus*, GOLDSCHMIDT (301).—Of *Gonionema*, PERKINS (633).—Embryology and development of *Echinus*, MACBRIDE (529).

Vitreous body and lens of eye, VAN PÉE (829), RABL (661).

c. Experimental:—

Postgeneration, K. ZIEGLER (914).

Blastomere experiments, MAAS (528).

Orientation of embryo, gastrulation, ROUX (696).—Gastrulation, RHUMBLER (680).

Early stages of development, centrosomes etc. of unfertilised eggs, WASSILIEFF (856).

Early stages in artificially fertilised ovum of *Cristiceps*, KOPSCH (444).

Artificial parthenogenesis, ARIOLA (29, 30), BASSE (42), BATAILLON, *Rana* (44, 45), BRYCE, *Echinoderma* (112), DELAGE (183, 186, 187), DRIESCH (211); in Annelids, M. H. FISCHER (241), GREELY (308), KOSTANECKI (453), LILLIE (498), LOEB (511), LOEB & LEWIS (513), MICHEL (565), TICHOMIROW (804), TREADWELL (813), VIGUIER (834), WINKLER (893).

On mutilated eggs, frog, MORGAN (579).—Constricted eggs, *Triton*, SPEMANN (759).—Portions of eggs, *Echinus microtuberculatus*, STEVENS (774).—Eggs of birds, SCHIMKEWITSCH (714).—Fowl, SCHIMKEWITSCH (716).—As to germinal layers, chick, STRAHL & GRUNDMANN (781).—With epithelium of yolk-sac, SCHAPER (707).—On nervous system, ZINGERLE (917).

Teratoma, FÉRÉ & PETTIT (232).

Temperature and parthenogenesis, VIGUIER (833).

Carbonic acid, DELAGE (184).

Inorganic substances in Echinoderm development, HERBST (344).

Gravity, or autonomy, KATHARINER (413), KEIBEL (418), MORGAN (582), MOSZKOWSKI (588), ROUX (695).—Gravity and symmetry of egg of frog, MOSZKOWSKI (589).

8. REPRODUCTION, SEX, HEREDITY, REGENERATION.

a. General:—

The continuity of life, presidential address, VAN BENEDEN (61).

Reproduction, THOMSON (801).
Heterogenesis, BASTIAN (43), KORJINSKY (449).
Protandry and senescence in Corals, GARDINER (273).
Reproduction in Madreporarian Polyps, DUERDEN (217); in *Collembola*, LÉCAILLON (472).
Reproductive phenomena in *Protozoa*, CALKINS (124); Immortality of *Protozoa*, CALKINS (125).
Parthenogenesis in ants, REICHENBACH (672); in *Orthoptera*, SINÉTY (749).

b. Sex:—

Correlation of secondary sexual characters, FOGES (244).
Sexual processes in Gregarines, LÉGER (484).
Influence of parasite on sex, GIARD (285).
Origin of sexual elements in a hermaphrodite gland destitute of ovocyte, ANCEL (16, 17).
Determination of sex by accessory cbromosome, MCCLUNG (554).
Determination of sex, ANCEL (16, 17), BEARD (51, 55), KULAGIN (459), LENHOSSEK (489), SCHENK (712), SCHULTZE (728), VAN LINT (828).—Determination of sex and parthenogenesis, WEDEKIND (864).
Hermaphroditism, GIARD (285), STEPHAN (769).—Protandric hermaphrodism, fishes, ROULE (694).—Hermaphroditism, in-breeding, parthenogenesis, SCHAPIRO (708).
Hybridising *Echinoderma*, STEINBRÜCK (765).

c. Heredity:—

Morphological, or material basis of heredity, HÄCKER (315, 316).
Chromosomes as agents of, FRIEDMANN (255).—Heredity value of individual Chromosomes, STEVENS (774).
Heredity, critique of mode of discussion, FRIEDMANN (254).
Variation and inheritance, Cuckoo, LATTER (468).
Prepotency, polydactylous cats, H. B. TORREY (812).
Heredity, BATESON (46), LE DANTEE (476), MITCHELL (569), RIBBERT (683), SERGI, (736), STAHR (763), R. WALLACE (852, 853).
Heredity, in-breeding, ROBERTSON (688).
Heredity, homotyposis, PEARSON (630).
Mendel's views, BATESON (47), CUÉNOT (153, 154, 155), KÜSTER (461), TSCHERMAK (817), WELDON (870).
Crossing races, DARBISHIRE (171).
Convergent heredity, man, DEBRET (180).
Heredity of attitude, PERRIER (635).
Heredity, in poultry and plants, BATESON & SAUNDERS (48).
Bees and heredity, SPENGEL (760).
Hermann Lotze's views, SIEBERT (741).
Heredity in Protozoa, LEPESCHKIN (490).
Coat-colour, horses, BLANCHARD (79).
Unisexual inheritance, CUNNINGHAM (156).
Inheritance of acquired characters, FISCHER (239, 240), GALLOWAY (269), LECHE (474).
Heredity of characters arising from change of habit, HOUSSAY (374).
Transmission of mutilations, CHARRIN, DELAMARE & MOUSSU (134).
Atavismus, EMERY (225).
Muscular variation due to reversion, HUNTINGTON (318).

d. Regeneration (incl. Grafting):—

Regeneration, DELAGE (187), DRIESCH (210), HAZEN (335), JANDA (396), MORGAN (581, 583, 584), PRZIBRAM (656), ROWLEY (697), TUR (819), WINKLER (893).—See also 7 a, DELAGE (185), SCHULTZ (726).
Regeneration and adaptation, HÜBNER (378).

Regeneration and Involution, BARFURTH (39).
Embryonic and regenerative development, Planarians, BARDEEN (38).
Determinants of size in regenerated parts, MORGAN (580).
Relations of nervous system to regeneration processes, HERBST (343).
Regeneration and heteromorphosis, CERFONTAINE (133).
Fission, Regeneration and regulation, *Stenostoma*, CHILD (135).
Of eye of embryo, BARFURTH (40).—Regeneration of lens, FISCHEL (238). —Atavistic character of regeneration of lens in *Amphibia*, SCHIMKEWITSCH (717).—Regeneration of pharynx, *Planaria*, THACHER (793).—Tadpole, tail, MORGAN & DAVIS (586).—*Enteropneusta*, DAWYDOFF (176).—Regeneration in *Oligochæta*, ABEL (1); in *Turbellaria*, SCHULTZ (727); in Planarians, LILLIE (499); *Gonionema*, HARGITT (326).—Tubularia, GODLEWSKI (296); *Tubularia*, STEVENS (773).—*Antennularia*, STEVENS (775).
Autotomy: See 4 **d**, p. 65. Also the Special Records.
Transplantation of organs, MARIANO & FIGARI (539), GALEOTTI (265).
Regeneration and grafting Hydroids, PEEBLES (631).

II. MAMMALIA.

BY

R. LYDEKKER.

CONTENTS.

	Page
Introduction	2
I. TITLES	2
II. BIOLOGY (SUBJECT-INDEX).	
Anatomy (A—H)	23
Development (I)	23
Variation; various notes (K)	25
Geographical distribution	26
†Fossil faunas	27
III. SYSTEMATIC.	
PRIMATES	27
Anthropoidea	28
Lemuroidea	28
Incertæ sedis	28
CHIROPTERA	29
INSECTIVORA	30
CARNIVORA	31
Felidæ, Viverridæ and Proteleidæ	31
Canidæ	32
Mustelidæ	32
Procyonidæ and Ursidæ	33
Incertæ sedis	33
Creodontia	33
Pinnipedia	33
RODENTIA	34
Sciuridæ	34
Gliridæ and Castoridæ	34
Muridæ	34
†Mylagaulidæ	36
Jaculidæ and Spalacidæ	36
Geomyidæ and Heteromyidæ	36
Pedetidæ and Octodontidæ	37
Dasyproctidæ and Caviidæ	37
Leporidæ and Ochotonidæ	37
†Mixodectidæ	38
Incertæ sedis	38
UNGULATA	38
Artiodactyla	38
Bovidæ	38
Antilocapridæ and Giraffidæ	39
Cervidæ	39
Tragulidæ, † Hypertragulidæ and Camelidæ	40
†Gelocidæ and †Anthracotheriidæ	40
Hippopotamidæ, Suidæ and Dicotylidæ	40
Perissodactyla	40
Hyracoidea	40
Proboscidea	41
Incertæ sedis	42
CETACEA and SIRENIA	42
EDENTATA and EFFODIENTIA	43
MARSUPIALIA	43
MONOTREMATA and MULTITUBERCULATA	44

INTRODUCTION.

THE number of entries is again in excess (this time very largely) of those of the preceding year. This annual increase is in great part due to the practice of devoting a separate article to the description of one or two unimportant species or varieties—sometimes a single species or even variety. This practice encumbers literature for all future time—with, apparently, but little compensating advantage. Unfortunately, the aforesaid increase in the amount of literature is not accompanied by a corresponding augmentation in the separate copies of works sent for the recorder's assistance.

Among the more important literature of the year, a foremost place must be accorded to ANDERSON and DE WINTON'S Mammals of Egypt.

The labours of ANDREWS, supplemented by those of BEADNELL, on the extinct Mammals of the same country, are gradually making known the affinities and extent of a most wonderful fauna.

The appearance of LANKESTER'S memoir on the Okapi, coupled with the preliminary notices by FORSYTH-MAJOR of the Belgian examples of that animal, are noteworthy events of the year. The development and homologies of horns and antlers have received attention at the hands of DÜRST, GADOW, and LANKESTER; and attention may likewise be directed to ELLIOT SMITH'S memoirs on mammalian brains—especially the one relating to Diprotodonts.

BEDDARD'S volume on Mammals in the "Cambridge Natural History" has been published during the year; and HAY'S "Catalogue of the Fossil Vertebrata of North America" is a work of great value to the palæontologist.

I. TITLES.*

1. ABEL, O. Les Dauphins longirostres du Boldérien (Miocène Supérieur) des environs d'Anvers. Pt. ii. Mem. Mus. Belgique ii, pp. 101–188, pls. xi–xviii. [*Cetacea.*]

2. ——. Die Ursache der Asymmetrie des Zahnlwalschädels. SB. Ak. Wien cxi, sep. pp. 17, 1 pl. [*Cetacea.*]

3. ADACHI, B. Hautpigment beim Menschen und bei den Affen. Anat. Anz. xxi, pp. 16–18. [*Primates.*]

4. ADLOFF, P. Zur Kenntniss des Zahnsystems von *Hyrax*. Zeitschr. Morphol. v, pp. 181–200, pls. iv & v. [*Hyracoidea.*]

5. ADOLPHI, H. Ueber ein Hundeskelet mit sogenannten "Halsrippen" bei nur 26 Präsacralwirbeln. Morphol. Jahrb. xxx, pp. 374 & 375. [*Carnivora.*]

6. ALEZAIS, —. Les adducteurs de la cuisse chez les Rongeurs. J. Anat. Physiol. xxxviii, pp. 1–13, figg. [*Rodentia.*]

7. ——. Étude anatomique du Cobaye (*Cavia cobaya*). T. c. pp. 259–275 & 624–648, figg. [*Caviidæ.*]

8. ——. Le membre pelvien du Kangurou. Ann. Mus. Marseille vii, pp. 113–133, pls. ix & x. [*Marsupialia.*]

---

* An asterisk prefixed to a quotation indicates that the recorder has not seen the Journal or Work referred to.

9. Allen, G. M. The type locality of *Ametrida minor*, H. Allen. P. Soc. Washington xv, pp. 88 & 89. [*Chiroptera.*]

10. ——. The Mammals of Margarita Island, Venezuela. T. c. pp. 91–97. [*Soricidæ.*]

11. Allen, J. A. Zimmermann's 'Zoologiæ Geographicæ' and 'Geographische Geschichte' considered in their relation to Mammalian nomenclature. Bull. Amer. Mus. xvi, pp. 13–22. [*Cervidæ.*]

12. ——. The generic and specific names of some of the *Otariidæ*. T. c. pp. 111–118. [*Pinnipedia.*]

13. ——. A new Caribou from the Alaska Peninsula. T. c. pp. 119–127, figg. [*Cervidæ.*]

14. ——. A new Bear from the Alaska Peninsula. T. c. pp. 141–143, pl. xxx. [*Ursidæ.*]

15. ——. A new Sheep from the Kenai Peninsula. T. c. pp. 145–148. [*Bovidæ.*]

16. ——. Description of a new Caribou from Northern British Columbia, and remarks on *Rangifer montanus*. T. c. pp. 149–158, figg. [*Cervidæ.*]

17. ——. Nomenclatorial notes on American Mammals. T. c. pp. 159–168. [*Sciuridæ, Cervidæ.*]

18. ——. List of Mammals collected in Alaska by the Stone Expedition of 1901. T. c. pp. 215–230.

19. ——. A study of the South American Opossums of the genus *Didelphis*. T. c. pp. 249–279. [*Marsupialia.*]

20. ——. Mammal names proposed by Oken in his 'Lehrbuch der Zoologie.' T. c. pp. 373–379.

21. ——. A new Caribou from Ellesmere-land. T. c. pp. 409–412, figg. [*Cervidæ.*]

22. ——. The Hair-Seals (*Phocidæ*) of the North Pacific Ocean and Bering Sea. T. c. pp. 459–499, figg. [*Pinnipedia.*]

23. ——. A further note on the generic names of the *Mephitinæ*. P. Soc. Washington xv, pp. 59–66. [*Mustelidæ.*]

24. Ameghino, F. Notices sur des Mammifères nouveaux des Terrains Crétacés de Patagonie. Bol. Ac. Cordoba xvii, pp. 5–68. [*Primates, Ungulata, Edentata, Marsupialia, etc.*]

25. ——. Contribution à la connaissance de la faune mammalogique des couches à *Colpodon*. T. c. pp. 71–141. [*Primates, Rodentia, Ungulata, Marsupialia, etc.*]

26. ——. Cuadro Sinoptico de las formaciones Terciarias y Cretáceas de la Argentina. An. Mus. Buenos Aires (2) viii, pp. 1 & 2.

27. ——. Linea filogenética de los Proboscideos. T. c. pp. 19–43, figg. [*Proboscidea.*]

28. ——. Le *Pyrotherium* n'est pas parent du *Diprotodon*. T. c. pp. 223 & 224. [*Marsupialia.*]

29. ——. Notas sobre Mamíferos fósiles del Valle de Tarija. Op. cit. (3) i, pp. 225–261, pls. i–vii. [*Carnivora, Rodentia, Ungulata, Edentata.*]

30. ——. Sur le type primitif des molaires plexodontes des Mammifères. T. c. pp. 419–439, figg.

31. Anderson, J. & de Winton, W. E. Zoology of Egypt; Mammalia. London, 4to, pp. xvii + 373, illustrated.

32. Anderson, R. J. Note on the occipito-atloid articulation in some Arctoids. J. Anat. Physiol. norm. path. xxxvi, pp. 368–371, figg. [*Carnivora.*]

33. Andrews, C. W. Extinct Vertebrates from Egypt, pt. iii. Geol. Mag. (4) ix, pp. 291–295, figg. [*Proboscidea, Sirenia.*]

34. ——. On a Pliocene Vertebrate Fauna from the Wadi-Natrun, Egypt. T. c. pp. 433–439, pl. xxi. [*Ungulata.*]

35. —— & Beadnell, H. G. L. Preliminary note on new Mammals from the Eocene of Egypt. Cairo Survey Dept., 9 pp., figg. [*Carnivora, Ungulata.*]

36. Annandale, N. Note on a living specimen of *Galeopithecus volans.* P. Phys. Soc. Edinb. xiv, pp. 444 & 445. [*Insectivora.*]

37. [Anon.] Are there races of the Asiatic Elephant? Asian, July 19, pp. 509 & 510. [*Proboscidea.*]

38. Armando, L. Mammalia Calabra. Riv. ital. Sci. xxii, pp. 5–9, 131–137, & 155–159.

39. Auerbach, M. Das braune Fettgewebe bei schweizerischen und deutschen Nagern und Insectivoren. Arch. mikr. Anat. lx, pp. 291–338, pls. xvi & xvii. [*Insectivora* & *Rodentia.*]

40. Bailey, V. Synopsis of the North American species of *Sigmodon.* P. Soc. Washington xv, pp. 101–116. [*Muridæ.*]

41. ——. Seven new Mammals from Western Texas. T. c. pp. 117–120. [*Rodentia.*]

42. Ballowitz, E. Ueber das regelmässige Vorkommen zweischwanziger Spermien im normalen Sperma der Säugetiere. Anat. Anz. xx, pp. 561–563.

43. Bangs, O. Descriptions of two insular *Blarinas* from Eastern Massachusetts. P. New England Zool. Club iii, pp. 75–78. [*Insectivora.*]

44. ——. Chiriqui Mammalia. Bull. Mus. Harvard xxxix, pp. 17–51, figg. [*Rodentia, Dicotylidæ.*]

45. Barber, C. M. Notes on little-known Mexican Mammals. P. Soc. Washington xv, pp. 191–193.

Barrett-Hamilton. [See Hamilton, G. E. H. Barrett.]

46. Beadnell, H. J. L. Note on *Arsinotherium zitteli.* Cairo Survey Dept. 1902, 4 pp., 6 pls. [*Perissodactyla.*]

——. [See also Andrews, C. W.]

47. Beddard, F. E. Mammalia (Cambridge Natural History x). London, pp. xii + 605, illustrated.

48. ——. Observations upon the carpal vibrissæ of Mammals. P. Zool. Soc. London 1902, i, pp. 127–136.

49. ——. On the carpal organ in the female of *Hapalemur griseus.* Ibid. ii, pp. 158–163, figg. [*Primates.*]

49a. ——. Note on the birth of an Indian Elephant. T. c. pp. 320–323, figg. [*Proboscidea.*]

50. Benham, W. B. Note on the osteology of the Short-nosed Sperm-whale. Ibid. i, pp. 54–62, pls. ii–iv. [*Cetacea.*]

51. [Benham, W. B.] External anatomy of a baby Rorqual (*Balænoptera rostrata*). Tr. N. Zealand Inst. xxxiv, pp. 151–155. [*Cetacea.*]

52. ——. Notes on *Cogia breviceps*, the Lesser Sperm-whale. T. c. pp. 155–168. [*Cetacea.*]

53. Bensley, B. A. On the identification of Meckelian and mylohyoid grooves in the jaws of recent and fossil Mammalia. Toronto Stud. Biol. No. 3, 9 pp., 1 pl. [*Marsupialia.*]

54. Beretta, A. La moltiplicazione cellulare nel midollo delle ossa d' el Riccio durante l' ibernazione. Monit. Zool. ital. xiii, pp. 211–215. [*Insectivora.*]

55. ——. Dell' influenza dell' accumulo dell' adipe sulla determinazione e sul decorso del sonno invernale nei Mammiferi ibernanti. T. c. pp. 234–244.

56. Bild, A. Die Entwickelungsgeschichte des Zahnsystems bei *Sus domesticus* und das Verhältniss der Lippenfurchenanlage zur Zahnleiste. Anat. Anz. xx, pp. 401–410, figg. [*Suidæ.*]

57. Bocage, J. V. Barboza du. Les Antilopes d'Angola. J. Sci. Lisb. (2) vi, pp. 234–242. [*Bovidæ.*]

58. Boenninghaus, G. Der Rachen von *Phocæna communis.* Zool. Jahrb. Anat. xxvii, pp. 1–98, pl. i. [*Cetacea.*]

59. Bolk, L. Beiträge zur Affen-Anatomie, iv, Das Kleinhirn der Neuweltaffen. Morphol. Jahrb. xxxi, pp. 44–84, pl. iv. [*Primates.*]

60. Bonhote, J. L. On a collection of Mammals made by Mr T. H. Lyle in Siam. P. Zool. Soc. London 1902, i, pp. 38–41. [*Leporidæ.*]

61. ——. Mammals obtained by the Hon. N. C. Rothschild from Okinawa, Liu-Kiu Islands. Nov. Zool. ix, pp. 626–628. [*Chiroptera, Muridæ.*]

62. Bonnet, —. & Kolster, R. Bemerkungen ueber die vergleichende Histologie der Placenta und die Embryotrophe der Säugetiere. Anat. Anz. xxi, suppl. pp. 25–34.

63. Botezat, E. Die Nervenendigungen in der Schnauze des Hundes. Morphol. Jahrb. xxix, pp. 439–449, pl. xxv. [*Canidæ.*]

64. ——. Ueber das Verhalten der Nerven im Epithel der Säugethierzunge. Zeitschr. wiss. Zool. lxxi, pp. 211–226, pl. xi.

65. Boule, M. Revision des espèces européennes de *Machairodus.* Bull. Soc. geol. France (4) i, pp. 551–573, figg., 1901. [*Felidæ.*]

66. ——. Sur des fossiles provenant d'une caverne à ossements près de Montmaurin (Haute-Garonne). Ibid. ii, pp. 205 & 206.

67. ——. Les créatures géantes d'autrefois. Rev. gen. Sci. 1902, pp. 903–915.

68. Bradley, O. C. A case of left anterior (superior) vena cava in the Dog. Anat. Anz. xxi, pp. 142–144, figg. [*Canidæ.*]

69. ——. Two cases of dental anomaly. J. Anat. Physiol. norm. path. xxxvi, pp. 356–367, figg. [*Perissodactyla.*]

70. ——. A method of craniometry for Mammals. P. Phys. Soc. Edinb. xv, pp. 43–56.

71. Branner, J. C. Occurrence of fossil remains of Mammals in the interior of Pernambuco and Alagoas, Brazil. Amer. J. Sci. (4) xiii, pp. 133–137, pl. i.

72. Bresslau, E. Beiträge zur Entwicklungsgeschichte der Mammarorgane bei den Beutelthieren. Zeitschr. Morphol. iv, pp. 260–317, pls. x & xi. [*Marsupialia.*]

73. ——. Weitere Untersuchungen über Ontogenie und Phylogenie des Mammarapparates der Säugetiere. Anat. Anz. xxi, pp. 178–189, figg.

Breuil, —. [See Capitan & Breuil (84).]

74. Broom, R. On the organ of Jacobson in the Elephant-Shrew. P. Zool. Soc. London 1902, i, pp. 224–228, pl. xxi. [*Insectivora.*]

75. ——. On the early condition of the shoulder-girdle in the Polyprotodont Marsupials *Dasyurus* and *Perameles.* J. Linn. Soc. London, Zool. xxviii, pp. 449–454, pl. xli. [*Marsupialia.*]

76. Brunelli, G. Intorno alla fisiogenia del letargo nei Mammiferi. Riv. ital. Sci. xxii, pp. 31–36.

77. Burne, R. H. Flexor carpi radialis of Elephant, showing great development of elastic tissue. P. Anat. Soc. Britain 1902, pp. lxii–lxiv, figg. [*Proboscidea.*]

78. Buxton, E. N. Two African Trips. London, pp. xiii+208, illustrated. [Contains notes on big game preservation.]

79. Cabrera, A. Nota sobre la iconografia del *Vespertilio espadæ.* Bol. Soc. espan. ii, p. 131. [*Chiroptera.*]

80. ——. Un nuevo Mamifero del genere *Herpestes.* T. c. pp. 138 & 139. [*Viverridæ.*]

81. ——. Nota sobra el verdadero habitat del *Myotis thomasi.* T. c. p. 293. [*Chiroptera.*]

82. ——. Sobre un *Globicephalus* encontrado en la costa del Mediterraneo. T. c. pp. 293–295. [*Cetacea.*]

83. Camerano, L. Materiali per lo studio delle Zebre. Atti. Acc. Torino xxxvii, 15 pp., 1 pl. [*Perissodactyla.*]

84. Capitan, — & Breuil —. Reproduction des figures paléolithiques peintes sur les parois de la grotte de Font-de-Gaume (Dordogne). C.R. Ac. Paris cxxxiv, pp. 1536–1539, figg. [*Artiodactyla.*]

85. Carlsson, A. Ueber die systematische Stellung von *Eupleres goudoti.* Zool. Jahrb. Syst. xxvi, pp. 217–236, pls. x & xi. [*Viverridæ.*]

86. Cavalié, —. Terminaisons nerveuses dans le testicule chez le Lapin et chez le Poulet, et dans l'épididyme chez le Lapin. C.R. Soc. Biol. liv, pp. 298–303. [*Leporidæ.*]

87. Chaine, J. Contribution a la myologie de la région sus-hyoidienne du Blaireau (*Meles taxus*). T. c. pp. 674–676. [*Mustelidæ.*]

88. ——. Connexions du mylo-hyoïdien et du génio-hyoidien chez quelques Mammifères. Pr.-verb. Soc. Bordeaux, 19 July, 1900.

89. Chapman, H. C. Observations upon *Galeopithecus volans.* P. Ac. Philad. 1902, pp. 241–254. [*Insectivora.*]

90. Clark, A. Sport in the Low-Country of Ceylon. Colombo, 1901, pp. 159+ix. [*Proboscidea.*]

91. Coenen, H. Das Trigeminusganglion des Orang. Arch. mikr. Anat. lx, pp. 514–516. [*Primates.*]

92. Cotton, P. H. G. Powell. A Sporting Trip through Abyssinia. London, pp. xxiii + 531, illustrated. [See also Rothschild, W. (309).]

Cram, W. E. [See Stone & Cram (332).]

92a. Cuénot, L. La loi de Mendel et l'hérédité de la pigmentation chez les Souris. Arch. zool. exp. Notes (3) x, pp. xxvii–xxx. [*Muridæ.*]

93. Dabbene, A. Fauna Magallánica,—Mamiferos y Aves de la Tierra del Fuego. An. Mus. Buenos Aires (3) i, pp. 341–409.

94. Davison, A. The lymph-system in the extremities of the Cat. Anat. Anz. xxii, pp. 125–128, figg. [*Felidæ.*]

95. Denis, P. Recherches sur le développement de l'oreille interne chez les Mammifères (*Vespertilio murinus*). Arch. Biol. xviii, pp. 377–493, pls. xv–xxi. [*Chiroptera.*]

96. Depéret, C. Sur les caractères crâniens des *Lophiodon*. Bull. Soc. geol. France (4) ii, pp. 323, 324 & 344. [*Perissodactyla.*]

96a. ——. Sur les caractères crâniens et les affinités des *Lophiodon*. C.R. Ac. Paris cxxxiv, pp. 1278–1282, fig. [*Perissodactyla.*]

97. De Winton, W. E. Descriptions of two new Gerbils from Egypt. Ann. Nat. Hist. (7) ix, pp. 45–47. [*Muridæ.*]

98. ——. Notices of two new species of Potto from French Congo Territory. T. c. pp. 47–49. [*Primates.*]

99. ——. Descriptions of two new Hares from Egypt. Nov. Zool. ix, pp. 444 & 445. [*Leporidae.*]

99a. Douglass, E. The discovery of Torrejon Mammals in Montana. Science (2) xv, pp. 272 & 273.

100. Duckworth, W. L. H. On an unusual form of nasal bone in a human skull. J. Anat. Physiol. norm. path. xxxvi, pp. 257–259, figg. [*Primates.*]

101. ——. Note on irregularities in the conformation of the post-orbital wall in skulls of *Hylobates muelleri* and of an aboriginal native of Australia. T. c. pp. 260–262, figg. [*Primates.*]

102. Dürst, J. U. Versuch einer Entwicklungsgeschichte der Hörner der Cavicornia, nach Untersuchungen am Hausrinde. Forsch. Geb. Landwirtschaft Frauenfeld (Kræmer's Festschrift) 1902, 47 pp., figg. [*Bovidæ.*]

103. ——. Sur le développement des cornes chez les Cavicornes. Bull. Mus. Paris 1902, pp. 197–203, figg. [*Bovidæ.*]

104. Dugès, A. Sur le Tatou, *Cachicama novemcincta*. Mem. Soc. Ant. Alzate xvii, pp. 35–42. [*Edentata.*]

105. Evans, G. H. Notes on the Hogdeer in Burma. J. Bombay Soc. xiv, pp. 310–315. [*Cervidæ.*]

106. Filhol, H. Contribution à l'étude des Félidés fossiles dont on a découvert les restes dans les cavernes des Pyrénées. Bull. Soc. Philom. (9) iv, pp. 104–120. [*Felidæ.*]

107. Fischer, E. Zur Kenntniss des Primordialcraniums der Affen. Anat. Anz. xx, pp. 410–417, fig. [*Primates.*]

108. Fleischmann, A. Morphologische Studien ueber Kloake und Phallus der Säugethiere. Morphol. Jahrb. xxx, pp. 653–666.

109. Flores, E. L' *Ursus spelæus* del Buco del Piombo sopra Erba (Prov. di Como). Riv. ital. Pal. viii, pp. 26 & 27, fig. [*Ursidæ.*]

FORSYTH-MAJOR. [See MAJOR, C. J. FORSYTH-.]

110. FOUNTAIN, P. The great mountains and forests of South America. London, pp. 306, illustrated. [Contains much information on the habits of the Mammals of this region.]

111. FRAAS, E. Ausgrabung eines römischen Brunnens bei Donnstetten, nebst Untersuchungen ueber die dort gefundenen Hunde- und Pferdrassen. Fundber. Schwaben x, pp. 42–52. [*Canidæ, Perissodactyla.*]

112. FRASSETTO, D. F. Su alcuni casi di Rachitismo nei Primati. Zeitschr. Morphol. iv, pp. 365–377, pl. xii. [*Primates.*]

113. ——. Plagiocephalia e plagioprosopia nei *Primati.* Anat. Anz. xxii, pp. 25–30, figg. [*Primates.*]

114. FRIEDENTHAL, H. Ueber die Entfernung der extracardialen Herznerven bei Säugethieren. Arch. Anat. 1902, pp. 135–145.

115. GADOW, H. The origin of the Mammalia. Zeitschr. Morphol. iv, pp. 345–364, figg.

116. ——. The evolution of horns and antlers. P. Zool. Soc. London 1902, i, pp. 206–222. [*Artiodactyla.*]

117. GEMMELLARO, G. G. Sul rinvenimento di un teschio di Squalodontidi nel calcare bituminoso di Ragusa in Sicilia. Rend. Acc. Lincei xi, p. 3. [*Cetacea.*]

118. GENTES, L. Ilots de Langerhans du Pancréas du Lion. C.R. Soc. Biol. liv, pp. 535 & 536. [*Felidæ.*]

119. GILL, T. Note on the names of the genera of Peccaries. P. Soc. Washington xv, pp. 38 & 39. [*Dicotylidæ.*]

119a. ——. The first use of Mammals and Mammalians. Science (2) xvi, pp. 1034 & 1035.

120. GODLEWSKI, E. Die Entwicklung des Skelett- und Herzmuskelgewebes der Säugethiere. Arch. mikr. Anat. lx, pp. 111–156, pls. vi–viii.

121. GOELDI, E. A. Estudos sobre o desenvolvimento du armação dos Veados Galheiros do Brazil. Mem. Mus. Goeldi, No. 3, pp. 46, pls. 3. [*Cervidæ.*]

122. GRAINO, C. Mamiferos del litoral di Asturias. Bol. Soc. espan. ii, p. 296.

123. GRANDIDIER, G. Observations sur les Lémuriens disparus de Madagascar. Bull. Mus. Paris 1902, pp. 497–505 and 587–592, figg. [*Lemuroidea.*]

124. ——. Madagascar au débût du xxe siècle, Paris. Zoologie, pp. 157–215, figg.

125. GRATIOLET, L. Note sur les Lamantins du Niger. Bull. Mus. Paris 1901, pp. 248–250. [*Sirenia.*]

126. GRÖNROOS, H. Ueber zwei Oberarmmuskeln bei der Gattung *Hylobates.* SB. Ges. naturf. Berlin 1902, pp. 245–256. [*Primates.*]

127. GROSSER, O. Ueber arterio-venöse Anastomosen an den Extremitätenenden beim Menschen und den krallentragenden Säugethieren. Arch. mikr. Anat. lx, pp. 191–216, pls. xi & xii.

129. Hamilton, G. E. H. Barrett. Antarctic *Mammalia.* Report of Southern Cross Collections (Brit. Mus.), pp. 1–66, pl. i. [*Pinnipedia.*]

130. Harlé, E. Un crâne de Boeuf Musqué, des Eyzies (Dordorgne). Bull. Soc. geol. France (4) i, pp. 455–458, figg. 1901. [*Bovidæ.*]

131. Hatai, S. On the presence in human embryos of an interscapular gland corresponding to the hibernating gland of lower Mammals. Anat. Anz. xxi, pp. 369–373, figg.

132. Hatcher, J. B. On the cranial elements and the deciduous and permanent dentition of *Titanotherium.* Ann. Carnegie Mus. i, pp. 256–262, 1901. [*Perissodactyla.*]

132a. ——. Discovery of a Musk-ox skull (*Ovibos cavifrons*) in Ohio. Science (2) xvi, pp. 707–709. [*Bovidæ.*]

133. Hauthal, R. Die Höhlenfunde von Ultima Esperanza im südwestlichen Patagonien. Zeitschr. Deutsch. geol. Ges. liii, pp. 570–581.

134. Hay, O. P. Bibliography and Catalogue of the Fossil Vertebrata of North America. Bull. U. S. Geol. Survey, No. 179, 868 pp.

135. Henne, R. Die kleinen Raubtiere Sumatras. Zool. Garten xliii, pp. 73–78. [*Carnivora.*]

Henneberg, B. [See Strahl, H. (336).]

136. Hepburn, D. & Waterston, D. The alimentary viscera of the Porpoise (*Phocæna communis*). Tr. R. Soc. Edinb. xl, pp. 313–330, pls. 3. [*Cetacea.*]

137. Herz, O. Ausgrabung eines Mammuthkadavers an die Kolyma-Beresowka Expedition. St Petersburg, 1902, 38 pp., 10 pls. [*Proboscidea.*]

138. Hinde, S. L. & H. The last of the Masai. London, 1901, pp. xix + 180, illustrated. [Contains a sporting account of E. African Mammals.]

139. Hinton, M. A. C. The Vertebrata of the Peat and Forest Bed at Westbury-on-Severn. P. Cotteswold Club xiv, pp. 42–45 (1901).

140. Holl, M. Ueber die Insel des Menschen- und Anthropoidengehirnes. Arch. Anat. 1902, pp. 1–44, pls. i & ii. [*Anthropoidea.*]

141. Hollis, E. Collecting Mammals in Canada. Zoologist (4) vi pp. 294–299.

142. Hornung, V. Zur Tapferkeit des Hasen (*Lepus timidus*). Zool. Garten xliii, pp. 250 & 251. [*Leporidæ.*]

143. Howe, F. A case of abnormality in Cats' paws. Amer. Natural. xxxvi, pp. 511–526, figg. [*Felidæ.*]

144. Howell, A. H. The generic names of the North American Skunks. P. Soc. Washington xv, pp. 1–9. [*Mustelidæ.*]

145. ——. Three new Skunks of the genus *Spilogale.* T. c. pp. 241 & 242. [*Mustelidæ.*]

146. Hubrecht, A. A. W. Furchung und Keimblattbildung bei *Tarsius spectrum.* Verh. Ak. Amsterdam (2) viii, No. 6, 113 pp. 12 pls. [*Primates.*]

147. Jacobi, A. Der Ziesel in Deutschland nach Verbreitung und Lebensweise. Arch. Naturg. 1902, i, pp. 199–238, figg. [*Sciuridæ.*]

148. JENTINK, F. A. On *Felis badia*, Gray. Notes Leyden Mus. xxiii, pp. 91–93. [*Felidæ.*]

149. ——. The Proboscis Monkey from Borneo. T. c. pp. 113–122, pls. i–v. [*Primates.*]

150. ——. Revision of *Macroglossus* and *Syconycteris*, and description of a new genus and species, *Odontonycteris meijeri.* T. c. pp. 131–142. [*Chiroptera.*]

151. JOHNSTON, Sir H. H. The Uganda Protectorate. London, 2 vols. illustrated. [Contains notes on the Mammals.]

152. KASCENKO, M. Sur le *Meles arenarius* Sat., et les races Sibériennes du Taisson. Annuaire Mus. St. Petersb. vi, pp. 609–614, 1901. [*Mustelidæ.*]

153. ——. Note sur l'*Arctomys bungei*, n. sp., et les autres Marmottes Sibériennes. T. c. pp. 615–620. [*Sciuridæ.*]

154. KEIBEL, F. Zur Anatomie des Urogenitalkanals der *Echidna aculeata.* Anat. Anz. xxii, pp. 301–305, figg. [*Monotremata.*]

155. KEITH, A. Inflation of the nasal canal in the skulls of Gorillas and Chimpanzees, and the sinus maxillaris and inferior meatus in Man and Apes. P. Anat. Soc. Gt. Britain 1902, pp. xlvii–li, figg. [*Primates.*]

156. ——. The extent to which the posterior segments of the body have been suppressed and transformed in the evolution of Man and allied *Primates.* J. Anat. Physiol. norm. path. xxxvii, pp. 18–40, figg. [*Primates.*]

157. *KELLER, C. Die Abstammung der ältesten Haustiere. Zürich, illustrated.

158. KIDD, W. Certain habits of animals traced in the arrangement of their hair-slope. P. Zool. Soc. London 1902, ii, pp. 145–158.

159. KISHI, K. Das Gehörorgan der sogennanten Tanzmaus. Zeitschr. wiss. Zool. lxxi, pp. 457–485, pl. xxvi. [*Muridæ.*]

160. KOCH, A. Uj adat a Muflon Korābbi Elterjedésehez. Foldtani Kosl. xxxii, pp. 346–350, pl. [*Bovidæ.*]

161. KOHLBRÜGGE, J. H. F. Die Umgestaltungen des Uterus der Affen nach der Geburt. Zeitschr. Morphol. iv, pp. 1–16, figg. [*Primates.*]

162. ——. Schädelmasse bei Aften und Halbaffen. T. c. pp. 318–344. [*Primates.*]

163. KOHLER, E. M. Der Mandschurische Hirsch (*Cervus dybowskii*) in seiner Heimath. Zool. Garten xliii, pp. 78–86. [*Cervidæ.*]

164. KOLSTER, R. Ueber einen eigenartigen Process in den Samenblasen von *Cervus alces.* Arch. mikr. Anat. lx, pp. 100–110, pl. v. [*Cervidæ.*]

——. [See also BONNET & KOLSTER (62).]

165. KORFF, K. VON. Zur Histogenese der Spermien von *Phalangista vulpina.* Arch. mikr. Anat. lx, pp. 233–260, pls. xiv & xv. [*Marsupialia.*]

166. KOSTER, G. & TSCHERMAK, A. Ueber den Ursprung und Endigung des Nervus depressor und N. laryngeus superior beim Kaninchen. Arch. Anat. 1902, sup. pp. 255–294, pls. x & xi. [*Leporidæ.*]

166A. KOTZENBERG, W. Zur Entwicklung der Ringmuskelschicht an den Bronchien der Säugethiere. Arch. mikr. Anat. lx, pp. 460–468, pl. xxiii.

167. KRÜGER, E. Die Bedeutung des Glossopharyngeus für die Innervation des Wiederkauaktes. Zeitschr. Biol. xliv, pp. 28–44. [*Artiodactyla.*]

168. LAGUESSE, E. Structure d'une greffe pancréatique chez le Chien. C.R. Soc. Biol. liv, pp. 852–854. [*Canidæ.*]

LAMBE, L. M. [See OSBORN & LAMBE (274).]

169. LAMBKEY, W. I. & LUCAS, F. A. Blue Fox trapping on the Pribiloff Islands. Science (2) xvi, pp. 216–218. [*Canidæ.*]

169A. LAMEERE, A. L'Okapi. Rev. Univ. Bruxelles 1902, 24 pp. [*Giraffidæ.*]

170. LANKESTER, E. R. On *Okapia*, a new genus of *Giraffidæ* from Central Africa. Trans. Zool. Soc. London xvi, pp. 279–307, pls. xxx–xxxii. [*Giraffidæ.*]

170A. ——. The specific name of the Okapi presented by Sir Harry Johnston. Ann. Nat. Hist. (7) x, pp. 417 & 418. [*Giraffidæ.*]

171. LAPOUGE, G. DE. Note sur un nouveau Singe Pliocène (*Anthropodus rouvillei*). Bull. Soc. Ouest France 1894, pp. 202–208. [*Primates.*]

171A. LAUBE, G. C. Säugethierzähne aus dem Basalttuff von Waltsch. SB. Ver. Lotos 1899, No. 8, 8 pp., figg.

172. LAVILLE, —, & ROLLAIN, —. Sur la présence du *Spermophilus superciliosus* dans les terriers de la fin du Quaternaire aux Hautes-Bruyères (Seine). Bull. Soc. Anthrop Paris 1902, pp. 60 & 61, fig. [*Sciuridæ.*]

173. LECHE, W. Ein Fall von Vererbung erworbener Eigenschaften. Biol. Centrbl. xxii, pp. 79–82. [*Suidæ.*]

174. ——. Zur Entwicklungsgeschichte des Zahnsystems der Säugethiere; — *Erinaceidæ.* Zoologica xv, pt 37, 104 pp. 4 pls. [*Erinaceidæ.*]

175. LEHMANN-NITSCHE, R. Die Gleichzeitigkeit der südpatagonischen Höhlenbewohner mit *Gryphotherium* und anderen ausgestorbenen Thieren der argentinischen Höhlenfauna. Arch. Anthrop. xxvii, pp. 583–597. [*Edentata.*]

176. ——. La pretenda existencia actual del *Grypotherium.* Rev. Mus. La Plata x, pp. 269–279. [*Edentata.*]

177. LENEY, F. List of types, or figured and described fossils in the Norwich Museum. Geol. Mag. (4) ix, pp. 166–171 & 220–231.

178. LEVERKUS-LEVERKUSEN, —. Der Elch. Verh. Ver. Rheinland lviii, pp. 11–52, 1901. [*Cervidæ.*]

179. LÖNNBERG, E. On some digestive adaptations in Diprotodont Marsupials. P. Zool. Soc. London 1902, i, pp. 12–31. [*Marsupialia.*]

180. ——. On the variation of the Elk. Op. cit. ii, pp 352–360, figg. [*Cervidæ.*]

181. ——. On the female generative organs of *Cryptoprocta.* Bih. Svenska Ak. xxviii, pt. iv, art. 3, 11 pp. pl. 1. [*Viverridæ.*]

181A. ——. Zur Kentniss des Kehlsackes beim Renntier. Anat. Anz. xxi, pp. 467–474, figg. [*Cervidæ.*]

182. Lorenz, L. v. On the specimen of the Quagga in the Imperia Museum, Vienna. P. Zool. Soc. London 1902, i, pp. 32–38, fig. [*Perissodactyla.*]

183. ——. Ueber *Hadropithecus stenognathus*, Lz. Denk. Ak. Wien lxxii, pp. 12, pls. 2. [*Primates.*]

Lucas, F. A. [See Lambkey & Lucas (169).]

184. Lydekker, R. Notes on certain Monkeys in the Zoological Society's Menagerie. Nov. Zool. ix, pp. 138–140. [*Primates.*]

185. ——. On an Elk from Siberia. P. Zool. Soc. London 1902, i, pp. 107–109, fig. [*Cervidæ.*]

186. ——. Note on a Wapiti from Siberia. Op. cit. ii, p. 79. [*Cervidæ.*]

187. ——. The Wild Sheep of the Upper Ili and Yana Valleys. T. c. pp. 80–85, pls. vii & viii. [*Bovidæ.*]

187a. ——. Note on the Markhor of Cabul. T. c. pp. 323 & 324, pl. xxvii. [*Bovidæ.*]

188. ——. Note on a Reindeer skull from Novaia Zemlia. T. c. pp. 360–362, fig. [*Cervidæ.*]

189. ——. Przewalski's Horse at Woburn Abbey. Nature lxv, pp. 103 & 104. [*Perissodactyla.*]

190. ——. The Quagga. Knowledge xxv, pp. 220–222. [*Perissodactyla.*]

191. ——. Lemur. Encyclop. Brit. 10th ed. xxx, pp. 193 & 194. [*Lemuroidea.*]

192. ——. Mammalia. T. c. pp. 505–511, figg.

193. ——. Zoological distribution. Op. cit. xxxiii, pp. 938–941.

194. ——. The coloration of large animals. Field c, pp. 606 & 637. [*Ungulata.*]

194a. ——. Przewalski's Horse. T. c. p. 680. [*Perissodactyla.*]

194b. ——. The coloration of Deer. T. c. pp. 687 & 688. [*Cervidæ.*]

195. Lyon, M. W. Description of a new Phyllostome Bat from the Isthmus of Panama. P. Soc. Washington xv, pp. 83 & 84. [*Chiroptera.*]

196. ——. Description of a new Bat from Colombia. T. c. pp. 151 & 152. [*Chiroptera.*]

197. ——. Observations on the number of young in the Lasiurine Bats. P. U. S. Mus. xxvi, pp. 425 & 426, pl. xvii. [*Chiroptera.*]

198. Major, C. I. Forsyth. On Pliocene Voles. P. Zool. Soc. London 1902, i, pp. 102–107, fig. [*Muridæ.*]

199. ——. On *Mustela palæattica* from the Upper Miocene of Pikermi and Samos. T. c. pp. 109–114, pl. vii. [*Mustelidæ.*]

200. ——. Remarks on remains of a Pigmy Hippopotamus from Cyprus. T. c. pp. 238 & 239. [*Hippopotamidæ.*]

201. ——. On the Okapi. Ibid. ii, pp. 73–79, figg. [*Giraffidæ.*]

202. ——. On the Pigmy Hippopotamus from the Pleistocene of Cyprus. T. c. pp. 107–112, pls. ix & x. [*Hippopotamidæ.*]

203. ——. On a specimen of the Okapi at Brussels. T. c. pp. 339–350, figg. [*Giraffidæ.*]

204. [MAJOR, C. I. FORSYTH-] Account of a skeleton of *Hippopotamus madagascariensis* from Sirabé. Geol. Mag. (4) ix, pp. 193–199, pl. xii. [*Hippopotamidæ.*]

205. ——. L'Okapi. La Belgique Coloniale, May 25, 1902, pp. 244 & 245, and June 8, p. 260. [*Giraffidæ.*]

206. ——. Nouveaux renseignements sur l'Okapi. T. c. Nov. 9, pp. 532–534. [*Giraffidæ.*]

207. ——. Encore sur l'Okapi. T. c. Nov. 30, pp. 568–570, figg. [*Giraffidæ.*]

208. ——. Ueber Okapi. C.R. Zool. Congress 1902, pp. 1056 & 1057. [*Giraffidæ.*]

209. MANNERS-SMITH, J. Wolf-hybrids in Gilgit. J. Asiat. Soc. Bengal lxx, pp. 143–146, 1901. [*Canidæ.*]

210. MARTIN, C. J. Thermal adjustment and respiratory exchange in Monotremes and Marsupials. Phil. Trans. B. cxcv, pp. 1–37. [*Marsupialia, Monotremata.*]

211. MATSCHIE, P. Die Säugethierwelt Deutschlands einst und jetzt in ihren Beziehungen zur Tierverbreitung. Zeitschr. Ges. Erdkunde Berlin 1902, pp. 473–497.

212. MATTHEW, W. D. A skull of *Dinocyon* from the Miocene of Texas. Bull. Amer. Mus. xvi, pp. 129–136, figg. [*Canidæ.*]

213. ——. On the skull of *Bunælurus*, a Musteline from the White River Oligocene. T. c. pp. 137–140, figg. (*Mustelidæ.*]

214. ——. New Canidæ from the Miocene of Colorado. T. c. pp. 281–290, figg. [*Canidæ.*]

215. ——. A horned Rodent from the Colorado Miocene, with a revision of the *Mylagauli*, Beavers, and Hares of the American Tertiary. T. c. pp. 291–310, figg. [*Rodentia.*]

216. ——. The skull of *Hypisodus*, the smallest Artiodactyle, with a revision of the *Hypertragulidæ*. T. c. pp. 311–316, figg. [*Hypertragulidæ.*]

217. ——. List of the Pleistocene fauna from Hay Springs, Nebraska. T. c. pp. 317–322, figg. [*Antilocapridæ.*]

218. MEARNS, E. A. The Ocelot Cats. P. U. S. Mus. xxv, pp. 237–249. [*Felidæ.*]

219. MENEGAUX, A. Note sur deux espèces de Chauves-Souris de l'Amérique de Sud. Bull. Mus. Paris 1901, p. 321. [*Chiroptera.*]

220. ——. Description d'une variété et d'une espèce nouvelles de Chiroptères rapportées du Mexique par M. Diguet. T. c. pp. 321–327. [*Chiroptera.*]

221. ——. Liste des Chiroptères rapportés par M. Diguet du Mexique. T. c. pp. 388–394. [*Chiroptera.*]

222. ——. Catalogue des Mammifères rapportés par M. Geay de la Guyane Française. Ibid. 1902, pp. 490–493.

——. [See also PERRIER, E. (285).]

223. MERCERAT, A. *Carolibergia azulensis*, un nouveau représentant Pampéen du sous-ordre des *Toxodontia*. An. Mus. Buenos Aires vii pp. 1–23, pls. i–iii. [*Toxodontia.*]

224. MERLIN, A. A. The spermatozoön of the Rat. J. Quekett Club (2) viii, pp. 189–194, figg. [*Muridæ.*]

225. MERRIAM, C. H. Twenty new Pocket-mice (*Heteromys* and *Liomys*) from Mexico. P. Soc. Washington xv, pp. 41–50. [*Heteromyidæ.*]

226. ——. Five new Mammals from Mexico. T. c. pp. 67–69. [*Primates, Carnivora, Rodentia.*]

227. ——. A new Bobcat (*Lynx uinta*) from the Rocky Mountains. T. c. pp. 71 & 72. [*Felidæ.*]

228. ——. Three new Foxes of the Kit and Desert Fox Groups. T. c. pp. 73 & 74. [*Canidæ.*]

229. ——. Two new Shrews of the *Sorex tenellus* group from California. T. c. pp. 75 & 76. [*Insectivora.*]

230. ——. Two new Bears from the Alaska Peninsula. T. c. pp. 77–79. [*Ursidæ.*]

231. ——. Six new Skunks of the genus *Conepatus.* T. c. pp. 161–163. [*Mustelidæ.*]

232. ——. Four new Arctic Foxes. T. c. pp. 167–172. [*Canidæ.*]

233. MILLER, G. S. Mammals of the Andaman and Nicobar Islands. P. U. S. Mus. xxiv, pp. 751–795, pls. xli & xlii. [*Primates, Chiroptera, Insectivora, Rodentia, Artiodactyla.*]

233A. ——. Twenty new American Bats. P. Ac. Philad. 1902, pp. 389–412. [*Chiroptera.*]

234. ——. The technical name of the Virginia Deer. P. Soc. Washington xv, p. 39. [*Cervidæ.*]

235. ——. A new Rabbit from Southern Texas. T. c. pp. 81 & 82. [*Leporidæ.*]

236. ——. Two new Malayan Mouse-Deer. T. c. pp. 173–175. [*Tragulidæ.*]

237. ——. A new Bat from the island of Dominica. T. c. pp. 243 & 244. [*Chiroptera.*]

238. ——. Two new tropical Old World Bats. T. c. pp. 245 & 246. [*Chiroptera.*]

239. ——. General notes. T. c. pp. 247–250. [*Chiroptera.*]

240. ——. Mammals collected by Dr Abbott in the region of the Indragiri River, Sumatra. P. Ac. Philad. 1902, pp. 143–159. [*Rodentia, Ungulata.*]

241. MÜLLER-LIEBENWALDE, J. Zur Biologie des Nasenbären (*Nasua socialis*). Zool. Garten xliii, pp. 56–59. [*Procyonidæ.*]

242. MULON, P. Note sur la constitution du corps cellulaire des cellules dites 'spongieuses' des capsules surrénales chez le Cobaye et le Chien. C.R. Soc. Biol. 1902, pp. 1310–1312. [*Canidæ, Caviidæ.*]

243. MUNRO, R. On the Prehistoric Horses of Europe and their supposed domestication. Archæol. J. liv, pp. 109–143. [*Perissodactyla.*]

244. NEGRI, A. Osservazione sulla sostanza colorabile col rosso neutro nelle emazie dei Vertebrati. Mem. Ist. Lombardo xix, pp. 143–154, pls. xii & xiii.

245. NEHRING, A. Ueber einige griechische Nager. SB. Ges. naturf. Berlin 1902, pp. 1–7. [*Gliridæ, Muridæ.*]

246. [Nehring, A.] Ueber *Spalax fritschi* aus der Antelias-Höhle am Libanon. T. c. pp. 77–85. [*Spalacidæ.*]

247. ——. Ueber die heutige Verbreitung der Säugethiere in Palästina. T. c. pp. 85 & 86.

248. ——. Ueber *Nesokia gracilis* von der Insel Ceylon. T. c. pp. 116–120. [*Muridæ.*]

249. ——. Ueber einen neuen Sumpfluchs (*Lyncus chrysomelanotis*) aus Palästina. T. c. pp. 123 & 124. [*Felidæ.*]

250. ——. Ueber eine neue *Myoxus*-species (*M. intermedius*) aus Tirol. T. c. pp. 155–158. [*Gliridæ.*]

251. ——. Ueber *Dipus* (*Alactaga*) *aulacotis*, Wagner. Zool. Anz. xxv, pp. 89–91. [*Jaculidæ.*]

252. ——. *Galictis allamandi*, Bell, aus Honduras. T. c. pp. 475–478. [*Mustelidæ.*]

253. ——. Die geographische Verbreitung der Säugethiere in Palästina und Syrien. Globus lxxxi, pp. 309–314.

254. ——. Noch Einiges über den Moschus-Ochsen. Waidwerk in Wort und Bild. Nov. 15, pp. 49 & 50, fig. [*Bovidæ.*]

255. Nelson, E. W. A new species of Elk from Arizona. Bull. Amer. Mus. xvi, pp. 1–12. [*Cervidæ.*]

256. Neumann, O. Ueber neue nordost- und ostafrikanische Säugethiere. SB. Ges. naturf. Berlin 1902, pp. 49–59 & 93–102, figg. [*Primates, Carnivora, Rodentia, Artiodactyla.*]

257. ——. Ueber Hyraciden. T. c. pp. 238–244. [*Hyracoidea.*]

258. ——. On Mammals from North-east Africa. P. Zool. Soc. London 1902, ii, pp. 142–144. [*Primates, Hyracoidea.*]

259. Newton, E. T. The Great Beaver in the Thames Valley. Geol. Mag. (4) ix, pp. 385–388, fig. [*Castoridæ.*]

260. Noack, T. *Equus przewalskii.* Zool. Anz. xxv, pp. 135–145. [*Perissodactyla.*]

261. ——. Ein neuer Hirsch aus der Dsungarei. T. c. pp. 145–147. [*Cervidæ.*]

262. ——. Die Entwicklung des Schädels vom *Equus przewalskii.* T. c. pp. 164–172. [*Perissodactyla.*]

263. ——. Centralasiatische Steinböcke. T. c. pp. 622–626. [*Bovidæ.*]

264. ——. Das Zebra vom Kilimandscharo. T. c. pp. 627–637. [*Perissodactyla.*]

265. Noé, J. Vitesse de croissance des incisives chez les Léporidés. C.R. Soc. Biol. liv, pp. 531 & 532. [*Leporidæ.*]

266. Nordenskiöld, E. Ueber die Säugethier-fossilien im Tarijathal, Südamerica. Bull. Geol. Inst. Upsala v, pp. 260–266.

267. Omboni, G. Appendice alla nota sui denti di *Lophiodon* del Bolca. Atti Ist. Veneto lxi, pp. 189–192. [*Perissodactyla.*]

268. Osborn, H. F. Homoplasy as a law of latent or potential homology Amer. Natural. xxxvi, pp. 259–271, figg.

269 ——. The law of adaptive radiation. T. c. pp. 353–363.

269a. [Osborn, H. F.] A new Mammal from Japan, its relationship to *Desmotylus* Marsh. Science (2) xvi, pp. 713–715. [*Proboscidea.*]

270. ——. Dolichocephaly and brachycephaly in the lower Mammals. Bull. Amer. Mus. xvi, pp. 77–89, figg.

271. ——. The four phyla of Oligocene Titanotheres. T. c. pp. 91–109, figg. [*Titanotheriidæ.*]

272. ——. American Eocene *Primates* and the supposed Rodent family *Mixodectidæ*. T. c. pp. 169–214, figg. [*Primates, Rodentia.*]

273. ——. Des méthodes précises mises actuellement en œuvre dans l'étude des vertébrés fossiles des États-Unis d'Amérique. C.R. viiie Congrés Geol. Internat. 1900, 11 pp., 2 pls. [Contains tables of the sequence of fossil genera and a restoration of *Protorohippus.*]

274. —— & Lambe, L. M. On Vertebrata of the Mid-Cretaceous of the North-west Territory. Contr. Canad. Pal. iii, Pt. 2, 81 pp., 20 pls. [*Multituberculata.*]

275. Osgood, W. H. Some names of American *Cervidæ*. P. Soc. Washington xv, pp. 87 & 88. [*Cervidæ.*]

276. Oustalet, E. Notice sur quelques Animaux de la ménagerie du Jardin des Plantes. Bull. Mus. Paris 1901, pp. 314–318.

277. ——. Sur la distribution géographique de l'*Arctictis binturong*. T. c. pp. 318–320. [*Viverridæ.*]

278. Palacky, J. Ueber die Verbreitung der Edentaten. SB. Bomisch. Ges. 1901, Art. 13, 5 pp. [*Edentata.*]

279. ——. Ueber die Verbreitung der Microchiropteren. T. c. Art. 34, 23 pp. [*Chiroptera.*]

279a. ——. Die Verbreitung der *Marsupialia*. Ibid. 1902, Art. 17, 7 pp. [*Marsupialia.*]

280. Paravicini, G. Asimmetrie cranio-faciali in un Cane. Atti Mus. Milano xli, pp. 350–352, pl. vii. [*Canidæ.*]

281. Parsons, F. G. The arrangement of the branches of the Mammalian aortic arch. J. Anat. Physiol. norm. path. xxxvi, pp. 389–399, figg.

282. Paschen, H. Der Riesen-Gorilla des Museum Umlauff. Hamburg, 1901, pp. 16, illustrated. [*Primates.*]

283. Pavlow, M. (Madam). Ossements fossiles trouvés dans les environs de Kriwoi Rog, gouv. de Kherson. Bull. Soc. Moscou 1902, pp. 73–89, pl. xi.

283a. ——. Nouvelles trouvailles de *Mastodon borsoni*, Lart. au sud de la Russie. Ann. geol. Russie v, pts. 2 & 3. [*Proboscidea.*]

284. Pease, A. E. Travel and Sport in Africa. London, 3 vols., illustrated. [Contains notes on Big Game and other Mammals.]

285. Perrier, E. La Vie des Animaux, illustrée —— Mammifères. By A. Menegaux. Paris (in course of publication).

286. Peter, K. Zur Bildung des primitiven Gaumens beim Mensch und Säugetieren. Anat. Anz. xx, pp. 545–552, figg.

287. ——. Anlage und Homologie der Muscheln des Menschen und der Säugethiere. Arch. mikr. Anat. lx, pp. 339–367, pl. xviii.

288. Pocock, R. I. A new arrangement of the existing *Equidæ*, with description of a subspecies. Ann. Nat. Hist. (7) x, pp. 304–308. [*Equidæ.*]

289. Portis, A. Di un dente anomalo di Elefante fossile e della presenza dell' *Elephas primigenius* in Italia. Boll. Soc. geol. Ital. xxi, pp. 93–114, pl. iv. [*Proboscidea.*]

Powell-Cotton. [See Cotton, P. H. G. Powell- (92).]

290. Preble, E. A. New species of *Synaptomys* and *Phenacomys* from Canada. P. Soc. Washington xv, pp. 181 & 182. [*Rodentia.*]

291. ——. A biological investigation of the Hudson Bay region. N. Amer. Fauna, No. 22, pp. 140, illustrated. [*Insectivora, Mustelidæ, Rodentia.*]

292. Prichard, H. H. Field-Notes on the larger Mammals of Patagonia. P. Zool. Soc. London 1902, i, pp. 272–277. [*Cervidæ, Camelidæ.*]

292a. ——. Through the Heart of Patagonia. London, pp. xvi+346, illustrated. [*Felidæ, Edentata.*]

293. Pütter, A. Die Augen der Wassersäugethiere. Zool. Jahrb. Anat. xxvii, pp. 99–404, pls. 2–4. [*Pinnipedia, Sirenia, Cetacea.*]

294. Raimondi, A. Mandibula inferior del *Mastodon andium* del Rio de Moyobamba al Huallaga. El Peru iv, pp. 439–444, figg. [*Proboscidea.*]

295. Rathonyi, R. F. A *Spalax hungaricus* (*typhlus*) kosponti idegrendszere. Math. term. Ertes. Magyar Ak. xviii, pp. 330–360, figg. 1900. [*Spalacidæ.*]

296. Rehn, J. A. G. On the standing of *Pteropus haldemani*, Halowell. Amer. Natural. xxxvi, pp. 201 & 202. [*Chiroptera.*]

297. ——. A new Bat of the genus *Glossophaga*. P. Ac. Philad. 1902, pp. 37 & 38. [*Chiroptera.*]

298. ——. A revision of the genus *Mormoops*. T. c. pp. 160–172. [*Chiroptera.*]

299. ——. Three new American Bats. T. c. pp. 638–641. [*Chiroptera.*]

[See also Stone & Rehn (333).]

300. Renshaw, G. Notes from Zoological Gardens of Western Europe. Zoologist (4) vi, pp. 361–367, pl. ii. [*Artiodactyla.*]

301. Repelin, —. Découverte du Mammouth dans la Basse-Provence. C.R. Ac. Paris cxxx, pp. 127–129. [*Proboscidea.*]

302. Retterer, E. Morphologie de la charpente squelettogène des membres des Mammifères. C.R. Soc. Biol. liv, pp. 1118–1121.

303. ——. Structure et évolution de l'ébauche squelettogène des membres des Mammifères. T. c. pp. 1149–1152.

304. Rhoads, S. N. The Marsh or Rice-field Mice of the United States. Amer. Natural. xxxvi, pp. 661–663. [*Muridæ.*]

305. ——. Synopsis of the American Martens. P. Ac. Philad. 1902, pp. 443–460. [*Mustelidæ.*]

306. Richter, J. Vergleichende Untersuchungen ueber den microskopischen Bau der Lymphdrüsen von Pferd, Rind, Schwein und Hund. Arch. mikr. Anat. lx, pp. 469–513, pls. xxiv & xxv. [*Carnivora* & *Ungulata.*]

Rollain, —. [See Laville & Rollain (172).]

307. Roosevelt, T., and others. The Deer Family. (American Sportsman's Library.) New York and London, pp. ix + 334, illustrated. [*Cervidæ* & *Antilocapridæ.*]

308. Roth, S. Nuevos restos de Mamíferos de la Caverna Eberhardt en Ultima Esperanza. Rev. Mus. La Plata xi, pp. 37–60, pls. i–iii. [*Felidæ.*]

309. Rothschild, W. Notes on Abyssinian Mammals, in Powell-Cotton's Sporting Trip through Abyssinia, pp. 453–486. [*Bovidæ.*]

309a. ——. Two new subspecies of *Proteles.* Nov. Zool. ix, p. 443. [*Proteleidæ.*]

309b. ——. Note on *Alces bedfordiæ.* P. Zool. Soc. London 1902, ii, p. 317. [*Cervidæ.*]

310. Ruge, G. Die äusseren Formverhältnisse der Leber bei den Primaten. Morphol. Jahrb. xxix, pp. 450–552 & xxx, pp. 42–84, figg. [*Primates.*]

311. Salensky, W. *Equus przewalskii*, Pol. Result. Przewalski Reisen,—Mammalia, sect. ii, pt. I, 74 pp. 1 pl. [*Perissodactyla.*]

312. Sanyal, K. B. Observations on the Orang-utan in captivity. J. Asiat. Soc. Bengal lxxi, pp. 92 & 93. [*Primates.*]

313. Scharff, R. F. A White-beaked Dolphin (*Lagenorhynchus albirostris*) in Dublin Bay. Irish Natural. xi, pp. 66 & 67, fig. [*Cetacea.*]

314. Schlosser, M. Ueber Tullberg's System der Nagethiere nebst Bemerkungen ueber die fossilen Nager und die während des Tertiärs existirenden Landverbindungen. Centrbl. Mineral. 1902, pp. 705–713 & 737–748. [*Rodentia.*]

315. ——. Die fossilen Säugethiere China's. T. c. pp. 529–535. [A number of new generic and specific names are proposed, but since they are unaccompanied by any description they are not quoted.]

315a. ——. Beiträge zur Kenntniss der Säugethierreste aus den süddeutschen Bohnerzen. Pal. Abh. ix, pp. 217–258, pls. vi–x. [*Primates, Carnivora, Rodentia, Ungulata.*]

316. Schoetensack, O. Die Bedeutung Australiens fur die Heranbildung des Menschen aus einer niederen Form. Zeitschr. Ethnol. xxxiii, pp. 127 et seq., 1901. [*Primates.*]

317. Schulz, W. A. Ueber wenig bekannte und noch zu entdeckende Affenarten des Rio Tapajos. Verh. Ges. Wien 1902, pp. 467–469. [*Primates.*]

318. Schumacher, S. v. Zur Frage der Herzinnervation bei den Säugetieren. Anat. Anz. xxi, pp. 1–7, fig.

319. Sclater, P. L. The generic term *Dama.* Ann. Nat. Hist. (7) ix, pp. 289 & 290. [*Cervidæ.*]

320. ——. Report on additions to the [Zoological] Society's Menagerie. P. Zool. Soc. London 1902, i, pp. 137 & 237, pls. xiii & xxv. [*Primates, Perissodactyla.*]

321. Seguenza, G. I Vertebrati fossili della Provincia di Messina—Mammiferi del Piano Pontico. Boll. Soc. geol. Ital. xxi, pp. 111–174, pls. v–vii.

322. Sherrington, R. S. Note upon descending intrinsic spinal tracts in the Mammalian cord. P. R. Soc. London lxxi, pp. 115–121, figg.

323. Shufeldt, R. W. On the habits of the Kangaroo-Rats in captivity. Amer. Natural. xxxvi, pp. 47–51, figg. [*Heteromyidæ.*]

324. Simon, L. Beiträge zur Anatomie und Entwicklung der Bradypodiden. Arch. Naturg. 1902, pp. 239–261, pls. x & xi. [*Edentata.*]

325. Smith, G. E. On a peculiarity of the cerebral commissures distinctive of the *Diprotodontia.* P. R. Soc. London lxx, pp. 226–231, figg. [*Marsupialia.*]

326. ——. The primary subdivision of the mammalian cerebellum. J. Anat. Physiol. norm. path. xxxvi, pp. 381–385, figg.

327. ——. Note on the presence of an extra pair of molar teeth in a *Lemur fulvus.* P. Zool. Soc. London 1902, ii, pp. 61 & 62, fig. [*Primates.*]

328. ——. Notes on the brain of *Macroscelides* and other *Insectivora.* J. Linn. Soc. London xxviii, pp. 443–448, figg. [*Insectivora.*]

329. Sobotta, J. Die Entwicklung des Eies der Maus vom Schlusse der Furchungsperiode bis zum Auftreten der Amniosfalten. Arch. mikr. Anat. lxi, pp. 274–330, pls. xv–xvii. [*Rodentia.*]

330. Sokolowsky, A. Ueber Fütterung und Pflege des Fingertieres (*Chiromys madagascariensis*). Zool. Garten xliii, pp. 353 & 354. [*Primates.*]

331. Southwell, T. Notes on the Seal and Whale fishery of 1901. Zoologist (4) v, pp. 41–48. [*Pinnipedia, Cetacea.*]

332. Stone, W. & Cram, W. E. American Mammals ; a popular guide to the Mammals of North America. New York, 1902 (London, 1903), pp. xxiii + 318, illustrated.

333. —— & Rehn, J. A. G. A collection of Mammals from Sumatra with a review of the genera *Nycticebus* and *Tragulus.* P. Ac. Philad. 1902, pp. 127–142. [*Primates, Sciuridæ, Tragulidæ.*]

334. Strahl, H. Uteri gravidi des Orang-utan. Anat. Anz. xxii, pp. 170–175. [*Primates.*]

335. ——. Sur Kenntniss des Placentarsyncytiums. Op. cit. xxi, pp. 641–644.

336. —— & Henneberg, B. Ueber Rückbildungserscheinungen am graviden Säugetieruterus. T. c. pp. 644–650.

337. Stromer, E. Ueber die Bedeutung des Foramen entepicondyloideum und des Trochanter tertius der Säugethiere. Morphol. Jahrb. xxix, pp. 553–562.

337a. ——. Ein *Aceratherium*-Schädel aus dem Dinotherien-Sand von Niederbayern. Geognost. Jahresh. xv, pp. 57–63, pl. i. [*Perissodactyla.*]

337b. ——. Ueber eine Reise nach Ægypten. SB. bayer. Ak. xxxii, pp. 341–352, fig. [*Cetacea.*]

337c. ——. Die Wirbel der Land-Raubtiere, ihre Morphologie und systematische Bedeutung. Zoologica xv, Pt. 36, 276 pp., 5 pls. [*Carnivora.*]

338. Studer, T. Die præhistorischen Hunde in ihrer Beziehung zu den gegenwärtig lebenden Rassen. Abh. Schweiz. pal. Ges. xxviii, Art. 1, 137 pp. 9 pls. 1901. [*Canidæ.*]

339. ——. Die Tierreste aus den pleistocænen Ablagerungen des Schweizerbildes bei Schaffhausen. 2nd ed. Denk. Schweiz. Ges. xxxv, pp. 123–157, 3 pls.

340. TÄNDLER, J. Zur Entwicklungsgeschichte der Kopfarterien bei den *Mammalia.* Morphol. Jahrb. xxx, pp. 275–373, pls. iii–v.

341. THOMAS, O. A Blue Duiker from Nyasaland. Ann. Nat. Hist. (7) ix, pp. 58 & 59. [*Bovidæ.*]

342. ——. On Mammals from the Serra do Mar of Parana. T. c. pp. 59–64. [*Rodentia.*]

343. ——. On Mammals from Cochabamba, Bolivia, and the region north. T. c. pp. 125–143. [*Carnivora, Rodentia.*]

344. ——. On the Bear of Equador. T. c. pp. 215–217. [*Ursidæ.*]

345. ——. On species of *Mus* discovered in British E. Africa. T. c. pp. 218–220. [*Muridæ.*]

346. ——. On a new genus of Bat from New Guinea. T. c. pp. 220–222. [*Chiroptera.*]

347. ——. On Mammals collected in the southern Bolivian plateau. T. c. pp. 222–230. [*Rodentia.*]

348. ——. On Mammals collected at Cruz del Eje, Cordova. T. c. pp. 237–245. [*Chiroptera, Mustelidæ, Rodentia, Edentata.*]

349. ——. On geographical races of the Kinkajou. T. c. pp. 266–270. [*Procyonidæ.*]

350. ——. On a species of *Atherura* discovered on the Congo. T. c. pp. 270 & 271. [*Hystricidæ.*]

351. ——. A new *Hipposiderus* from Borneo. T. c. pp. 271 & 272. [*Chiroptera.*]

352. ——. New species of *Dipodillus* and *Psammomys.* T. c. pp. 362–365. [*Rodentia.*]

353. ——. A Genet from British E. Africa. T. c. pp. 365 & 366. [*Viverridæ.*]

354. ——. The *Lycaon* and *Pedetes* of British E. Africa, and a Gerbille from N. Nyasa. T. c. pp. 438–442. [*Canidæ, Muridæ, Pedetidæ.*]

355. ——. On the species of *Mydaus* found in Borneo and the Natuna Islands. T. c. pp. 442–444. [*Mustelidæ.*]

356. ——. On a Marmot from North Siberia. T. c. pp. 444 & 445. [*Sciuridæ.*]

357. ——. Description of a new *Uromys* from the Solomon Islands. T. c. pp. 446 & 447. [*Muridæ.*]

358. ——. Notes on the Phyllostomatous genera *Mimon* and *Tonatia.* Op. cit. x, pp. 53 & 54. [*Chiroptera.*]

359. ——. On *Marmosa marmota* and *elegans,* with descriptions of subspecies of the latter. T. c. pp. 158–162. [*Marsupialia.*]

360. ——. The Genet of the Balearic Isles. T. c. pp. 162 & 163. [*Viverridæ.*]

361. ——. Two new Mammals from China. T. c. pp. 163–166. [*Chiroptera, Insectivora.*]

362. ——. A Vole from the Yang-tse-kiang. T. c. pp. 166–169. [*Muridæ.*]

363. ——. Diagnosis of a Central American Porcupine. T. c. p. 169. [*Erethizontidæ.*]

364. [Thomas, O.] A Dik-dik from British East Africa. T. c. pp. 242 & 243. [*Bovidæ.*]

365. ——. On a Monkey from Nyasaland. T. c. pp. 243 & 244. [*Primates.*]

366. ——. On Hares allied to *Oryctolagus crassicaudatus.* T. c. pp. 244–246. [*Leporidæ.*]

367. ——. New forms of *Saimiri*, *Oryzomys*, *Phyllotis*, *Coendou*, and *Cyclopes.* T. c. pp. 246–250. [*Primates*, *Rodentia*, *Edentata.*]

368. ——. On the Panda of Szechuen. T. c. pp. 251 & 252. [*Procyonidæ.*]

369. ——. On the East African representative of the Bongo. T. c. pp. 309 & 310. [*Bovidæ.*]

369a. ——. On new forms of *Otomys.* T. c. 311–314. [*Muridæ.*]

370. ——. A new *Rhynchocyon* from Nyasaland. T. c. pp. 403 & 404. [*Insectivora.*]

371. ——. On Mammals from Arabia and Persia. T. c. pp. 487–491. [*Carnivora*, *Rodentia.*]

372. ——. Two new Australian Mammals. T. c. pp. 491 & 492. [*Muridæ*, *Marsupialia.*]

373. ——. On *Myotis ruber* and an allied species. T. c. pp. 493 & 494. [*Chiroptera.*]

374. ——. On the Mole of the Roman district. T. c. pp. 516 & 517. [*Insectivora.*]

375. ——. On new genera of Rodents from the Highlands of Bolivia. P. Zool. Soc. London 1902, i, pp. 114–117, pls. viii & ix. [*Muridæ*, *Octodontidæ.*]

376. ——. On Mammals from Northern Nyasaland. T. c. pp. 118–121. [*Primates*, *Carnivora*, *Rodentia.*]

377. ——. On Mammals collected during the Whitaker expedition to Tripoli. Ibid. ii, pp. 2–13, pl. i. [*Chiroptera*, *Rodentia.*]

377a. ——. On Mammals from Abyssinia, including some from Lake Tsana. T. c. pp. 308–316. [*Carnivora*, *Rodentia.*]

378. ——. On Mammals from Coiba Island, West Coast of Panama. Nov. Zool. ix, pp. 135–137. [*Primates*, *Rodentia*, *Marsupialia.*]

378a. ——. The generic names of the Peccaries, Northern Fur-Seal, and Sea-Leopard. P. Soc. Washington xv, pp. 153–156.

378b. ——. On the generic names *Notophorus*, *Alces*, *Dama*, and *Cephalotes.* T. c. pp. 197 & 198.

379. Tichomirow, A. Zur näheren Kenntniss des *Equus przewalskii.* Zool. Anz. xxv, pp. 344–349, figg. [*Perissodactyla.*]

380. Tims, H. W. M. The succession and homologies of the molar and premolar teeth in the Mammalia. J. Anat. Physiol. norm. path. xxxvi, pp. 321–343.

381. Tobler, L. Der Achselbogen des Menschen, ein Rudiment des *Panniculus carnosus* der Mammalier. Morphol. Jahrb. xxx, pp. 453–507, figg. [*Primates.*]

381a. Torrey, W. B. The prepotency of Polydactylous Cats. Science (2) xvi, pp. 544 & 545. [*Felidæ.*]

382. Toula, F. Das Nashorn von Hundsheim, *Rhinoceros* (*Ceratorhinus*) *hundsheimensis*. Abh. geol. Reichsanst. xix, Pt I, 92 pp., 12 pls. [*Perissodactyla.*]

Tschermak, A. [See Koster & Tschermak (166).]

383. Ugolini, R. Di un resto fossile di *Dioplodon* del giacimento pliocenico di Orciana. Atti Soc. Toscana xviii, pp. 10–15. [*Cetacea.*]

384. ——. Nuovi resti di Cetacei fossili, del giacimento pliocenico di Orciana. T. c. pp. 16–21. [*Cetacea.*]

385. ——. Resti di *Sus erymanthius* della lignite di Corvarola di Bagnone (Val di Magra). Pr.-verb. Soc. Toscana xii, pp. 27–29. [*Suidæ.*]

386. ——. Resti di *Ursus spelæus* nelle breccei ossifere di Uliveto. T. c. 1 p.

387. Van der Stricht, O. Le spermatozoïde dans l'œuf de Chauve-Souris (*V. noctula*). Anat. Anz. xxi, Suppl. pp. 163–167, fig. [*Chiroptera.*]

388. Vastarini-Cresi, G. Comunicazioni dirette tra le arterie e le vene (anastomosi artero-venose) nei Mammiferi. Monit. Zool. ital. xiii, pp. 136–142.

388a. Vaughan, T. W. Notes on Cuban fossil Mammals. Science (2) xv, pp. 148 & 149. [*Rodentia.*]

389. Vogt, O. & C. Neurobiologische Arbeiten; Beiträge zur Hirnfaserlehre. Denk. Ges. Jena ix, pp. 145, pls. 171.

390. Volz, W. *Elephas trogontherii* in Schlesien. Centrbl. Mineral. 1902, pp. 55–57. [*Proboscidea.*]

391. Vriese, B. de. Ueber die Entwickelung der Extremitäten-Arterien bei den Säugetieren. Anat. Anz. xxi, Suppl. pp. 160 & 161.

392. Ward, J. On a tusk of a Mammoth from Fenton, with notes on Mammalian remains in North Staffordshire. Rep. N. Staffordsh. Club xxxvi, pp. 90–93. [*Proboscidea.*]

Waterston, D. [See Hepburn & Waterston (136).]

393. Weber, M. Der Indo-Australische Archipel und die Geschichte seiner Tierwelt. Jena, 44 pp. & map.

394. Weinberg, R. Die Interzentralbrücke der Carnivoren und der Sulcus Rolandi. Anat. Anz. xxii, pp. 268–280, figg. [*Carnivora.*]

395. Wherry, G. Observations on the horns of animals. Brit. Med. J. Sept. 1902, 5 pp.

396. Wilson, E. A. Notes on Antarctic Seals. Report on Southern Cross Collections (Brit. Mus.), pp. 67–78, pls. ii–vi. [*Pinnipedia.*]

397. Wilson, J. T. On the skeleton of the snout of the mammary foetus of Monotremes. P. Linn. Soc. N. S. Wales 1901, pp. 717–737, pls. xxxvii–xlii. [*Monotremata.*]

398. Winge, H. Conspectus Faunæ Groenlandiæ Mammalia (Grønlands Pattedyr). Medd. Gronland xxi, pp. 319–521, map.

399. Winiwarter, H. v. Nachtrag zu meiner Arbeit über Oögenese der Säugetiere. Anat. Anz. xxi, pp. 401–407, figg.

400. Wittich, E. *Cryptopithecus macrognathus*, ein neuer Primate aus den Braunkohlen von Messel. Centrbl. Mineral. 1902, pp. 289–298, figg. [*Primates.*]

400A. [WITTICH, E.] *Myolagus zitteli*, n. sp., von Eppelsheim in Rheinhessen. T. c. pp. 562–565. [*Ochotonidæ.*]

401. WOODWARD, A. S. On *Grypotherium*, etc. In PRICHARD'S "Through the Heart of Patagonia," pp. 305–333. [*Edentata.*]

402. WORTMAN, J. L. Studies of Eocene *Mammalia* in the Marsh Collection, Peabody Museum. Part i, *Carnivora* (continued). Amer. J. Sci. (4) xiii, pp. 39–46, 115–128, 197–206, 433–448, xiv, pp. 17–23, pls. vi–x. [*Carnivora, Marsupialia.*]

403. WUST, E. Ueber *Elephas trogontherii* in Schlesien. Centrbl. Mineral. 1902, pp. 183–185. [*Proboscidea.*]

404. YOSHIWARA, S. & IWASAKI, J. Notes on a new fossil Mammal. J. Univ. Tokyo xvi, Art. 6, 13 pp., 3 pls. [*Proboscidea.*]

405. ZIETZSCHMANN, O. Rückbildungsvorgänge am Schwanze des Säugethierembryo mit besonderer Berücksichtigung der Verhältnisse am Medullarrohre. Arch. Anat. 1902, pp. 225–272, pl. xv.

406. ZUCKERKANDL, E. Zur Morphologie des Musculus ischiocaudalis. SB. Ak. Wien cx, pp. 47–53, pl.

407. ——. Zur Entwickelung des Balkens und des Gewölbes. T. c. pp. 233–307, pls. i–viii.

408. ——. Zur Morphologie des Affengehirnes. Zeitschr. Morphol. iv, pp. 463–499, pls. xv–xvii. [*Primates.*]

409. ZÜRN, J. Vergleichend histologische Untersuchungen ueber die Retina und die Area centralis retinæ bei Haussäugethieren. Arch. Anat. 1902, Suppl., pp. 99–146, pl. vi.

II. GENERAL BIOLOGY (INCL. ANATOMY).

SUBJECT INDEX.

[† *prefixed to a paragraph indicates that it relates in part, or altogether, to extinct forms: when this sign is placed before a specific name it indicates that the species referred to is extinct.*]

GENERAL AND COMPARATIVE ANATOMY.

A. GENERAL.

Cavia; ALEZAIS (7). *Bradypodidæ*; SIMON (325).

B. TEGUMENTAL SYSTEM.

Hair-slope in connection with habits; KIDD (158).
Carpal vibrissæ and glands; BEDDARD (48, 49).
Horn-development; DÜRST (102, 103), GADOW (116).
Pigment; ADACHI (3), NEGRI (244).
Mammæ; BRESSLAU (72, 73).
Interscapular gland; HATAI (131).

C. NERVOUS SYSTEM; SENSE ORGANS.

Brain; BOLK (59), HOLL (140), SMITH (325, 326, 328), VOGT (389), WEINBERG (394), ZUCKERKANDL (406–408).

Cranial capacity of *Primates*; KOHLBRÜGGE (162).
Nerves, of tongue; BOTEZAT (64): of *Simia*; COENEN (91): of heart; FRIEDENTHAL (114), SCHUMACHER (318): of Rabbit; KOSTER & TSCHERMAK (166).
Glossopharyngeal nerve and rumination; KRÜGER (167).
Nerve-terminations; BOTEZAT (63).
Spinal tract; SHERRINGTON (322): development of; ZIETZSCHMANN (405).
Ear-development; DENIS (95): internal ear of dancing mice; KISHI (159).
Histology of retina; ZÜRN (409).
Eye of marine Mammals; PÜTTER (293).

D. MYOLOGY.

Rodentia; ALEZAIS (6): *Elephas*; BURNE (7): *Hylobates*; GRÖNROOS (126).
Of hyoid; CHAINE (87, 88).
Of bronchus; KOTZENBERG (166A).
Vestiges of panniculus carnosus in Man; TOBLER (381).
Homology; PETER (287).

E. OSTEOLOGY.

Skull; DUCKWORTH (100, 101), FISCHER (107), FRASSETTO (113), KEITH (155).
Horns and antlers; DÜRST (102, 103), GADOW (116), LANKESTER (170).
Evolution of skeleton; RETTERER (302, 303).
Shoulder-girdle; BROOM (75).
Entepicondylar foramen and 3rd trochanter; STROMER (337).
Mylohyoid and Meckelian grooves; BENSLEY (53).
Vertebræ of *Carnivora*; STROMER (300).
Abnormality in *Canis*; ADOLPHI (5).
Skeleton of snout in foetal Monotremes; WILSON (397).
Arctoidea; ANDERSON (31).
Ocapia; LANKESTER (170), MAJOR (201, 205–208).
Hippopotamus; MAJOR (204).
Equus przewalskii; NOACK (262).
Eocene Carnivora; WORTMAN (402).
Delphinidæ; ABEL (6).
Cogia; BENHAM (52).
Zeuglodon; STROMER (337B).

F. ALIMENTARY SYSTEM.

a. *Dentition.*

Evolution of molars; AMEGHINO (30).
Succession and homology of molars; TIMS (380).
Development in *Sus*; BILD (56): in *Erinaceus*; LECHE (174).
Abnormality in *Equus*; BRADLEY (70): in *Elephas*; PORTIS (289): in *Lemur*; SMITH (327).
Procavia; ADLOFF (4).
Titanotherium; HATCHER (132).
Hippopotamus; MAJOR (200, 202).

b. *General.*

Throat of *Phocæna*; BOENNINGHAUS (58).
Cloaca; FLEISCHMANN (108).
Viscera of *Phocæna*; HEPBURN & WATERSTON (136).

Digestive adaptations in Diprotodonts; LÖNNBERG (179).
Palate, development of; PETER (286).
Lymphatics; DAVISON (94), RICHTER (306).
Pancreas; GENTES (118), LAGUESSE (168).
Liver; RUGE (310).

G. CIRCULATORY AND RESPIRATORY SYSTEMS.

Abnormal vena cava; BRADLEY (69).
Anastomoses; GROSSER (127).
Arterio-venal anastomoses; VASTARINI-CRESI (388).
Aortic branches; PARSONS (281a).
Cranial arteries; TÄNDLER (340).
Limb-arteries, development of; VRIESE (391).

H. URINO-GENITAL SYSTEM.

Male; FLEISCHMANN (108).
Suprarenal capsule; MULON (242).
Placenta; BONNET & KOLSTER (62), STRAHL (335).
Uterus; KOHLBRÜGGE (161), STRAHL (334), STRAHL & HENNEBERG (336).
Echidna; KEIBEL (154).
Cryptoprocta; LÖNNBERG (181).

I. DEVELOPMENT, incl. EMBRYOLOGY.

Spermatozoa; BALLOWITZ (42), MERLIN (224), VAN DER STRICHT (387).
Spermatic vesicle; KOLSTER (164).
Ovum; SOBOTTA (322), WINIWARTER (399).
Gestation, *Lepus*; HORNUNG (142).
Of dentition; AMEGHINO (30), BILD (56).
Of shoulder-girdle; BROOM (75).
Of ear; DENIS (95).
Of horns; DÜRST (102, 103), GADOW (116), LANKESTER (170).
Of heart; GODLEWSKI (120).
Of bronchial muscles; KATZENBERG (169).
Of dentition of *Erinaceidæ*; LECHE (174).
Of palate; PETER (286).
Of skeleton; RETTERER (302, 303).
Of limb-arteries; VRIESE (391).
Of spinal cord in tail; ZIETZSCHMANN (405).
Of *Tarsius*; HUBRECHT (146).

K. VARIATION, AND VARIOUS NOTES.

Habits of *Simia*; SANYAL (312).
Habits of *Galeopithecus*; ANNANDALE (36).
Habits of *Dipodomys*; SHUFELDT (324).
Habits in connection with hair-slope; KIDD (158).
Rumination; KRÜGER (167).
Hibernation; BIRETTA (54, 55), BRUNELLI (76).
Coloration; LYDEKKER (194, 196).
Number of young in Bats; LYON (197).
Hybrids; MANNERS-SMITH (209).
Temperature of Marsupials and Monotremes; MARTIN (210).
Sealing and Whaling; SOUTHWELL (331).
Abnormality in osteology of *Canis*; ADOLPHI (5).

Abnormality in vena cava; Bradley (68).
Abnormality in digits of *Felis*; Howe (143), Torrey (381a).
Dental abnormality in *Equus*; Bradley (69).
Dental abnormality in *Elephas*; Portis (281).
Dental abnormality in *Lemur*; Smith (327).
Variation in Elk; Lönnberg (180).
Cranial asymmetry; Paravicini (280a).
Horn-spirals; Wherry (395).
Phylogeny, general; Gadow (103).
Phylogeny of Proboscidea; Ameghino (27).
Phylogeny of domesticated animals; Keller (157).
Phylogeny of *Titanotheriidæ*; Osborn (271).
Heredity; Guenot (128).
Suppression of segments; Keith (156).
Homoplasy and adaptive radiation; Osborn (268, 269).
Dolichocephalism and brachycephalism; Osborn (270).
Craniometry for Mammals; Bradley (70).
Fatty tissue; Auerbach (39).
Organ of Jacobson; Broom (74).
Prepotency; Torrey (381a).
Nomenclature; Allen (11, 12, 17, 20, 23), Gill (119), Howell (144), Matthew (234), Osgood (275), Sclater (319), Thomas (378a & b).
Types; Leney (177).
Text-books, etc.; Beddard (47), Lydekker (192), Perrier (285).
Zoological Gardens; Renshaw (300).

GEOGRAPHICAL DISTRIBUTION.

1. General.

Lydekker (193), Matschie (211), Schlosser (314).
Edentates; Palacky (278).
Chiroptera; Palacky (279).
Marsupials; Palacky (279a).

2. Eastern Holarctic.

Spain; Armando (37), Graino (122).
Palestine; Nehring (249, 253).
Arabia and Persia; Thomas (371).

3. Africa and Madagascar.

E. Africa; Buxton (78), Hinde (138), Johnston (151), Neumann (256, 258), Pease (284).
Egypt; Anderson & de Winton (31).
Abyssinia; Cotton (92), Rothschild (309), Thomas (377a).
Tripoli; Thomas (377).
Angola, Antelopes; Bocage (57).
Madagascar; Grandidier (124).

4. S.E. Asia and Asiatic Archipelago.

Siam; Bonhote (60).
Ceylon; Clark (90).
Liu Kiu Islands; Bonhote (61).

Andamans and Nicobars; MILLER (233).
Sumatra; HENNE (135), MILLER (240), STONE & REHN (333).
Austro-Malaysia; WEBER (393).

5. NORTH AMERICA.

GENERAL; BANKS (44), STONE & CRAM (333), ROOSEVELT, Deer (307).
Greenland; WINGE (396).
Alaska; ALLEN (18).
Canada; HOLLIS (141), PREBLE (291).
Margarita Island; ALLEN (10).
Mexico; BARBER (45), MENEGAUX (221, 222).

6. CENTRAL AND SOUTH AMERICA.

Coiba Island, Panama; THOMAS (378).
S. America generally; FOUNTAIN (110).
Guiana; MENEGAUX (222).
Patagonia; PRICHARD (292, 292A).
Tierra del Fuego; DABBENE (93).

7. AUSTRALIA.

SCHOETENSACK (316).

8. ANTARCTIC.

HAMILTON (129), WILSON (396).

Fossil Faunas.

British Isles; HINTON (135).
Belgium; ABEL (1).
France; BOTEZAT (66).
Bohemia; LAUBE (171A).
Germany; SCHLOSSER (315A).
Switzerland; STUDER (339).
Italy; SEGUENZA (321).
Egypt; ANDREWS (33, 39), ANDREWS & BEADNELL (35).
Madagascar; GRANDIDIER (123).
China; SCHLOSSER (315).
North America; DOUGLASS (99A), HAY (134), MATTHEW (219), OSBORN & LAMBE (274).
Brazil; BRUNNER (71).
Bolivia; AMEGHINO (29), NORDENSKIÖLD (266).
Cuba; VAUGHAN (388A).
Patagonia; AMEGHINO (24–26), HAUTHAL (133), LEHMAN-NITSCHE (175), ROTH (308), WOODWARD (401).

III. SYSTEMATIC.

I. *PRIMATES.*

Liver, RUGE, Morphol. Jahrb. xxix, p. 450 & xxx, p. 42; peculiarites in human skulls contrasted with the corresponding regions of *Simiidæ*, DUCKWORTH, J. Anat. Physiol. norm. path. xxxvi, pp. 257 & 260; nasal canal and meatus, KEITH, P. Anat. Soc. Brit. 1902, p. xlvii;

skin pigment, ADACHI, Anat. Anz. xxi, p. 16; primordial cranium, FISCHER, ibid. xx, p. 410; brain, HOLL, Arch. Anat. 1902, p. 1; list of N. American Eocene species, OSBORN, Bull. Amer. Mus. xvi, p. 169; axillary bands (*Achselbogen*) and panniculus carnosus, TOBLER, Morphol. Jahrb. xxx, p. 453; suppression and transformation of posterior vertebral segments, KEITH, J. Anat. Physiol. norm. path. xxxvii, p. 18; plagiocephalism, FRASSETTO, Anat. Anz. xxii, p. 25, rickets in, Zeitschr. Morphol. iv, p. 365; brain, ZUCKERKANDL, SB. Ak. Wien cx, p. 463; uterus and skull-capacity, KOHLBRÜGGE, Zeitschr. Morphol. iv, pp. 1 & 318.

ANTHROPOIDEA.

Anthropopithecus gorilla, hunting, PASCHEN (83).

Simia satyrus, uterus, STRAHL, Anat. Anz. xxii, p. 170; trigeminus ganglion, COENEN, Arch. mikr. Anat. lx, p. 514; habits, SANYAL, J. Asiat. Soc. Bengal lxxi, p. 92.

†*Anthropodus*, n. g. for *A. rouvillei*, Pliocene, France, n. sp., LAPOUGE, Bull. Soc. Ouest France 1894, p. 202.

†*Anthropodus* (Schlosser, 1901, nec Lapouge, 1894); *brancoi*, remains figured, SCHLOSSER, Pal. Abh. ix, p. 111.

Hylobates, myology, GRÖNROOS, SB. Ges. naturf. Berlin 1902, p. 245.

Cercopithecus leucampyx, note on, LYDEKKER, Nov. Zool. ix, p. 138; *hilgerti*, Webbi Schebeli, *ellenbecki*, Lake Zuai, p. 50, *matschiei*, Sobat R., *djamdjamensis*, Jam-jam, p. 51, NEUMANN, SB. Ges. naturf. Berlin 1902; *otoleucus* (?=*stuhlmanni*), Uganda, SCLATER, P. Zool. Soc. London 1902, i, p. 237, pl. xxv; *francescæ*, Nyasaland, THOMAS, Ann. Nat. Hist. (7) x, p. 243; *kolbi*, Mt. Kenia, NEUMANN, P. Zool. Soc. London 1902, ii, p. 144 : n. spp.

Colobus sharpei, N. Nyasaland, THOMAS, P. Zool. Soc. London 1902, ii, p. 118; *gallarum*, Gallaland, NEUMANN, SB. Ges. naturf. Berlin 1902, p. 49 : n. spp.

Nasalis larvatus, form of nose, etc., JENTINK, Notes Leyden Mus. xxiii, p. 113; young figured, SCLATER, P. Zool. Soc. London 1902, ii, pl. xviii.

Macacus umbrosus, Nicobars, MILLER, P. U. S. Mus. xxiv, p. 789, n. sp.

Papio hamadryas arabicus, p. 139, *neumanni*, p. 140, notes on, LYDEKKER, *lydekkeri*, E. Africa, p. 140, n. sp., ROTHSCHILD, Nov. Zool. ix.

Cebidæ and *Hapalidæ* of Rio Tapajoz district, SCHULZ, Verh. Ges. Wien 1902, p. 467; cerebellum, BOLK, Morphol. Jahrb. xxxi, p. 44.

Alouatta palliata mexicana, Mexico, MERRIAM, P. Soc. Washington xv, p. 67; *p. coibensis*, Coiba Id., THOMAS, Nov. Zool. ix, p. 135 : n. subspp.

Saimiri boliviensis nigriceps, E. Peru, THOMAS, Ann. Nat. Hist. (7) ix, p. 247, n. subsp.

LEMUROIDEA.

Extinct Malagasy forms, LYDEKKER, Encyclop. Brit., 10th ed., xxx, p. 193; GRANDIDIER, Bull. Mus. Paris 1902, p. 497.

Lemur fulvus, additional molar in, SMITH, P. Zool. Soc. London 1902, ii, p. 61.

Hapalemur griseus, carpal vibrissæ and glands, BEDDARD, t. c. p. 158.

Perodicticus batesi, French Congoland, DE WINTON, Ann. Nat. Hist. (7) ix, p. 48, n. sp.

Arctocebus aureus, French Congoland, DE WINTON, l. c., n. sp.

†*Hadropithecus stenognathus*, description, LORENZ, Denk. Ak. Wien lxxii, p. 1 et seq. (separate pagination).

Nycticebus coucang hilleri, Sumatra, p. 139, *C. javanicus*, Java, *C. natunæ*, Natuna Ids., p. 140, STONE & REHN, P. Ac. Philad. 1902, n. subspp.
Tarsius spectrum, embryology, HUBRECHT, Verh. Ak. Amsterdam (2) viii, No. 6.
Chiromys madagascariensis, foot-structure, SOKOLOWSKY, Zool. Garten xliii, p. 353.

INCERTÆ SEDIS.

†*Hyopsodus wortmani*, p. 185, *marshi*, p. 187, *uintensis*, p. 188, Eocene, N. America, OSBORN, Bull. Amer. Mus. xvi, n. spp.
†*Notharctus venticolus*, Eocene, N. America, OSBORN, t. c. p. 195, n. sp.
†*Cryptopithecus*, n. g. for *C. macrognathus*, Tertiary, Messel, n. sp., WITTICH, Centrbl. Mineral. 1902, p. 289.
†*Adpithecus subtenuis*, p. 9, *plenus*, *reduncus*, p. 10, *plexostephanos*, *Infrapithecus diversus*, *expansus*, p. 11, *Homunculites* (n. g.) *pristinus*, p. 75, *Pitheculites* (n. g.) *minimus*, p. 76, Tertiary, Patagonia, AMEGHINO, Bol. Ac. Cordoba xvii, n. spp.

II. *CHIROPTERA.*

Distribution, PALACKY, SB. Bohmisch. Ges. 1901, Art. 34; Bats in a French cavern, DE KERVILLE, Bull. Soc. Rouen 1901, p. 1 (separate); development of internal ear, DENIS, Arch. Biol. xviii, p. 377; spermatozoa, VAN DER STRICHT, Anat. Anz. xxi, Suppl., p. 163; Bats of Mexico, MENEGAUX, Bull. Mus. Paris 1902, p. 11.

Pteropus haldemani, Hallowell, 1846, = *Epomophorus gambianus*, Ogilby, 1835, REHN, Amer. Natural. xxxvi, p. 201; *faunulus*, Nicobars, MILLER, P. U. S. Mus. xxiv, p. 785 : n. sp.
Macroglossus and *Syconycteris*, species of, JENTINK, Notes Leyden Mus. xxiii, p. 131.
Odontonycteris, n. g. for *O. meyeri*, Sangi Id., n. sp., JENTINK, t. c. p. 140.
Hipposiderus dyacorum, Borneo, THOMAS, Ann. Nat. Hist. (7) ix, p. 271; *nicobarulæ*, Nicobars, MILLER, P. U. S. Mus. xxiv, p. 781 : n. spp.
Philetor, n. g. for *P. rohui*, New Guinea, n. sp., THOMAS, Ann. Nat. Hist. (7) ix, p. 220.
Ia, n. g. for *I. io*, Chung Yang, S. Hupeh, China, n. sp., THOMAS, ibid. x, pp. 163 & 164.
Vespertilio incautus, J. Allen, a distinct form, MILLER, P. Soc. Washington xv, p. 155; *espadæ* Cabr. 1901 = *Vesperus petersi*, CABRERA, Bol. Soc. espan. ii, p. 131.
Pipistrellus cinnamomeus, Mexico, P. Ac. Philad. 1902, p. 390, *camortæ*, Nicobars, P. U. S. Mus. xxiv, p. 779, MILLER; *deserti*, Tripoli, THOMAS, P. Zool. Soc. London 1902, ii, p. 4 : n. spp.
Lasiurus borealis produces 3 or 4 young at a birth, THOMAS, Ann. Nat. Hist. (7) ix, p. 238, LYON, P. U. S. Mus. xxvi, p. 425; *b. salinæ*, Central Cordova, THOMAS, l. c. : n. subsp.
Myotis thomasi, habitat, CABRERA, Bol. Soc. espan. ii, p. 293; *dinellii*, Tucuman, THOMAS, Ann. Nat. Hist. (7) x, p. 493; *californicus jaliscensis*, Jalisco, p. 321, *vivesi*, Cardonal Id., MENEGAUX, Bull. Mus. Paris 1901; *dominicensis*, Dominica, MILLER, P. Soc. Washington xv, p. 293 : n. spp. & subsp.; *bechsteini* in New Forest in 1886, JOURDAIN, P. Zool. Soc. London 1902, ii, p. 228.
Natalus major, San Domingo, p. 398, *mexicanus*, Mexico, p. 399, MILLER, P. Ac. Philad. 1902, n. spp.
Miniopterus fuscus, Liu-Kiu Ids., BONHOTE, Nov. Zool. ix, p. 626, n. sp.

Antrozous minor, Low. California, MILLER, P. Ac. Philad. 1902, p. 389, n. sp.
Dasypterus floridanus, Florida, MILLER, t. c. p. 392, n. sp.
Nyctinomops, n. g. for *N. yucatanensis*, Yucatan, n. sp., MILLER, t. c. p. 393.
Nyctinomus antillularum, Dominica, P. Ac. Philad. 1902, p. 398, and P. Soc. Washington xv, p. 258, *pusillus*, Aldabra Id., p. 245, *jobensis*, Jobi Id., p. 246, P. Soc. Washington xv, MILLER; *bahamensis*, Bahamas, REHN, P. Ac. Philad. 1902, p. 641, n. spp.; *gracilis*, note on, MENEGAUX, Bull. Mus. Paris 1901, p. 321.
Molossus nigricans, Mexico, p. 395, *pretiosus*, Venezuela, p. 396, MILLER, P. Ac. Philad. 1902, n. spp.; *nasutus*, note on, MENEGAUX, Bull. Mus. Paris 1901, p. 321.
Chilonycteris portoricensis, Porto Rico, p. 400, *mexicana*, Mexico, p. 401, MILLER, P. Ac. Philad. 1902, n. spp.; *davyi fulvus* Thomas, a distinct form, MILLER, P. Soc. Washington xv, p. 155; *psilotis*, additional specimen, ibid. p. 249.
Mormops megalophylla senicula, Kinney Co., Texas, REHN, P. Ac. Philad. 1902, p. 169; *tumidiceps*, Trinidad, MILLER, t. c. p. 403 : n. sp. & subsp.
Glossophaga soricina antillarum, Jamaica and Bahamas, REHN, t. c. p. 37, n. subsp.
Dermanura rava, Ecuador, p. 404, *phæotis*, Yucatan, p. 405, MILLER, t. c. n. spp.
Artibeus hercules, Peru, p. 638, *parvipes*, Cuba, p. 639, REHN, t. c. n. spp.
Uroderma convexum, Panama, LYON, P. Soc. Washington xv, p. 83, n. sp.
Vampyrops umbratus, San Miguel, Colombia, LYON, t. c. p. 151; *fumosus*, Brazil, MILLER, P. Ac. Philad. 1902, p. 405 : n. spp.
Stenoderma luciæ, St Lucia, MILLER, t. c. p. 407, n. sp.
Hemiderma tricolor, Paraguay, MILLER, t. c. p. 408, n. sp.
Brachyphylla nana, Cuba, MILLER, t. c. p. 409 & P. Soc. Washington xv, p. 249, n. sp.
Monophyllus cubanus, Cuba, p. 410, *luciæ*, Santa Lucia, p. 411, MILLER, t. c. n. spp.
Tonatia distinct from *Vampyressa*, with note on *T. amblyotis*, THOMAS, Ann. Nat. Hist. (7) x, pp. 53 & 54.
Lophostoma venezuelæ = *Tonatia venezuelæ*, MILLER, P. Soc. Washington xv, p. 248.
Mimon bennetti, note on, THOMAS, Ann. Nat. Hist. (7) x, p. 53.
Ametrida minor H. Allen, type locality, G. M. ALLEN, P. Soc. Washington xv, p. 91.

III. *INSECTIVORA.*

Brain (especially *Macroscelides*), SMITH, J. Linn. Soc. London xxviii, p. 443; hibernation (especially *Erinaceus*), BERETTA, Monit. Zool. ital. xiii, pp. 211 & 234; fat-bodies, AUERBACH, Arch. mikr. Anat. lx, p. 291.

Galeopithecus, its anatomy and affinity to *Chiroptera*, CHAPMAN, P. Ac. Philad. 1902, p. 241; a living specimen, ANNANDALE, P. Phys. Soc. Edinb. xiv, p. 444.
Tupaia nicobarica surda, Nicobars, P. U. S. Mus. xxiv, p. 774, *phæura*, Sinkep Id., P. Ac. Philad. 1902, p. 157, MILLER, n. sp. & subsp.
Macroscelides, organ of Jacobson, BROOM, P. Zool. Soc. London 1902, i, p. 224.
Rhynchocyon hendersoni, Nyasaland, THOMAS, Ann. Nat. Hist. (7) ix, p. 403, n. sp.

Dentition and phylogeny of *Erinaceidæ*, LECHE, Zoologica, Pt. xxxvii.
Erinaceus senaarensis, Senar, LECHE (ex Dobson MS.), t. c. p. 87, n. sp.
Talpa romana, Rome, THOMAS, Ann. Nat. Hist. (7) x, p. 516, n. sp.
Sorex tenellus lyelli, Mt Lyell, California, p. 75, *t. myops*, White Mts., California, p. 76, MERRIAM, P. Soc. Washington xv; (*Microsorex*) *alnorum*, Hudson Bay district, PREBLE, North Amer. Fauna, No. 22, p. 72 : n. spp. & subsp.
Crocidura nicobarica, Nicobars, p. 776, *andamanensis*, Andamans, p. 777, MILLER, P. U. S. Mus. xxiv, n. spp.
Blarina brevicauda aloga, p. 76, *b. compacta*, p. 77, Id. off Massachusetts, BANGS, P. New England Zool. Club iii, n. subspp.
Chimarrogale leander, Kuatun, N. W. Fokien, China, THOMAS, Ann. Nat. Hist. (7) x, p. 165, n. sp.

IV. *CARNIVORA.*

Classification of, and relation of Creodonts to Marsupials, with synopsis of American Eocene forms, WORTMAN, Amer. J. Sci. (4) xiii, pp. 39 et seq.; vertebræ, STROMER, Zoologica xv, Pt. 36; occipito-atloid articulation in Arctoids, ANDERSON, J. Anat. Physiol. norm. path. xxxvi, p. 368; brain, WEINBERG, Anat. Anz. xxii, p. 268; lymphatics, RICHTER, Arch. mikr. Anat. lx, p. 469; Sumatran, HENNE, Zool. Garten xliii, p. 73.

FELIDÆ, VIVERRIDÆ and PROTELEIDÆ.

†*Machærodus*, revision of European species, BOULE, Bull. Soc. geol. France (4) i, p. 551.
Felis leo, pancreas, GENTES, C.R. Soc. Biol. liv, p. 535; *badia*, note on, JENTINK, Notes Leyden Mus. xxiii, p. 91; *domestica*, polydactylism, HOWE, Amer. Natural. xxxvi, p. 511; lymphatics, DAVISON, Anat. Anz. xxii, p. 125; *concolor pearsoni*, figured in PRICHARD'S "Through Patagonia" (292A), p. 252; *costaricensis* (nec Merriam, 1901), Costa Rica, p. 245, *æquatorialis*, Equador, p. 246, MEARNS, P. U. S. Mus. xxv, n. spp.; †*listai* (=*Jemish listai*, 1899), ROTH, Rev. Mus. la Plata xi, p. 37 : n. spp.
Leopardus †*larteti*, cavern, Pyrenees, FILHOL, Bull. Soc. Philom. (9) iv, p. 112, n. sp.
Lyncus (= *Chaus*) *chrysomelanotis*, Palestine, NEHRING, SB. Ges. naturf. Berlin 1902, p. 123, n. sp.
Lynx uinta, Wyoming, MERRIAM, P. Soc. Washington xv, p. 71, n. sp.
Genetta bettoni, B. E. Africa, ix, p. 365, *g. balearica*, Balearic Is., x, p. 162, *granti*, S. Arabia, p. 487, THOMAS, Ann. Nat. Hist. (7), n. spp. & subsp.
Cryptoprocta, genital organs, LÖNNBERG, Bih. Svenska Ak. xxviii, Pt. iv, Art. 3.
Arctictis binturong, distribution, OUSTALET, Bull. Mus. Paris 1901, p. 318.
Herpestes galera mitis, Lake Tsana, THOMAS, P. Zool. Soc. London 1902, ii, p. 309; *almodovari*, Biafra, CABRERA, Bol. Soc. espan. ii, p. 139 : n. sp. & subsp.
Eupleres goudoti, systematic position, CARLSSON, Zool. Jahrb. Syst. xxvi, p. 217.
†*Cynodictis pygmæus*, Tertiary, S. Germany, SCHLOSSER, Pal. Abh. ix, p. 164, n. sp.
Proteles cristatus septentrionalis, Somaliland, *c. harrisoni*, Angola, ROTHSCHILD, Nov. Zool. ix, p. 443, n. subspp.

CANIDÆ.

Prehistoric and recent dogs compared, STUDER, Abh. Schweiz. pal. Ges. xxvii (1901), 137 pp.

Canis familiaris, fossil in Swabia, FRAAS, Fundber. Schwaben x, p. 48; cranial asymmetry, PARAVICINI, Atti Mus. Milano xli, p. 350; nerves of muzzle, BOTEZAT, Morphol. Jahrb. xxix, p. 439; abnormal ribs, ADOLPHI, ibid. xxx, p. 374; vascular abnormality, BRADLEY, Anat. Anz. xxi, p. 142; suprarenal capsules, MULON, C.R. Soc. Biol. 1902, p. 1310; hybrids, MANNERS-SMITH, J. Asiat. Soc. Bengal lxx, p. 143; pancreas, LAGUESSE, C.R. Soc. Biol. liv, p. 852; *kaffensis*, Kaffaland, NEUMANN, SB. Ges. naturf. Berlin 1902, p. 53, *montanus*, Patagonia, PRICHARD, "Through Patagonia" (292A), p. 260 (nec *Vulpes montanus* Pearson, 1836) : n. spp.; †*palustris* and †*intermedius* in Swabia, FRAAS, op. cit. p. 49.

Vulpes velox hebes, Calgary, Canada, p. 73, *macrotis neomexicanus*, San Andreas Range, New Mexico, *muticus*, San Joaquin Valley, California, p. 74, *lagopus innuitus*, Alaska, *l. ungava*, Labrador, p. 170, *pribilofensis*, Pribiloffs, *beringensis*, Bering Id., p. 171, MERRIAM, P. Soc. Washington xv; *v. arabica*, S. Arabia, *v. splendens*, Astrabad, THOMAS, Ann. Nat. Hist. (7) x, p. 489, n. spp. & subspp.; *lagopus*, hunting in Pribiloffs, LAMBKEY & LUCAS, Science (2) xvi, p. 216.

Lycaon pictus lupinus, British East Africa, THOMAS, Ann. Nat. Hist. (7) ix, p. 439, n. subsp.

†*Dinocynops*, n. g. for *Canis moreni* Lydekker, 1895, AMEGHINO, Sinop. Geol. Pal. Argent. i, p. 194, 1898, see also An. Mus. Buenos Aires (3) i, p. 232.

†*Palæocyon tarijensis*, Tertiary, Bolivia, AMEGHINO, t. c. p. 232, n. sp.

†*Dinocyon* (? *Borophagus*) *gildeyi*, Miocene, Texas, MATTHEW, Bull. Amer. Mus. xvi, p. 131, n. sp.

†*Cynarctus saxatilis*, Miocene, Colorado, MATTHEW, t. c. p. 282, n. sp.

†*Amphicyon sinapius*, ibid., MATTHEW, t. c. p. 288, n. sp.

MUSTELIDÆ.

†*Bunælurus lagophagus*, skull, MATTHEW, Bull. Amer. Mus. xvi, p. 137.

Galictis allamandi, in Honduras, NEHRING, Zool. Anz. xxv, p. 475.

Helogale varia, N. Nyasaland, p. 119, *victorina*, Victoria Nyanza, p. 120, THOMAS, P. Zool. Soc. London 1902, i, n. spp.

Mustela, synopsis of American, p. 443, *caurina origines*, Marvine Mt, Colorado, p. 458, n. subsp., RHOADS, P. Ac. Philad. 1902; †*palæattica*, dentition and cranium, F. MAJOR, P. Zool. Soc. London 1902, i, p. 109; *americana abieticola*, Hudson Bay district, PREBLE, North Amer. Fauna No. 22, p. 68, n. subsp.

Putorius tropicalis perdus, Mexico, MERRIAM, P. Soc. Washington xv, p. 67, n. subsp.

Lutreola vison lacustris, Hudson Bay district, PREBLE, North Amer. Fauna No. 22, p. 66, n. subsp.

Meles taxus, myology of hyoid, CHAINE, C.R. Soc. Biol. liv, p. 674; *arenarius sibiricus*, pp. 611 & 612 (also an earlier reference in Russian), *a. altaicus*, p. 613, Siberia and Altai, KASCENKO, Annuaire Mus. St. Petersb. vi, 1901 : n. subspp.

Mydaus lucifer, N. Borneo, p. 442, *ollula*, Natuna Is., p. 443, THOMAS, Ann. Nat. Hist (7) ix, n. spp.

Ictonyx senegalensis intermedia, Nile Valley, ANDERSON & DE WINTON, Zool. of Egypt, Mamm., p. 242, n. subsp.

Mephitis and allied forms, nomenclature, HOWELL, P. Soc. Washington xv, p. 1, ALLEN, t. c. p. 59.

Spilogale tenuis, Colorado, p. 241, *angustifrons*, Mexico, *a. tropicalis*, Oaxaca, p. 242, MILLER, t. c. n. spp. & subsp.

Conepatus chorensis, Choro, Bolivia, p. 126, *porcinus*, Cochabamba, Bolivia, p. 128, *proteus*, Cordova, p. 239, THOMAS, Ann. Nat. Hist. (7) ix; *leuconotus texensis*, Texas, *sonoriensis*, Sonora, p. 162, *mesoleucus mearnsi*, Texas, *filipensis*, San Felipe, Oaxaca, p. 163, *pediculus*, *tropicalis*, Mexico, p. 164, MERRIAM, P. Soc. Washington xv : n. spp. & subspp.

Oryctogale, n. subg. for *Conepatus leuconotus* (Lichtenstein), MERRIAM, P. Soc. Washington xv, p. 161.

†*Promephitis gaudryi*, Tertiary, S. Germany, SCHLOSSER, Pal. Abh. ix, p. 146, n. sp.

†*Stenoplesictis grimmi*, Tertiary, S. Germany, SCHLOSSER, t. c. p. 147, n. sp.

Lutra concolor, Adis Ababa, NEUMANN, SB. Ges. naturf. Berlin 1902, p. 55; *capensis meneleki*, Lake Tsana, THOMAS, Proc. Zool. Soc. London 1902, p. 302 : n. sp. & subsp.

PROCYONIDÆ and URSIDÆ.

Nasua narica molaris, Mexico, MERRIAM, P. Soc. Washington xv, p. 68, n. subsp.; *socialis*, habits, MÜLLER-LIEBENWALDE, Zool. Garten xliii, p. 56.

Potos flavus aztecus, Mexico and Guatemala, p. 266, *f. meridensis*, Merida, Venezuela, *f. modestus*, W. Ecuador, p. 267, THOMAS, Ann. Nat. Hist. (7) ix, n. subspp.

Ælurus fulgens styani, Szechuen, THOMAS, ibid. x, p. 251, n. subsp.

Ursus dalli gyas, Pavlof Bay, Alaska, *kidderi*, Cook Inlet, Alaska, MERRIAM, P. Soc. Washington xv, p. 78, *merriami*, Portage Bay, Alaska, ALLEN, Bull. Amer. Mus. xvi, p. 141 : n. spp. & subsp.; †*spelæus* in Italy, UGOLINI, Mus. Geol. Pisa 1902, 1 p., and FLORES, Riv. ital. Pal. viii, p. 26.

Tremarctus ornatus majori, S. Ecuador, THOMAS, Ann. Nat. Hist. (7) ix, p. 216, n. subsp.

†*Arctotherium tarijense*, p. 227, *wingei*, p. 228, Tertiary, Bolivia, AMEGHINO, An. Mus. Buenos Aires viii, n. spp.

INCERTÆ SEDIS.

†*Phiomia*, n. g. for *P. serridens*, Eocene, Egypt, n. sp., ANDREWS & BEADNELL, Cairo Survey Dept. 1902, p. 1.

†CREODONTIA.

Limnocyon medius, Tertiary, N. America, WORTMAN, Amer. J. Sci. (4) xii, p. 121, n. sp.

Sinopa minor, p. 17, *major*, p. 18, Tertiary, N. America, WORTMAN, op. cit. xiv, n. spp.

PINNIPEDIA.

Sealing in 1901, SOUTHWELL, Zoologist (4) v, p. 41; Antarctic Seals, BARRETT-HAMILTON, Report of Southern Cross Collections, p. 1, WILSON, t. c. p. 67; *Phocidæ* of N. Pacific and Bering Sea, ALLEN, Bull. Amer. Mus. xvi, p. 459; eye, PÜTTER, Zool. Jahrb. Anat. xxvii, p. 99.

Phoca hispida gichigensis, Okhotsk Sea, p. 478, *ochotensis macrodus*, Kamchatka, p. 483, *stejnegeri*, Bering Sea, p. 485, *richardi pribilof-*

ensis, Pribiloff Is., *r. geronimensis*, L. California, p. 495, ALLEN, Bull. Amer. Mus. xvi, n. sp. & subspp.

Otaria byronia (De Blainville) adopted by ALLEN, t. c. p. 114, for *O. ursina*.

V. *RODENTIA*.

Classification and distribution of recent and fossil, SCHLOSSER, Centrbl. Mineral. 1902, pp. 705 & 737; fat-bodies, AUERBACH, Arch. mikr. Anat. lx, p. 291; myology, ALEZAIS, J. Anat. Physiol. xxxviii, p. 1.

SCIURIDÆ.

Sciurus nyansæ, Victoria Nyanza, p. 56, *kaffensis*, Kaffaland, *abassensis*, Abyssinia, p. 57, NEUMANN, SB. Ges. naturf. Berlin 1902; *nesæus*, Margarita Id., Venezuela, G. M. ALLEN, P. Soc. Washington xv, p. 93; *melanops*, Indragiri R., Sumatra, MILLER, P. Ac. Philad. 1902, p. 151; *prevosti harrisoni*, Indragiri R., STONE & REHN, t. c. p. 132; *æstuans chiriquensis*, p. 22, *browni*, p. 24, Chiriqui, BANGS, Bull. Mus. Harvard xxxix : n. spp. & subspp.; *rufiventer* and its subspecies, ALLEN, Bull. Amer. Mus. xvi, p. 166.

Syntheosciurus, n. g. for *S. brochus*, Chiriqui, n. sp., BANGS, Bull. Mus. Harvard xxxix, p. 25.

Ratufa palliata, Indragiri R., Sumatra, p. 147, *notabilis*, Linga Id., p. 150, MILLER, P. Ac. Philad. 1902, n. spp.

Funisciurus yulei, N. Nyasaland, THOMAS, P. Zool. Soc. London 1902, i, p. 120, n. sp.

Nannosciurus pulcher, Sinkep Id., MILLER, P. Ac. Philad. 1902, p. 153, n. sp.

Eutamias cinereicollis canipes, W. Texas, BAILEY, P. Soc. Washington xv, p. 117, n. subsp.

Spermophilus superciliosus, fossil in France, LAVILLE & ROLLAIN, Bull. Soc. Anthrop. Paris 1902, p. 60; *citillus* in Germany, JACOBI, Arch. Naturg. 1902, i, p. 199; *annulatus goldmanni*, Mexico, MERRIAM, P. Soc. Washington xv, p. 69; *spilosoma marginatus* and *s. arena*, W. Texas, BAILEY, t. c. p. 118 : n. subspp.

Arctomys bungei, KASCENKO, Annuaire Mus. St. Petersb. vi, p. 615, 1901, *cliftoni*, THOMAS, Ann. Nat. Hist. (7) ix, p. 444, N. Siberia : n. spp.

GLIRIDÆ and CASTORIDÆ.

Myoxus nitedula wingei, Greece, p. 5, *intermedius*, Tyrol, p. 155, NEHRING, SB. Ges. naturf. Berlin 1902, n. subsp. & sp.

Castor †*neglectus*, Tertiary, S. Germany, SCHLOSSER, Pal. Abh. ix, p. 136, n. sp.

†*Trogontherium cuvieri*, in Pleistocene of Greenhithe, Kent, NEWTON, Geol. Mag. (4) ix, p. 385.

†*Steneofiber* and allied forms, list of N. American species, MATTHEW, Bull. Amer. Mus. xvi, p. 300.

†*Megalochnus*, ? not from Cuba, VAUGHAN, Science (2) xv, p. 148.

MURIDÆ.

Heredity in pigmentation, CUÉNOT, Arch. zool. exp. Notes (3) x, p. xxvii.

Gerbillus andersoni, Egypt, DE WINTON, Ann. Nat. Hist. (7) ix, p. 46; *pyramidum tarabuli*, p. 5, *eatoni*, p. 6, Tripoli, THOMAS, P. Zool. Soc. London 1902, ii : n. spp.

Meriones buryi, N. of Aden, THOMAS, Ann. Nat. Hist. (7) x, p. 488, n. sp.
Dipodillus amœnus, Egypt, DE WINTON, Ann. Nat. Hist. (7) ix, p. 46; *mimulus*, near Aden, t. c. p. 362, *dodsoni*, p. 7, *vivax*, p. 8, Tripoli, P. Zool. Soc. London 1902, ii, THOMAS : n. spp.
Tatera liodon, Lake Mweru, THOMAS, Ann. Nat. Hist. (7) ix, p. 441, n. sp.
Psammomys algiricus, Algeria, *terræ-sanctæ*, Palestine, t. c. p. 363, *tripolitanus*, Tripoli, P. Zool. Soc. London 1902, ii, p. 9, THOMAS, n. spp.
Otomys sloggetti, p. 311, *unisulcatus granti*, p. 312, Cape Colony, *broomi*, Little Namaqualand, p. 313, *irroratus tropicalis*, Mt. Kenya, p. 314, Ann. Nat. Hist. (7) x, *degeni*, Shoa, P. Zool. Soc. London 1902, ii, p. 311, n. spp. & subspp., THOMAS.
Mus hindei, ix, p. 218, *hildegardeæ*, p. 219, British East Africa, *sylvaticus witherbyi*, Persia, x, p. 490, *furculinus*, Barrow Id., p. 491, THOMAS, Ann. Nat. Hist. (7) ix; *stoicus*, p. 759, *taciturnus*, *flebilis*, p. 762, Andamans, *pulliventer*, Nicobars, p. 765, *atratus*, Andamans, p. 767, *burrus*, p. 768, *burrulus*, p. 770, *burrescens*, p. 771, Nicobars, MILLER, P. U. S. Mus. xxiv; *fremens*, Sinkep Id., p. 154, *firmus*, Linga Id., p. 155, MILLER, P. Ac. Philad. 1902; *epimelas*, Greece, NEHRING, SB. Ges. naturf. Berlin 1902, p. 2; *caroli*, Liu-Kiu Ids., BONHOTE, Nov. Zool. ix, p. 627 : n. spp. & subspp.; *norvegicus*, spermatozoa, MERLIN, J. Quekett Club (2) viii, p. 189; *musculus* ("waltzing mice"), auditory organs, KISHI, Zeitschr. wiss. Zool. lxxi, p. 457, development of ovum, SOBOTTA, Arch. mikr. Anat. lxi, p. 274.
Nesocia gracilis, Ceylon, NEHRING, SB. Ges. naturf. Berlin 1902, p. 116, n. sp.
Arvicanthis somalicus, Somaliland, THOMAS, P. Zool. Soc. London 1902, ii, p. 312, n. sp.
Pelomys harringtoni, Shoa, THOMAS, t. c. p. 313, n. sp.
Muriculus, n. g. for *Mus imberbis* Rüppell, THOMAS, t. c. p. 314.
Uromys sapientis, Solomon Ids., THOMAS, Ann. Nat. Hist. (7) ix, p. 446, n. sp.
Acomys viator, Tripoli, THOMAS, P. Zool. Soc. London 1902, ii, p. 10, n. sp.
Fiber zibethicus ripensis, W. Texas, BAILEY, P. Soc. Washington xv, p. 119; *zibethicus hudsonianus*, Hudson Bay district, PREBLE, North Amer. Fauna No. 22, p. 53 : n. subspp.
Cricetulus atticus, Greece, NEHRING, SB. Ges. naturf. Berlin 1902, p. 3, n. sp.
Nyctomys nitellinus, Chiriqui, BANGS, Bull. Mus. Harvard xxxix, p. 30, n. sp.
Oxymycterus paramensis, Choquecamate, Bolivia, THOMAS, Ann. Nat. Hist. (7) ix, p. 139, n. sp.
Megadontomys flavus, Chiriqui, BANGS, Bull. Mus. Harvard xxxix, p. 27, n. sp.
Peromyscus cacabatus, Chiriqui, BANGS, t. c. p. 29, n. sp.
Rhithrodontomys creper, Chiriqui, BANGS, t. c. p. 39, n. sp.
Oryzomys levipes, Choro, Bolivia, ix, p. 129, *yungaeus*, Charuplaya, Bolivia, *phœopus olivinus*, Zaruma, Ecuador, x, p. 247, THOMAS, Ann. Nat. Hist. (7); *devius*, p. 34, *vegetus*, p. 35, Chiriqui, BANGS, Bull. Mus. Harvard xxxix : n. spp. & subsp.; note on N. American forms, RHOADS, Amer. Natural. xxxvi, p. 661.
Andinomys, n. g. for *A. edax*, Bolivian Andes, n. sp., THOMAS, P. Zool. Soc. London 1902, ii, p. 116.
Phyllotis wolffsohni, Tapacari, Bolivia, *lutescens*, Choro, Bolivia, ix, p. 133, *arenarius*, Bolivian plateau, p. 224, *hirtipes*, Lake Poopo, Bolivia, p. 225, *boliviensis flavidior*, Peru, x, p. 248, THOMAS, Ann. Nat. Hist. (7) n. spp. & subsp.
Eligmodontia domorum, Tapacari, Bolivia, p. 132, *carilla*, Choro, Bolivia, p. 133, THOMAS, op. cit. ix, n. spp.

Acodon teguina apricus, p. 40, *xerampelinus*, p. 41, Chiriqui, BANGS, Bull. Mus. Harvard xxxix; *serrensis*, Parana, p. 61, *pacificus*, La Paz, Bolivia, p. 135, *puer*, Choquecamate, Bolivia, p. 136, *fumeus*, p. 137, *bacchante*, p. 138, Choro, Bolivia, THOMAS, Ann. Nat. Hist. (7) ix : n. spp.

Sigmodon hispidus tonalensis, *h. major*, p. 109, *h. toltecus*, p. 110, Mexico, *h. saturatus*, Tabasco, *h. microdon*, Yucatan, p. 111, *alleni*, p. 112, *melanotis*, p. 114, Mexico, *ochrognathus*, Texas, *leucotis*, Mexico, p. 115, *alticola*, *a. amoles*, Mexico, p. 116, BAILEY, P. Soc. Washington xv; *austerulus*, Chiriqui, BANGS, Bull. Mus. Harvard xxxix, p. 32 : n. spp. & subspp.

Phenacomys mackenzii, Mackenzie, Canada, PREBLE, P. Soc. Washington xv, p. 182, n. sp.

Microtus mexicanus guadalupensis, Guadalupe Mts., W. Texas, BAILEY, P. Soc. Washington xv, p. 119; *calamorum*, Yang-tse-kiang, THOMAS, Ann. Nat. Hist. (7) x, p. 167; *aphorodemus*, Hudson Bay district, PREBLE, North Amer. Fauna No. 22, p. 52 : n. spp. & subsp.

Synaptomys (*Mictomys*) *bullatus*, Mackenzie, Canada, PREBLE, P. Soc. Washington xv, p. 181, n. sp.

†*Mimomys*, n. g., p. 107, for *M. pliocœnicus*, Norwich Crag, *newtoni*, Norwich Crag and East Runton beds, p. 105, n. spp., *Microtus intermedius*, Newton, West Runton beds, belongs to same genus, MAJOR, P. Zool. Soc. London 1902, i.

†MYLAGAULIDÆ.

Ceratogaulus, n. g. for *C. rhinocerus*, Miocene, Colorado, n. sp., MATTHEW, Bull. Amer. Mus. xvi, p. 291.

Mylagaulus lævis, p. 298, *paniensis*, p. 299, Tertiary, Colorado, MATTHEW, t. c. n. spp.

JACULIDÆ and SPALACIDÆ.

Dipus (*Allactaga*) *aulacotis*, Wagner, note on, NEHRING, Zool. Anz. xxv, p. 89.

†*Dipodoides problematicus*, Tertiary, S. Germany, SCHLOSSER, Pal. Abh. ix, p. 135, n. sp.

Spalax hungaricus, brain, RATHONYI, Math. term. Ertes. Magyar Ak. xviii, p. 330; †*fritschi*, cavern, Lebanon, NEHRING, SB. Ges. naturf. Berlin 1902, p. 77, n. sp.

GEOMYIDÆ and HETEROMYIDÆ.

Platygeomys neglectus, Mexico, MERRIAM, P. Soc. Washington xv, p. 68, n. sp.

Macrogeomys cavator, p. 42, *pansa*, p. 44, Chiriqui, BANGS, Bull. Mus. Harvard xxxix, n. spp.

Thomomys fulvus texensis, p. 119, *aureus lachuguilla*, p. 120, W. Texas, BAILEY, P. Soc. Washington xv, n. spp.

Heteromys goldmanni, p. 41, *g. lepturus*, *griseus*, p. 42, *annectans*, *nelsoni*, p. 43, Mexico, MERRIAM, P. Soc. Washington xv; *repens*, Chiriqui, BANGS, Bull. Mus. Harvard xxxix, p. 45 : n. spp. & subsp.

Liomys, n. g. for *L. texensis*, Texas, p. 44, *torridus*, *t. minor*, p. 45, *plantinarensis*, *pictus rostratus*, *p. isthmius*, p. 46, *sonorana*, *veræcrucis*, p. 47, *obscurus*, *phœura*, *orbitalis*, p. 48, *crispus*, *c. setosus*, p. 49, *heterothrix*, p. 50, Mexico, MERRIAM, Bull. Mus. Harvard xxxix, n. spp. & subspp.

Dipodomys, habits, SHUFELDT, Amer. Natural. xxxvi, p. 47.

PEDETIDÆ and OCTODONTIDÆ.

Pedetes surdaster, British East Africa, THOMAS, Ann. Nat. Hist. (7) ix, p. 440, n. sp.

Ctenodactylus vali, Tripoli, THOMAS, P. Zool. Soc. London 1902, ii, p. 11, n. sp.

Neoctodon, n. g., p. 114, for *N. simonsi*, Bolivian Andes, p. 115, pl. viii, n. sp., THOMAS, op. cit. i.

Proechimys securus, Charuplaya, Bolivia, THOMAS, Ann. Nat. Hist. (7) ix, p. 140, n. sp.

Ctenomys frater, Potosi, Bolivia, p. 228, *bergi*, Cordova, p. 241, THOMAS, Ann. Nat. Hist. (7) ix; †*subassentiens*, p. 242, †*subquadratus*, †*brachyrhinus*, p. 243, Tertiary, Bolivia, AMEGHINO, An. Mus. Buenos Aires viii : n. spp.

†*Matyoscor*, n. g. for *M. perditus*, n. sp., Tertiary, Bolivia, AMEGHINO, op. cit. p. 242.

HYSTRICIDÆ and ERETHIZONTIDÆ.

Atherura burrowsi, Congoland, THOMAS, Ann. Nat. Hist. (7) ix, p. 270, n. sp.

Coendou roberti, Parana, ix, p. 63, *simonsi*, Charuplaya, Bolivia, p. 141, *rothschildi*, Panama, x, p. 169, *mexicanus yucataniæ*, Yucatan, p. 170, THOMAS, Ann. Nat. Hist. (7), n. spp. & subsp.

DASYPROCTIDÆ and CAVIIDÆ.

Agouti paca virgatus, Chiriqui, BANGS, Bull. Mus. Harvard xxxix, p. 47, n. subsp.

Dasyprocta coibæ, Coiba Id., THOMAS, Nov. Zool. ix, p. 136, n. sp.

Cavia aperea, suprarenal capsules, MULON, C.R. Soc. Biol. 1902, p. 1310 ; anatomy, ALEZAIS, J. Anat. Physiol. xxxviii, pp. 259 & 624.

Kerodon niata pallidior, Pampa Aullaga, Bolivia, THOMAS, Ann. Nat. Hist. (7) ix, p. 229, n. subsp.

Hydrochoerus †*tarijensis*, Tertiary, Bolivia, AMEGHINO, An. Mus. Buenos Aires viii, p. 245, n. sp.

Dolichotis magellanicus centricola, Cordova, THOMAS, Ann. Nat. Hist. (7) ix, p. 242, n. subsp.

LEPORIDÆ and OCHOTONIDÆ.

Growth of incisors, NOÉ, C.R. Soc. Biol. liv, p. 531 ; nerves of testicle, CAVALIÉ, C.R. Soc. Biol. liv, p. 298.

Lepus †*primævus*, Tertiary, S. Germany, SCHLOSSER, Pal. Abh. ix, p. 134 ; *siamensis*, Siam, BONHOTE, P. Zool. Soc. London 1902, i, p. 40 ; *simplicicanus*, Texas, MILLER, P. Soc. Washington xv, p. 81 ; *whitakeri*, Tripoli, p. 12, pl. i, *fagani*, Lake Tsana, p. 315, THOMAS, P. Zool. Soc. London 1902, ii ; *rothschildi*, p. 444, *innesi*, p. 445, Egypt, DE WINTON, Nov. Zool. ix ; *arcticus canus*, Hudson Bay district, PREBLE, North Amer. Fauna No. 22, p. 59 : n. spp. & subspp. ; *europæus* (=*timidus*), pregnancy, HORNUNG, Zool. Garten xliii, p. 250.

Oryctolagus crassicaudatus nyikæ, Nyika Plateau, Nyasaland, p. 244, *c. curryi*, Orange River Colony, p. 245, THOMAS, Ann. Nat. Hist. (7) x, n. sp. & subsp.

†*Palæolagus*, N. American forms, MATTHEW, Bull. Amer. Mus. xvi, p. 306.

†*Myolagus zitteli*, Pleistocene, Eppelsheim, WITTICH, Centrbl. Mineral. 1902, p. 562.

†Mixodectidæ.

Characters and list of the Eocene group "*Proglires*," Osborn, Bull. Amer. Mus. xvi, p. 203.

Olbodotes, n. g. for *O. copei*, Eocene, N. America, n. sp., Osborn, t. c. p. 205.

Rodentia Incertæ sedis.

†*Otonomysops* (n. g.) *spiniferus*, p. 37, *Promysops* (n. g.) *acuminatus*, *primerius*, p. 38, *Cephalomys prorsus*, *Asteromys annectans*, p. 39, *Steiromys nectus*, *auriculus tabulatus*, p. 111, *segregatus*, *Eosteiromys* (n. g.) *homogenidens*, p. 112, *Protacaremys* (n. g.) *prior*, *avunculus*, *pulchellus*, *Protadelphomys* (n. g.) *latus*, p. 114, *Prospaniomys* (n. g.) *priscus*, p. 115, *Luanthus* (n. g.) *initialis*, p. 116, *Eoctodon* (n. g.) *securilatus*, p. 117, *Perimys dissimilis*, *incurvus*, *transversus*, p. 118, *incavatus*, *Palæocardia* (n. g.) *mater*, p. 119, Tertiary, Patagonia, Ameghino, Bol. Ac. Cordoba xvii, n. spp.

VI. *UNGULATA.*

Coloration, Lydekker, Field c, pp. 606, 637 & 687, Renshaw, Zoologist (4) vi, p. 361; lymphatics, Richter, Arch. mikr. Anat. lx, p. 469.

Artiodactyla.

Origin of horns and antlers, Gadow, P. Zool. Soc. London 1902, i, p. 206, Lankester, Trans. Zool. Soc. London xvi, p. 279 et seq., Wherry, Brit. Med. J. Sept. 1902; nerves, Krüger, Zeitschr. Biol. xliv, p. 28.

Bovidæ.

Horn-development, Dürst, Forsch. Geb. Landwirtschaft Fraunfeld (Kræmer's Festschrift) 1902, 47 pp., and Bull. Mus. Paris 1902, p. 197; Antelopes of Angola, Bocage, J. Sci. Lisb. (2) vi, p. 234.

Bos [*Bison*] *priscus*, prehistoric figures, Capitan & Breuil, C.R. Ac. Paris cxxxiv, p. 1536.

Ovis sairensis littledalei, Ili Valley, p. 82, n. subsp., *canadensis borealis*, figured, p. 84, pl. viii, Lydekker, P. Zool. Soc. London 1902, ii; *dalli kenaiensis*, Kenai Peninsula, Allen, Bull. Amer. Mus. xvi, p. 145, n. subsp.; *musimon* from Hungarian Prehistoric, Koch, Foldtani Kozl. xxxii, p. 346.

Capra vali, described, Rothschild, in Powell-Cotton's "Sporting Trip through Abyssinia," p. 478; *fasciata*, N. E. Altai, p. 623, *alaiana*, Alai, p. 624, Noack, Zool. Anz. xxv, n. spp.; *ægagrus*, figured, Sclater, P. Zool. Soc. London 1902, ii, p. 226; *falconeri megaceros*, figured, Lydekker, t. c. p. 323, pl. xxvii.

Ovibos moschatus, from Pleistocene of Dordogne, Harlé, Bull. Soc. geol. France (4) i, p. 455; *m. wardi*, note on, Nehring, Waidwerk in Wort und Bild, Nov. 15, p. 49; (†)*cavifrons* from Ohio, Hatcher, Science (2) xvi, p. 707.

Cephalophus nyasæ, Mlanje, Nyasaland, Ann. Nat. Hist. (7) ix, p. 58, n. sp., *sylvicultor* in E. Africa, P. Zool. Soc. London 1902, i, p. 1, Thomas.

Madoqua kirki hindei, British East Africa, Thomas, Ann. Nat. Hist. (7) x, p. 242, n. subsp.

Oryx beisa gallarum, Gallaland, NEUMANN, SB. Ges. naturf. Berlin 1902, p. 99, n. subsp.

Hippotragus (†)*cordieri*, from Egyptian Pliocene, ANDREWS, Geol. Mag. (4) ix, p. 437.

Addax nasomaculatus, seasonal coloration, RENSHAW, Zoologist (4) vi, p. 363, pl. ii.

Cervicapra redunca cottoni, Kordofan to Meroe, p. 470, *r. donaldsoni*, E. of Lado and W. Somaliland, p. 471, ROTHSCHILD, in POWELL-COTTON'S "Sporting Trip through Abyssinia;" *fulvorufula schoana*, Shoa, NEUMANN, SB. Ges. naturf. Berlin 1902, p. 99 : n. subspp.

Tragelaphus meneliki, Abyssinia, p. 93, *multicolor*, Hanash Valley, p. 95, *massaicus*, Masailand, p. 96, *dama*, Kavirondo, *nigrinotatus*, Barssa R., p. 97, NEUMANN, t. c. n. spp.

Böocercus, n. nom. for *Euryceros* Gray, 1850, nec Lesson, 1830, *B. euryceros isaaci*, British East Africa, n. subsp., THOMAS, Ann. Nat. Hist. (7) x, p. 309.

ANTILOCAPRIDÆ and GIRAFFIDÆ.

†*Capromeryx*, n. g. for *C. furcifer*, Pleistocene, Nebraska, n. sp., MATTHEW, Bull. Amer. Mus. xvi, p. 318.

Homology of horns of *Giraffidæ*, F. MAJOR, P. Zool. Soc. London 1902, ii, p. 72.

Helladotherium tigrinum, Semliki Forest, JOHNSTON, in CORNISH'S "Living Animals of the World," i, p. 270 (1890–1), n. nom.

Ocapia johnstoni, LANKESTER, Tr. Zool. Soc. London xvi, p. 279, F. MAJOR, La Belgique Coloniale, May 25, 1902, p. 244, June 8, p. 260, and Nov. 30, pp. 568–570, C.R. Zool. Congress 1902, p. 62, P. Zool. Soc. London 1902, ii, pp. 73 & 339, BOULENGER, t. c. p. 72, LAMEERE, Rev. Univ. Bruxelles 1902, 24 pp. ; *liebrechtsi*, Mundala, Congoland, F. MAJOR, P. Zool. Soc. London 1902, ii, p. 73, and La Belgique Coloniale, Nov. 9, pp. 532–534, n. sp. ; identified with *johnstoni* by LANKESTER, Ann. Nat. Hist. (7) x, p. 417, who proposes the new name *erikssoni* (p. 418) for *johnstoni*, Lank. 1902, nec Sclater, 1901.

CERVIDÆ.

North American, sporting account, ROOSEVELT & others (307); nomenclature of N. American, OSGOOD, P. Soc. Washington xv, p. 87, see also SCLATER & MILLER, infra ; coloration, LYDEKKER, Field c, p. 687 ; antlers of Brazilian species, GOELDI, Mem. Mus. Goeldi No. 3.

Rangifer tarandus, prehistoric figures, CAPITAN & BREUIL, C.R. Ac. Paris cxxxiv, p. 1536 ; laryngeal sac, LÖNNBERG, Anat. Anz. xxi, p. 467 ; *montanus*, note on, p. 156, *granti*, Alaska, p. 122, *osborni*, British Columbia, p. 149, *pearyi*, Ellesmere-land, p. 409, ALLEN, Bull. Amer. Mus. xvi ; *tarandus pearsoni*, Novaia Zemlia, LYDEKKER, P. Zool. Soc. London 1902, ii, p. 360 : n. spp. & subsp.

Paralces, n. nom. to replace *Alces* Jardine, nec *Alce* Blumenbach, ALLEN, Bull. Amer. Mus. xvi, p. 159.

Alces machlis, variation in antlers etc., LÖNNBERG, P. Zool. Soc. London 1902, ii, p. 352 ; distribution, LEVERKUS-LEVERKUSEN, Verh. Ver. Rheinland lviii, p. 11 ; spermatozoa, KOLSTER, Arch. mikr. Anat. lx, p. 100 ; *bedfordiæ*, E. Siberia, LYDEKKER, P. Zool. Soc. London 1902, i, p. 109, n. sp., see also ELWES, ibid. ii, p. 144, and ROTHSCHILD, p. 317.

Cervus †*suevicus*, Tertiary, S. Germany, SCHLOSSER, Pal. Abh. ix, p. 192 ; *merriami*, White Mts., Arizona, NELSON, Bull. Amer. Mus. xvi, p. 7 ; *wachei*, Zungaria, NOACK, Zool. Anz. xxv, p. 145 ; †*perculus*, Tertiary,

Bolivia, AMEGHINO, An. Mus. Buenos Aires viii, p. 251 : n. spp.; *canadensis bactrianus*, note on, LYDEKKER, P. Zool. Soc. London 1902, ii, p. 79; *hortulorum* (=*dybowskii*), habits, KÖHLER, Zool. Garten xliii, p. 78; *porcinus*, in Burma, EVANS, J. Bombay Soc. xiv, p. 310.

Dama, Zimmermann, adopted by ALLEN, Bull. Amer. Mus. xvi, p. 15, for Virginian Deer; rejected by SCLATER, Ann. Nat. Hist. (7) ix, p. 290, and MILLER, P. Soc. Washington xv, p. 39; *rothschildi*, Coiba Id., THOMAS, Nov. Zool. ix, p. 136, n. sp.

Xenelaphus bisulcus, habits, PRICHARD, P. Zool. Soc. London 1902, i, p. 272.

Hippocamelus (*Furcifer*) †*incognitus*, Tertiary, Bolivia, AMEGHINO, An. Mus. Buenos Aires viii, p. 250, n. sp.

TRAGULIDÆ, †HYPERTRAGULIDÆ and CAMELIDÆ.

Tragulus, synopsis of, STONE & REHN, P. Ac. Philad. 1902, p. 130; *pretiosus*, Linga Id., p. 144, *nigricollis*, Sinkep Id., p. 145, t. c.; *ravus*, Trong, Siam, p. 173, *borneanus*, Borneo, p. 174, P. Soc. Washington xv, MILLER, n. spp.

Characters of †*Leptomeryx*, †*Hypertragulus*, and †*Hypisodus*, MATTHEW, Bull. Amer. Mus. xvi, p. 313.

Lama huanacus, habits, PRICHARD, P. Zool. Soc. London 1902, i, p. 275.

†GELOCIDÆ and †ANTHRACOTHERIIDÆ.

Paragelocus, n. g. for *P. scotti*, Tertiary, S. Germany, n. sp., SCHLOSSER, Pal. Abh. ix, p. 179.

Pseudogelocus, n. g. for *P. suevicus*, Tertiary, S. Germany, n. sp., SCHLOSSER, l. c.

Ancodus gorringei, Eocene, Egypt, ANDREWS & BEADNELL, Cairo Survey Dept. 1902, p. 7, n. sp.

HIPPOPOTAMIDÆ, SUIDÆ and DICOTYLIDÆ.

Hippopotamus †*madagascariensis*, skeleton figured, pl. xii, †*melitensis*, Malta, p. 198, n. sp., phylogeny of family, l. c., F. MAJOR, Geol. Mag. (4) ix, and P. Zool. Soc. London 1902, i, p. 238, †*minutus*, osteology, ibid. ii, p. 107, pls. ix & x; †*hipponensis*, from Egyptian Pliocene, ANDREWS, Geol. Mag. (4) ix, p. 434.

Development of dentition in *Sus*, BILD, Anat. Anz. xx, p. 401.

Sus nicobaricus, Nicobar Ids., MILLER, P. U. S. Mus. xxiv, p. 755, n. sp.; (†) sp. from Egyptian Pliocene, ANDREWS, Geol. Mag. (4) ix, p. 436; (†) *erymanthius* in Italy, UGOLINI, Pr.-verb. Soc. Toscana xii, p. 27.

Phacochoerus, carpal callosities of, LECHE, Biol. Centrbl. xxii, p. 79.

Tayassu (=*Dicotyles*), its species and subspecies, ALLEN, Bull. Amer. Mus. xvi, p. 159; both *Tayassu* and *Dicotyles* stand, GILL, P. Soc. Washington xv, p. 38; *crusnigrum*, Chiriqui, BANGS, Bull. Mus. Harvard xxxix, p. 20, n. sp.

PERISSODACTYLA.

Classification of *Equidæ*, POCOCK, Ann. Nat. Hist. (7) x, p. 304.

Equus caballus in prehistoric times, MUNRO, Archæol. J. liv, p. 109; additional molar in, BRADLEY, J. Anat. Physiol. norm. path. xxxvi, p. 356; fossil in Swabia, FRAAS, Fundber. Schwaben x, p. 50; *przewalskii*, LYDEKKER, Nature lxv, p. 103, Field c, p. 680 (=*caballus*,

subsp.), NOACK, Zool. Anz. xxv, pp. 135 & 164, TICHOMIROW, ibid. p. 344, SALENSKY (312), SCLATER, P. Zool. Soc. London 1902, i, pl. xii; *quagga*, LORENZ, t. c. p. 32, *q. lorenzi* and *q. greyi*, LYDEKKER, Knowledge xxv, p. 221, n. subspp.; *burchelli*=*quagga*, subsp., POCOCK, Ann. Nat. Hist. (7) x, p. 306; *chapmani jallæ*, Erythræa, CAMERANO, Atti Acc. Torino xxxviii, p. 11, n. subsp.; *burchelli selousi*, etc., note on, NOACK, Zool. Anz. xxv, p. 627; *faurei*, S. Abyssinia, MATSCHIE, SB. Ges. naturf. Berlin 1898, pp. 169 & 180, n. subsp.=*grevyi faurei*, CAMERANO, op. cit. p. 7; *grevyi berberensis*, S. Somaliland, POCOCK, op. cit. p. 308, n. subsp.

†*Hipparion gracilis*, from Egyptian Pliocene, ANDREWS, Geol. Mag. (4) ix, p. 433.

Tapirus †*tarijensis*, Tertiary, Bolivia, AMEGHINO, An. Mus. Buenos Aires (3) i, p. 247, n. sp.

Rhinoceros †*hundsheimensis*, skeleton described, TOULA, Abh. geol. Reichsanst. xix, p. 1.

†*Diceratherium zitteli*, Tertiary, S. Germany, SCHLOSSER, Pal. Abh. ix, p. 224, n. sp.

†*Aceratherium bavaricum*, Upper Miocene, Bavaria, STROMER, Geognost. Jahresh. xv, p. 57, n. sp.

†*Lophiodon* teeth from Italian Eocene, OMBONI, Atti Ist. Veneto lxi, p. 189; structure of skull and foot, DEPÉRET, Bull. Soc. geol. France (4) ii, pp. 323 & 344, and C.R. Ac. Paris cxxxiv, p. 1278.

†*Titanotheriidæ*, milk-dentition, etc., HATCHER, Ann. Carnegie Mus. i, p. 256; characters and subdivisions of, OSBORN, Bull. Amer. Mus. xvi, p. 91.

†*Megacerops brachycephalus*, p. 97, *bicornutus*, p. 99, *marshi*, p. 100, Oligocene, N. America, OSBORN, t. c. n. spp.

†*Brontotherium leidyi*, Oligocene, N. America, OSBORN, t. c. p. 105, n. sp.

†*Carolibergia*, n. g. for *C. azulensis*, Pleistocene, Argentina, n. sp., MERCERAT, An. Mus. Buenos Aires vii, p. 1, pls. i–iii.

HYRACOIDEA.

†*Saghatherium*, n. sp. for *S. antiquum*, p. 5, *minus*, p. 7, Eocene, Egypt, ANDREWS & BEADNELL, Cairo Survey Dept. 1902, n. spp.

Procavia, dentition, ADLOFF, Zeitschr. Morphol. v, p. 181; *erlangeri*, Webbi Shebeli, p. 239, *thomasi*, Kaffaland, p. 240, SB. Ges. naturf. Berlin 1902, *ferruginea*, N. Abyssinia, *ruwenzorii*, Mt Ruwenzori, P. Zool. Soc. London 1902, ii, p. 143, NEUMANN, n. spp.

PROBOSCIDEA.

Phylogeny, AMEGHINO, An. Mus. Buenos Aires viii, p. 19; *Pyrotherium* regarded as the proximal ancestor, p. 223.

†*Arsinotherium*, n. g. for *A. zitteli*, Eocene, Egypt, n. sp., BEADNELL, Cairo Survey Dept. 1902, p. 1.

Elephas maximus, myology, BURNE, P. Anat. Soc. Gt. Britain 1902, p. lxii; racial distinctness of Cingalese form, CLARK, "Sport in Ceylon," ANON., Asian, July 19, p. 14; breeding in captivity, BEDDARD, P. Zool. Soc. London 1902, ii, p. 320; †*primigenius*, in Provence, REPELIN, C.R. Ac. Paris cxxx, p. 127, in Italy, PORTIS, Boll. Soc. geol. Ital. xxi, p. 93; exhumation of carcase in Siberia, HERZ (137); teeth from Staffordshire, WARD, Rep. North Staffordsh. Club xxxvi, p. 90; †*tragontherii* in Silesia, VOLZ, Centrbl. Mineral. 1902, p. 55, WUST, t. c. p. 183; †*antiquus*, abnormal molar, PORTIS, op. cit.

†*Mastodon borsoni* in Russia, PAVLOW, Ann. Geol. Russie v, pts. 2 & 3; *andium* in Peru, RAIMONDI, El Peru iv, p. 439.

†*Mœritherium gracile*, Tertiary, Fayum, Egypt, ANDREWS, Geol. Mag. (4) ix, p. 292, n. sp.

†Genus non-def., Tertiary, Japan, YOSHIWARA & IWASAKI, J. Univ. Tokyo xvi, Art. 6; see also OSBORN, Science (2) xvi, p. 713, where this form is provisionally identified with *Desmotylus*, Marsh.

UNGULATA INCERTÆ SEDIS.

†*Archæohyrax sulcidens*, *Acœlohyrax* (n. g.) *coronatus*, p. 12, *Eohyrax prærusticus*, *brachyodus*, p. 13, *Acœlodus proclivus*, *terminalis*, p. 14, *Interhippus* (n. g.) *deflexus*, p. 15, *Pleurystomus* (n. nom. for *Eurystomus* Roth, 1901, preoccupied), p. 16, *Prohyracotherium* (n. g.) *patagonicum*, p. 17, *matutinum*, *medialis*, p. 18, *Lophiodonticulus* (n. g.) *patagonicus*, *retroversus*, p. 19, *Didolodus colligatus*, p. 20, *Nephacodus* (n. g.) *latigonus*, *Distylophorus* (n. nom. for *Stylophorus* Roth, 1901, preoccupied), p. 21, *Selenoconus spiculatus*, p. 22, *Albertogaudrya regia*, *tersa*, p. 23, *Proplanodus* (n. g.) *adnepos*, p. 24, *Proasmodeus* (n. g.) *exauctus*, p. 26, *Thomashuxleya externa*, *principalis*, *Anisotemnus* (n. g. for *Isotemnus distentus*, 1901), p. 27, *Anisorhizus* (n. g.) *atriarius*, p. 29, *Porotemnus* (n. g.) *crassiramis*, *Maxschlosseria anatona*, p. 30, *Pleurostylodon sinuosus*, p. 31, *complanatus*, *Dimerostephanos* (n. g.) *coluehuapensis*, p. 32, *Notostylops chicoensis*, p. 33, *ampullaceus*, *aspectans*, *Tonostylops* (n. g.) *spissus*, p. 34, *Isostylops* (n. g.) *fretus*, *Orthogeniops* (n. nom. for *Orthogenium* Roth, 1901, preoccupied), *Pantostylops completus*, p. 35, *Entelostylops appresus*, p. 36, *Cochilius* (n. g.) *volvens*, *pendens*, p. 78, *columnifer*, p. 79, *Pachyrucus politus*, *Proadinotherium muensteri*, p. 80, *Pronesodon vates*, p. 82, *Argyrohippus* (n. g.) *boulei*, p. 85, *fraterculus*, p. 86, *Pseudhippus* (n. g.) *tournoueri*, p. 87, *Prolicaphrium* (n. g.) *specillatum*, *spectabile*, *festinum*, p. 89, *Prothoatherium* (n. g.) *lacerum*, *scamnatum*, p. 90, *Cramauchenia* (n. g.) *normalis*, *insolita*, p. 95, *Astrapotherium triangulidens*, *symmetrum*, p. 97, *Parastrapotherium ruderarium*, p. 100, *paucum*, p. 102, *Astrapothericulus* (n. g.) *læviusculus*, *minusculus*, p. 103, *Prochalicotherium* (n. g.) *patagonicum*, p. 104, *Diorotherium colhuepuense*, p. 136, *Leontinia tertiaria*, p. 107, *Colpodon distinctus*, p. 110, Tertiary, Patagonia, AMEGHINO, Bol. Ac. Cordoba xvii, n. spp.

VII. and VIII. *CETACEA* and *SIRENIA*.

Whaling in 1901, SOUTHWELL, Zoologist (4) v, p. 41; cranial asymmetry in *Odontoceti*, ABEL, Mem. Mus. Belgique ii, p. 178 and SB. Ak. Wien cxi, p. 1; eye, PÜTTER, Zool. Jahrb. Anat. xxvii, p. 99.

Balænoptera rostrata, young, BENHAM, Tr. N. Zealand Inst. xxxiv, p. 151.

Cogia breviceps, osteology, P. Zool. Soc. London 1902, i, p. 54, anatomy, Tr. N. Zealand Inst. xxxiv, p. 155, BENHAM.

Mesoplodon (*Dioplodon*), †sp., Pliocene, Tuscany, UGOLINI, Atti Soc. Toscana xviii, p. 10.

Globicephalus melas, in Mediterranean, CABRERA, Bol. Soc. espan. ii, p. 293.

Lagenorhynchus albirostris, in Dublin Bay, SCHARFF, Irish Natural. xi, p. 66.

†*Eurhinodelphis*, osteology, ABEL, Mem. Mus. Belgique ii, p. 101.

Delphinus and *Steno* from Pliocene of Tuscany, UGOLINI, Atti Soc. Toscana xviii, p. 16.

Phocæna communis, alimentary canal, HEPBURN & WATERSTON, Tr. R. Soc. Edinb. xl, p. 313; throat, BOENNINGHAUS, Zool. Jahrb. Anat. xxvii, p. 1.

†*Squalodon*, in Sicilian Tertiary, GEMMELLARO, Rend. Acc. Lincei xi, p. 3.
†*Eosiren*, n. g. for *E. libyca*, Tertiary, Fayum, Egypt, n. sp., ANDREWS, Geol. Mag. (4) ix, p. 293.
Manatus of Niger, GRATIOLET, Bull. Mus. Paris 1901, p. 248.

IX. and X. *EDENTATA* and *EFFODIENTIA*.

Distribution, PALACKY, SB. Bohmisch. Ges. 1901, art. 13; anatomy and development of *Bradypodidæ*, SIMON, Arch. Naturg. 1902, p. 239.

Cyclopes didactylus eva, N.-W. Ecuador, THOMAS, Ann. Nat. Hist. (7) x, p. 250, n. subsp.
†*Grypotherium*, contemporary with man, Arch. Anthrop. xxvii, p. 583, alleged survival of, Rev. Mus. La Plata x, p. 269, LEHMANN-NITSCHE; associated Mammals, ROTH, ibid. xi, p. 37; description, WOODWARD, in PRICHARD'S "Through Patagonia" (292A), p. 305.
†*Pseudolestodon tarijense*, Tertiary, Bolivia, AMEGHINO, An. Mus. Buenos Aires (3) i, p. 252, n. sp.
Dasypus vellerosus pannosus, Cordova, THOMAS, Ann. Nat. Hist. (7) ix, p. 244; †*tarijensis*, Tertiary, Bolivia, AMEGHINO, An. Mus. Buenos Aires (3) i, p. 256: n. subsp. & sp.
Cachicama, n. nom. for *Tatusia*, DUGÉS, Mem. Soc. Ant. Alzate xvii, p. 35; notes on *T. novemcincta*, DUGÉS, l. c.

EDENTATA VARIAE SEDIS.

†*Protobradys* (n. g.) *harmonicus*, p. 51, *Glyptatelus malaspinensis*, p. 52, *fractus*, *Lomophorelus* (n. g.) *depstus*, p. 53, *Palæopeltis tessaratus*, *Machlydotherium* (n. g.) *asperum*, p. 54, *ater*, *intortum*, p. 55, *sparsus*, *Meteutatus* (n. g.) *attonsus*, *rigidus*, *percarinatus*, p. 57, *concavus*, *anthinus*, *lucidus*, *Archaeutatus* (n. g.) *malaspinensis*, p. 58, *Amblytatus* (n. g.) *pandus*, *areolatus*, *Pseudeutatus* (n. g.) *clypeus*, p. 59, *Anteutatus* (n. g.) *lenis*, *lævus*, p. 60, *Utaetus* (n. g.) *buccatus*, *argos*, *laxus*, p. 61, *deustus*, *Posteutatus* (n. g.) *indentatus*, p. 62, *scabridus*, *indemnis*, p. 63, *Parutaetus* (n. g.) *chicoensis*, *clusus*, *signatus*, p. 64, *Orthutaetus* (n. g.) *crenulatus*, *clavatus*, p. 65, *Coelutaetus* (n. g.) *cribellatus*, *Sadypus* (n. g.) *confluens*, *ascendens*, p. 66, *nepotulus*, *Isutaetus* (n. g.) *depictus*, *petrinus*, *Hemiutaetus* (n. g.), p. 67, *Anutaetus* (n. g.) *circundatus*, *turtuosus*, *tenuissimus*, p. 67, *Pachyzaedyus* (n. g.) *cuneiformis*, *Astegotherium* (n. g.) *dichotomus*, p. 69, *Pseudostegotherium* (n. g.) *chubutanum*, p. 70, *Prostegotherium* (n. g.) *notostylopianum*, *astrifer*, p. 71, *Proschismotherium* (n. g.) *oppositum*, p. 132, *Hapaloides* (n. g.) *ignavus*, p. 133, *ponderosus*, *læviusculus*, p. 134, *Propalæhoplophorus bilineatus*, p. 135, *Proeutatus postpuntum*, p. 136, *Prodasypus centralis*, *Prozædius humilis*, p. 137, *Stegotherium variegatum*, p. 138, *Pseudostegotherium* (n. g.) *glangeaudi*, p. 139, *Peltephilus granosus*, *Peltecoelus* (n. g.) *prælucens*, p. 140, Tertiary, Patagonia, AMEGHINO, Bol. Ac. Cordoba xvii, n. spp.

XI. *MARSUPIALIA*.

Heat-formation and respiratory exchange, MARTIN, Phil. Trans. B. cxcv, p. 1; digestive adaptations, LÖNNBERG, P. Zool. Soc. London 1902, i, p. 12; cerebral commissures, SMITH, P. R. Soc. London 1902, p. 226; functional dentition not the deciduous series, TIMS, J. Anat. Physiol. norm. path. xxxvi, p. 321; relation of to Creodonts, WORTMAN, Amer.

J. Sci. (4) xiii, p. 39, xiv, p. 22; distribution, PALACKY, SB. Bohmisch. Ges. 1902, art. 17; histology of spermatozoa, KORFF, Arch. mikr. Anat. lx, p. 233; Meckelian distinct from mylohyoid groove, BENSLEY, Toronto Stud. Biol. No. 3.

Macropus, pelvic limb, ALEZAIS, Ann. Mus. Marseille vii, p. 131; development of mammæ, BRESSLAU, Zeitschr. Morphol. iv, p. 260.

†*Diprotodon*, its distinction from †*Pyrotherium*, AMEGHINO, An. Mus. Buenos Aires viii, p. 223.

Shoulder-girdle of *Dasyurus* and *Perameles*, BROOM, J. Linn. Soc., Zool. xxviii, p. 449.

Sminthopsis crassicaudata centralis, Central S. Australia, THOMAS, Ann. Nat. Hist. (7) x, p. 492, n. subsp.

Didelphys marsupialis insularis, Trinidad, p. 259, *m. etensis*, Piura, Peru, p. 262, *paraguayensis andina*, Ecuador, p. 272, *p. meridensis*, Merida, Venezuela, p. 274, J. A. ALLEN, Bull. Amer. Mus. xvi; *m. battyi*, Coiba Id., THOMAS, Nov. Zool. ix, p. 137 : n. subspp.

Marmosa elegans venusta, Peru and N. Bolivia, *e. pallidior*, Challapata, Bolivia, *e. cinderella*, Tucuman, THOMAS, Ann. Nat. Hist. (7) x, p. 159, n. subspp.

MARSUPIALIA (?) INCERTÆ SEDIS.

Polydolops serra, *fur*, *crassus*, p. 41, *clavulus*, *Pseudolops* (n. g.) *princeps*, p. 42, *Pliodolops* (n. g.) *primulus*, p. 43, *Amphidolops* (n. g.) *serrula*, *serrifer*, p. 44, *Parabderites minusculus*, *Ideodelphis* (n. g.) *microscopicus*, p. 45, *Arminiheringia* (n. g.) *auceta*, p. 46, *cultrata*, *Dilestes* (n. g.) *dilobus*, *Procladosictis* (n. g.) *anomala*, p. 48, *erecta*, *Pseudocladosictis* (n. g.) *determinabile*, p. 49, *Argyrolestes* (n. g.) *peralestinus*, *Nemolestes* (n. g.) *spalacotherinus*, p. 50, *Eomannodon* (n. g.) *multituberculatus*, p. 121, *Abderites crispus*, *crispulus*, p. 122, *Parabderites* (n. g.) *bicrispatus*, p. 123, *invelatus*, p. 124, *Palæpanorthus* (n. g.) *primus*, *Pachybiotherium* (n. g.) *acclinum*, p. 125, *Oligobiotherium* (n. g.) *divisus*, p. 126, *Pseudoborhyæna* (n. g.) *macrodonta*, p. 127, *Pseudothylacinus* (n. g.) *rectus*, p. 129, *Cladosictis centralis*, p. 130, *externa*, p. 131, Tertiary, Patagonia, AMEGHINO, Bol. Ac. Cordoba xvii, n. spp.

†*Ptilodus primævus*, Tertiary, N.-W. Canada, LAMBE, Contr. Canad. Pal. iii, Pt. 2, p. 79, n. sp.; *Boreodon*, n. g. for *B. matutinus*, n. sp., N.-W. Canada, LAMBE, l. c.

XII. *MONOTREMATA* and †*MULTITUBERCULATA*.

Heat-formation and respiratory exchange, MARTIN, Phil. Trans. B. cxcv, p. 1; muzzle of foetus, WILSON, P. Linn. Soc. N. S. Wales 1901, p. 717; urinogenital canal, KEIBEL, Anat. Anz. xxii, p. 301.

III. AVES.

BY

R. Bowdler Sharpe, LL.D., &c.

CONTENTS.

Page

I. Titles 2

II. Subject Index.

Faunistic 36
Anatomy & Miscellaneous . 36

III. Systematic—

Ratitæ.
Rheiformes 37
Casuariiformes 37
Æpyornithiformes . . . 37

Carinatæ.
Tinamiformes 37
Galliformes 37
Pteroclidiformes 38
Columbiformes 39
Ralliformes 39
Podicipedidiformes . . . 40
Colymbiformes 40
Sphenisciformes 40
Procellariiformes 41
Alciformes 41
Lariformes 41
Charadriiformes 42
Gruiformes 43
Ardeiformes 43
Phœnicopteriformes . . . 43
Anseriformes 43
Pelecaniformes 45
Cathartidiformes 45
Accipitriformes 45
Strigiformes 46
Psittaciformes 47
Coraciiformes 48
Trogones 50
Coccyges 50
Scansores 51

Passeriformes.
Pteroptochidæ 52
Formicariidæ 53

Page

Passeriformes (*continued*).
Dendrocolaptidæ . . . 53
Tyrannidæ 54
Pipridæ 55
Cotingidæ 55
Pittidæ 55
Hirundinidæ 55
Muscicapidæ 56
Campophagidæ . . . 57
Pycnonotidæ 57
Timeliidæ 57
Troglodytidæ 58
Cinclidæ 59
Mimidæ 59
Turdidæ 59
Sylviidæ 61
Vireonidæ 62
Ampelidæ 62
Artamidæ 62
Prionopidæ 62
Laniidæ 62
Paridæ 63
Sittidæ 63
Certhiidæ 64
Zosteropidæ 64
Dicæidæ 64
Nectariniidæ 64
Meliphagidæ 64
Mniotiltidæ 64
Motacillidæ 65
Alaudidæ 65
Fringillidæ 67
Cærebidæ 69
Tanagridæ 69
Ploceidæ 69
Icteridæ 70
Eulabetidæ 70
Sturnidæ 70
Ptilonorhynchidæ . . 71
Paradiseidæ 71
Corvidæ 71

INTRODUCTION.

PERHAPS the chief feature of the progress made in Ornithology during the year 1902, has been the increase in our knowledge of African birds, the works of Professor REICHENOW and Captain SHELLEY having been considerably advanced. Some important papers on anatomy and osteology have also been published. Mr Charles Chubb, as on former occasions, has rendered me very material assistance in the compilation of the present Record.

I. TITLES.*

1. ALDERSON, R. Nesting of the Orange-cheeked Waxbill (*Sporæginthus melpodus*). Avicult. Mag. viii, pp. 65–70. [*Ploceidæ.*]

2. ——. Nesting of Californian Quails (*Lophortyx californicus*). T. c. pp. 136–140 cum fig. [*Galliformes.*]

3. ALEXANDER, BOYD. On the Birds of the Gold Coast Colony and its Hinterland. Ibis 1902, pp. 278–333, 355–377, pls. vii, viii, ix. [*Certhiidæ, Sylviidæ, Caprimulgi, Indicatores, Strigiformes.*]

4. ALLEN, G. M. The Lapland Longspur (*Calcarius lapponicus*) wintering in Massachusetts. Auk xix, pp. 202 & 203. [*Fringillidæ.*]

5. ALLEN, J. A. The American and European Herring Gulls (*Larus smithsonianus* and *L. argentatus*). Auk xix, pp. 283 & 284. [*Lariformes.*]

6. ——. The name of the Zenaida Dove. T. c. pp. 287 & 288. [*Columbiformes.*]

7. ANDERSEN, K. Meddelelser om Færøernes Fugle. Vid. Medd. 1902, pp. 325–365.

[ANDERSON, J.] Obituary. Auk xix, p. 118.

8. ANGELO, G. Note sull' Avifauna della Svizzera Italiana. Avicula vi, pp. 105–108, 137–139.

9. APLIN, O. V. On the Eared Grebe (*Podicipes nigricollis*) probably breeding in Oxfordshire. Ibis 1902, pp. 165 & 166. [*Podicipedidiformes.*]

10. ——. The birds of Bardsey Island, with additional notes on the birds of Lleyn. Zoologist 1902, pp. 8–17, 107–110. [*Laniidæ.*]

11. ARMITT, M. L. The birds of Rydal. Naturalist 1902, pp. 237–256.

12. ARRIGHI-GRIFFOLI, G. Note ed appunti di un cacciatore sui nostri Uccelli migratori. Parte secunda. Avicula vi, pp. 40–44, 130–133, 145–160. [*Sturnidæ.*]

13. ARRIGONI DEGLI ODDI, E. Atlante Ornitologico. Uccelli Europei con notizie d' Indole generale et particolare. Milano, 4to, 1902, xx, 166, xxvi, 568 pp., 50 coloured plates.

14. ——. Remarks on Audouin's Gull (*Larus audouinii*). Ibis 1902, pp. 491–499. [*Lariformes.*]

---

* An asterisk prefixed to a quotation indicates that the recorder has not seen the Paper or Work referred to.

15. [Arrigoni degli Oddi, E.] Note on *Larus audouinii*, its eggs and nestlings. T. c. pp. 672 & 673. [*Lariformes.*]

16. ——. Nota sopre alcune nuove sottospecie osservate negli Uccelli di Sardegna. Avicula vi, pp. 102–105. [*Pici, Hirundinidæ, Sylviidæ, Fringillidæ.*]

16a. *Bailey, F. M. Handbook of Birds of the Western United States. 8vo, 1902, pls. 33.

17. Baker, E. C. Stuart. A correction. J. Bombay Soc. xiv, p. 626. [*Timeliidæ.*]

18. ——. Occurrence of the Mandarin Duck in India (*Æx galericulata*). T. c. pp. 626 & 627. [*Anseriformes.*]

——. Indian Ducks and their allies. T. c. pp. 660–665.

19. Backhouse, J. Preliminary catalogue of the British Bird Collections in the possession of the Yorkshire Philosophical Society. Part iii. Rep. Yorksh. Soc. 1902, pp. 33–62.

20. Ballowitz, E. Über das Vorkommen der *Sterna caspia* bei Peenemünde auf Usedom. Ornith. Monber. x, pp. 4 & 5. [*Lariformes.*]

21. Bangs, O. A new Long-billed Marsh Wren from Eastern North America. Auk xix, pp. 349–353. [*Troglodytidæ.*]

21a. ——. Descriptions of ten new birds from the Santa Marta region of of Colombia. P. New England Zool. Club iii, pp. 81–90. [*Caprimulgi, Pici, Dendrocolaptidæ, Tyrannidæ, Troglodytidæ, Tanagridæ, Fringillidæ.*]

21b. ——. Description of a new Thrush from Chiriqui. T. c. pp. 91 & 92.

22. Bau, A. Ist der Kuckuck nützlich? Ornith. Jahrb. xiii, pp. 61–65. [*Cuculi.*]

23. Beck, R. H. [Return from his expedition to the Galapagos] Bull. B. O. C. xiii, p. 7.

24. Beddard, F. E. On the syrinx and other points in the structure of *Hierococcyx* and some allied genera of Cuckoos. Ibis 1902, pp. 599–608. [*Cuculi.*]

25. ——. Notes upon the osteology of *Aramus scolopaceus*. T. c. pp. 33–54. [*Gruiformes.*]

26. ——. On the windpipe and heart of the Condor (*Sarcorhamphus gryphus*). P. Zool. Soc. London 1902, i, pp. 239–247, text-figg. 29–32. [*Cathartidiformes.*]

27. Bell, T. R. Notes on the habits of *Rallina superciliaris* Sharpe, and *Gorsachius melanolophus* Blyth. J. Bombay Soc. xiv, pp. 393–395. [*Ralliformes, Ardeiformes.*]

28. Bent, A. C. Nesting habits of the *Anatidæ* in North Dakota. Auk xix, pp. 1–12, 165–174, pls. ii–vi. [*Anseriformes.*]

29. ——. Rare Ducks in Massachusetts. T. c. p. 196. [*Anseriformes.*]

30. Berge, R. Die Vogelsiedlung des Neusatzer Riedes in Ungarn. J. Ornith. 1902, pp. 87–91.

31. ——. Die Falknerei am Dresdner Hofe. Ornith. Monber. x, pp. 117–126.

31a. ——. Die Vögel der Umgegend von Zwickau. Jahresber. Ver. Zwickau 1896, pp. 1–83.

31B. [Berge, R.] Ornithologische Beobachtungen aus dem westlichen Sachsen. Jahresber. Ver. Zwickau 1900, pp. 19–22.

32. Berlepsch, Hans Freiherr von. Ueber *Erythacus cairii*. J. Ornith. 1902, p. 123. [*Turdidæ*]; id. Verh. v. Intern. Zool. Congr. 1902, p. 547.

32A. Berlepsch, Hans Graf von. Mitteilungen über neue und seltene südamerikanische Vögel. Verh. v. Intern. Zool. Congr. 1902, pp. 548–550. [*Tinamiformes.*]

33. ——. Beschreibung zweier neuer Drosselformen aus Südamerika. Ornith. Monber. x, pp. 69–71. [*Turdidæ.*]

34. —— & Hartert, E. On the Birds of the Orinoco region. Nov. Zool. ix, pp. 1–135, pl. xii. [*Columbiformes, Lariformes, Ardeiformes, Cathartidiformes, Strigiformes, Coraciiformes, Trogones, Trochili, Cuculi, Pici, Scansores, Formicariidæ, Dendrocolaptidæ, Cotingidæ, Tyrannidæ, Pipridæ, Muscicapidæ, Troglodytidæ, Mniotiltidæ, Cærebidæ, Vireonidæ, Tanagridæ, Fringillidæ.*]

35. —— & Stolzmann, J. On the ornithological researches of M. Jean Kalinowski in Central Peru. P. Zool. Soc. London 1902, ii, pp. 18–60, Part II. (continued from P. Z. S. 1896, p. 388). Notes relatives à la première partie de cet article, pp. 55–57. [*Trochili, Pici, Momoti, Buccones, Galliformes, Ralliformes, Gruiformes, Charadriiformes, Troglodytidæ.*]

36. Betham, R. M. Birds' nesting round Poona and elsewhere. J. Bombay Soc. xiv, pp. 143–145, 396–400.

38. ——. Birds' nesting at Ootacamund. T. c. pp. 620–624.

39. Bianchi, V. Matériaux pour servir à l'ornithofaune du gouvernement d'Akmolinsk. Annuaire Mus. St. Petersb. vii, pp. 10–30.

40. ——. Catalogue of the known species of the *Paridæ* or the family of Tits. T. c. pp. 235–262. [*Paridæ.*]

41. ——. Matériaux ornithologiques de l'expédition pour l'exploration scientifique et industrielle du Mourmane 1899–1901. T. c. pp. 263–273.

42. ——. Zoologische Ergebnisse der russischen Expeditionen nach Spitzbergen. T. c. pp. 305–334.

43. ——. Fundorte der vögel, die durch die Herren N. A. Dmitriew und A. W. Kachowski in den Jahren 1898–1899 in Nordwest-Afrika gesammelt wurden. Annuaire Mus. St. Petersb. vii, pp. 425–434.

44. ——. The generic name *Sittiparus*. Bull. B. O. C. xii, p. 55. [*Paridæ, Timeliidæ.*]

45. Bickerton, W. Notes on birds observed in Hertfordshire during the year 1901. Tr. Hertfordsh. Soc. xi, pp. 142–144. [*Sylviidæ.*]

46. Bidwell, E. On the occurrence of *Muscicapa parva* in migration at the Casquets. Bull. B. O. C. xii, p. 83. [*Muscicapidæ.*]

47. Bigelow, H. B. Birds of the north-eastern coast of Labrador. Auk xix, pp. 24–31.

48. Blain, A. W. Michigan bird notes, 1901. Auk xix, pp. 209 & 210.

49. Blaithwaite, C. The Little Bunting (*Emberiza pusilla*) at Durham. Zoologist 1902, p. 466. [*Fringillidæ.*]

49A. Blath, Dr. Notizen des Freiherrn Ludwig von Minnigerode zu Bockelnhagen (Südharz) über die von ihm gefangen gehaltenen und über die in der Umgegund von Bockelnhagen vorkommen den Vögel umfassend die Jahre 1840–1893. Jahresber. Ver. Magdeburg 1898–1900, pp. 35–72.

50. Blathwayt, F. L. The Roseate Tern on the Farne islands. Zoologist 1902, pp. 53 & 54. [*Lariformes.*]

51. ——. The White Wagtail (*Motacilla alba*) on the Somersetshire coast. Zoologist 1902, pp. 464 & 465. [*Motacillidæ.*]

52. Bond, F. Eastern Bluebird (*Sialia sialis*) at Cheyenne, Wyoming. Auk xix, p. 209. [*Turdidæ.*]

53. Bonhote, J. L. On the occurrence of *Acrocephalus aquaticus* in Sussex. Bull. B. O. C. xiii, p. 13. [*Sylviidæ.*]

54. ——. On the Great Bustard (*Otis tarda*) in Cambridgeshire. T. c. pp. 13 & 14. [*Charadriiformes.*]

55. ——. On the nesting of the Scarlet Flamingo in the Bahamas. Bull. B. O. C. xii, p. 83. [*Phœnicopteriformes.*]

56. ——. On the breeding of the Spotted Eagle Owl (*Bubo maculosus*). Avicult. Mag. viii, pp. 39–42, pls. c & c*. [*Strigiformes.*]

57. ——. Field notes on some Bahama birds. Avicult. Mag. viii, pp. 278–285: id. (2) i, pp. 19–24.

58. Bowdish, B. S. Birds of Porto Rico. Auk xix, pp. 356–366. [*Strigiformes.*]

59. Bowles, C. W. Notes on the Black-throated Gray Warbler (*Dendroica nigrescens*). Condor iv, pp. 82–85. [*Mniotiltidæ.*]

60. Braislin, W. C. Notes concerning certain birds of Long Island. Auk xix, pp. 145–149.

61. Braun, F. Ornithologisches aus Konstantinopel. Ornith. Monber. x, pp. 6 & 7, 128–130.

62. ——. Erfahrungen an gefangenen Ammern und anderes. T. c. pp. 19–22. [*Fringillidæ.*]

63. ——. *Fringilla cannabina*, ein biologisches Problem. T. c. pp. 72–76. [*Fringillidæ.*]

64. Brewster, W. An undescribed form of the Black Duck (*Anas obscura*). Auk xix, pp. 183–188. [*Anseriformes.*]

65. ——. Birds of the Cape region of Lower California. Bull. Mus. Harvard xli, pp. 1–241, with map.

66. Broadbent, K. Field-notes on the Birds of Bellenden-Ker, Queensland. Ibis 1902, pp. 377–386.

67. Brock, H. H. The Yellow-crowned Night Heron (*Nycticorax violaceus*) at Portland, Maine. Auk xix, p. 285. [*Ardeiformes.*]

68. Brusina, S. Arrigoni degli Oddi's 'Atlante Ornitologico.' J. Ornith. 1902, pp. 458–472. [*Pelecaniformes.*]

69. ——. L' atlante Ornitologico del Prof. E. Arrigoni degli Oddi [Review]. Avicula vi, pp. 89–100.

70. ——. Zur Ornis Serbiens. Aquila ix, pp. 159–164.

71. Brown, H. Unusual abundance of Lewis's Woodpecker (*Asyndesmus torquatus*) near Tucson, Arizona. Auk xix, pp. 80–83. [*Pici.*]

72. Buckley, T. E. The Stock Dove (*Columba œnas*) in Caithness. Ann. Scott. Nat. Hist. 1902, p. 53. [*Columbiformes.*]

73. ——. Osprey (*Pandion haliaetus*) in the Outer Hebrides. T. c. p. 184. [*Accipitriformes.*]

74. Bucknill, J. A. Ornithological notes from Surrey. Zoologist 1902, pp. 223–231, 305–312.

75. Burckhardt, R. Das problem des antarktischen Schöpfungscentrums vom Standpunkt der Ornithologie. Zool. Jahrb. Syst. xv, pp. 499–536.

76. Burg, G. von. Neue Vögel der Schweitz. Ornith. Monber. x, p. 38. [*Accipitriformes, Fringillidæ, Alaudidæ.*]

77. Butler, A. G. On the changes of plumage and variations thereof in *Poephila gouldiæ.* Ibis 1902, pp. 674–676. [*Ploceidæ.*]

78. ——. Avicultural experiences during about twenty years of study of birds in captivity. Zoologist 1902, pp. 241–260.

79. ——. The Brazilian Hang-nest (*Icterus jamacaii*). Avicult. Mag. viii, pp. 293–295. [*Icteridæ.*]

80. Butterfield, E. P. Lesser Redpoll (*Linota rufescens*) breeding in Yorkshire. Zoologist 1902, pp. 193 & 194. [*Fringillidæ.*]

81. Butterfield, W. R. On the occurrence of *Plegadis falcinellus* in Sussex. Bull. B. O. C. xiii, pp. 25 & 26. [*Plataleidæ.*]

82. ——. On *Saxicola caterinæ* in Sussex. Op. cit. xii, p. 78. [*Turdidæ.*]

83. Buxton, C. S. Wood Sandpiper (*Rhyacophilus glareola*) in the Orkney Islands. Zoologist 1902, p. 391. [*Charadriiformes.*]

84. Cambridge, F. P. Birds in the valley of the Namsen. Zoologist 1902, pp. 352 & 353.

84a. Campbell, A. J. Notes on certain *Maluri*, with a description of a new species. Emu i, pp. 65–67, pl. vi. [*Sylviidæ.*]

84b. ——. Birds of North-Eastern Victoria. Op. cit. ii, pp. 9–18.

84c. ——. Description of a new *Micrœca* from Northern Australia. T. c. p. 85. [*Muscicapidæ.*]

84d. ——. Report on Mutton-bird (*Puffinus tenuirostris*) Rookeries, Philip Island. T. c. pp. 42–44. [*Procellariiformes.*]

85. Campbell, B. The birds of Ballinluig, Blair Atholl, and Fossoway. Tr. Edinb. Field Soc. iv, pp. 277–282, pls. xxviii & xxix.

86. Campbell, C. The Starling roost on Cramond Island. Ann. Scott. Nat. Hist. 1902, pp. 2–9. [*Sturnidæ.*]

86a. Capellini, G. Di un uovo di Æpyornis nel Museo di Storia Naturale di Cione e di altre uova e ossa fossili dello stesso Uccello. Mem. Acc. Bologna (5) viii, pp. 139–153. [1900]. [*Æpyornithiformes.*]

86b. Carter, T. North-Western Notes. Emu i, pp. 56 & 57, 126–128. Op. cit. ii, pp. 104 & 105.

86c. ——. Exploration of the North-West Cape. Op. cit. ii, pp. 77–84.

87. Cartolabi, G. Cattura di specie rare ad avventizie. Avicula vi, pp. 27 & 28. [*Accentoridæ.*]

88. Cecilia, P. L' *Acredula sicula*, Whitaker. Avicula vi, pp. 3–5. [*Paridæ.*]

89. Chapman, Abel. On White-necked Ruffs. Ibis 1902, pp. 676 & 677. [*Charadriiformes.*]

90. Chapman, F. M. A hybrid between the Cliff and Tree Swallows. Auk xix, pp. 392–394. [*Hirundinidæ.*]

91. ——. List of birds collected in Alaska by the Andrew J. Stone Expedition of 1901. Bull. Amer. Mus. xvi, pp. 231–241. [*Galliformes, Paridæ, Corvidæ.*]

92. Chapman, Jack. On the birds of the Black Sea. Ibis 1902, p. 529. [*Accipitriformes.*]

93. Cherrie, G. K. Bird notes from Long Island, N. Y. Auk xix, p. 210.

94. Christoleit, E. Gefiederte Wintergäste im Hafen von Memel im Winter 1900–1901. J. Ornith. 1902, pp. 290–331.

95. Chubb, C. A tentative list of the birds of the Uganda Protectorate. Johnston's Uganda Protectorate i, pp. 425–444.

96. Clark, A. H. The birds of Margarita Island, Venezuela. Auk xix, pp. 258–267. [*Dendrocolaptidæ, Icteridæ.*]

97. *Clark, E. B. Birds of Lakeside and Prairie. Chicago and New York, 1902, 4to, 150 pp., pls. 16.

98. Clark, J. N. Nesting of the Great Carolina Wren (*Thryothorus ludovicianus*) in Connecticut. Auk xix, pp. 90 & 91. [*Troglodytidæ.*]

99. Clarke, W. E. A month on the Eddystone. A Study in Bird-migration. Ibis 1902, pp. 246–269. [*Sturnidæ.*]

100. ——. On the occurrence of *Phylloscopus viridanus* on Suleskerry. Bull. B. O. C. xiii, p. 12. [*Sylviidæ.*]

101. ——. Further occurrence of Greenland Redpolls in Barra, Outer Hebrides. Ann. Scott. Nat. Hist. 1902, p. 118. [*Fringillidæ.*]

102. ——. Wheatear capturing a moth on the wing. T. c. p. 118. [*Turdidæ.*]

103. ——. Common Tern nesting in the Shetland Islands. T. c. p. 121. [*Lariformes.*]

104. —— & Nelson, T. H. The birds of Yorkshire. Tr. Yorksh. Union, Pt. 24, pp. 81–112.

Clodius, G. [See Wüstnei, G. (619a).]

105. Coburn, F. On some species of *Anser*. Bull. B. O. C. xii, pp. 80 & 81. [*Anseriformes.*]

106. ——. Holböell's Redpoll in Ireland (*Cannabina holboelli*). Zoologist 1902, p. 278. [*Fringillidæ.*]

107. ——. Grey Plover (*Squatarola helvetica*) in Birmingham. T. c. p. 280. [*Charadriiformes.*]

108. ——. On the specific validity of *Anser gambeli* (Hartlaub), and its position as a British bird. T. c. pp. 337–351. [*Anseriformes.*]

109. ——. On a lost British Wild Goose, *Anser paludosus* (Strickland). T. c. pp. 441–448, pl. iii. [*Anseriformes.*]

110. Corbin, G. B. Migration of Jays (*Garrulus glandarius*). Zoologist 1902, pp. 434 & 435. [*Corvidæ.*]

111. Cory, C. P. Some further notes on the Narcondam Hornbill (*Rhytidoceros narcondami*). J. Bombay Soc. xiv, p. 372 cum tab. [*Bucerotes.*]

112. Costello, J. S. The Indian Pariah Kite (*Milvus govinda*) a record of observations made during the nesting period. Zoologist 1902, pp. 460–463. [*Accipitriformes.*]

113. Coward, T. A. & Oldham, C. Notes on the birds of Anglesea. Zoologist 1902, pp. 401–415.

114. Cox, A. H. Machell. The domestic economy of the Thrush (*Turdus musicus*). Knowledge xxv, pp. 269 & 270. [*Turdidæ.*]

115. Cox, U. O. The Pileated Woodpecker (*Ceophlœus pileatus*) in Minnesota. Auk xix, pp. 288 & 289, pl. x. [*Pici.*]

Craddock, W. H. [See Thompson, H. N. (572).]

116. Csörgey, T. Spalato's Winterornis. Aquila ix, pp. 155–158.

117. Cummings, S. G. Red-backed Shrike (*Lanius collurio*) in Anglesea. Zoologist 1902, pp. 433 & 434. [*Laniidæ.*]

117a. Dabbene, R. Fauna Magellánica.—Mamiferos y aves de la Tierra del Fuego ê islas adyacentes. An. Mus. Buenos Aires (3) i, Aves, pp. 351–405.

[D'Albertis, L. M.] Obituary. Ibis 1902, p. 176.

118. Dalgleish, G. Rare birds in Surrey. Zoologist 1902, p. 32. [*Anseriformes, Ardeiformes, Procellariiformes.*]

119. ——. Birds collected and observed in the Darbhanga district, Tirhoot, Bengal. T. c. pp. 201–215, 384–389, 449–454. [*Strigiformes.*]

119a. Damiani, G. *Turdus swainsoni* Cab. (subsp. *Turdus aliciæ* Baird) all' isola d' Elba. Atti Soc. Ligustica xii, pp. 184–191. [*Turdidæ.*]

120. Daniel, J. W. Summer birds of the Great Dismal Swamp. Auk xix, pp. 15–18.

[David, A. A.] Obituary. Auk xix, pp. 118 & 119.

121. Deane, R. Second record of the Purple Gallinule (*Ionornis martinica*) in Illinois. Auk xix, p. 77. [*Ralliformes.*]

122. ——. Unusual abundance of the Snowy Owl (*Nyctea nyctea*) in New England and Canada. T. c. pp. 271–283. [*Strigiformes.*]

123. Deditius, K. Zur Höhe des Wanderfluges der Vögel. Ornith. Monber. x, pp. 17–19.

124. ——. Beiträge zur Akustik des Stimmorgans der Sperlingsvögel. J. Ornith. 1902, pp. 101–113.

[Doherty, W.] Obituary. Ibis 1902, pp. 175 & 176.

125. D'Hollander, F. Le noyau vitellin de Balbiani et les pseudochromosomes chez les Oiseaux. Anat. Anz. Bd. xxi, Erganz. pp. 168–172.

125a. Dinnik, N. J. Die Oberlaufe der Kleinen Laba und Msymta. Zapiski Kaukas. Russk. Geogr. Obshch. xx, 1902.
Summary in Zool. Centrlbl. 1902, p. 605.

126. Donald, C. H. Birds of Prey. J. Bombay Soc. xiv, pp. 174–176.

127. ——. Identification of Accipitrine birds. T. c. pp. 588–594, 805–813. [*Accipitriformes.*]

128. Dresser, H. E. On some rare Palæarctic Birds' Eggs. Ibis 1902, pp. 177–180, pl. vi. [*Charadriiformes.*]

129. [Dresser, H. E.] On *Emberiza erythrogenys* Brehm. T. c. p. 352. [*Fringillidæ.*]

130. ——. On a new Pheasant from Japan. T. c. pp. 656 & 657. [*Galliformes.*]

131. ——. Exhibition of eggs of rare Palæarctic birds. Bull. B. O. C. xii, p. 83.

132. Dutcher, W. Results of special protection to Gulls and Terns obtained through the Thayer fund. Auk xix, pp. 34–64, pl. i. [*Lariformes.*]

133. Dwight, J. Individual, seasonal, and geographical variations of the American Goldfinch (*Astragalinus tristis*). Auk xix, pp. 149–164. [*Fringillidæ.*]

134. ——. Plumage-cycles and the relation between plumages and moults. T. c. pp. 248–255.

135. Dubois, A. Synopsis Avium. Nouveau manuel d'Ornithologie. Fasciculus x–xii, pp. 689–914, pls. xii–xiv. [*Drepanidæ, Nectariniidæ, Zosteropidæ, Meliphagidæ, Falculidæ, Pseudoscines, Icteridæ, Dicæidæ, Columbæ, Galliformes, Tinamiformes, Accipitriformes, Strigiformes, Ardeiformes.*]

135a. Eaton, E. H. Birds of Western New York. P. Rochester Acad. iv, pp. 1–64.

136. Eckstrom, F. H. A description of the adult Black Merlin (*Falco columbarius suckleyi*). Auk xix, pp. 382–385. [*Accipitriformes.*]

137. Edwards, A. L. Curtis. Red-throated Pipit (*Anthus cervinus*) in Sussex. Zoologist 1902, p. 25.

138. Eifrig, G. Remarkable flight of Gulls at Cumberland, Md. Auk xix, p. 75. [*Lariformes.*]

139. ——. Northern birds at Cumberland, Md. T. c. pp. 211 & 212.

140. Ekama, H. Zugsdaten aus Holland. Aquila ix, pp. 193–195.

141. Ellemore, F. J. The birds of the Transvaal: notes made at Waterval Onder. Zoologist 1902, pp. 189 & 190.

142. Erlanger, C. F. Zoogeographie und Ornithologie von Abyssinien, den Galla- und Somali-Ländern. Ber. Senckenberg. Ges. 1902, pp. 155–169.

143. ——. Beschreibung eines neues Spechtes. J. Ornith. 1902, p. 258. [*Pici.*]

[Euler, C.] Obituary. Ibis 1902, pp. 521 & 522.

143a. Falconieri di Carpegna, G. Cattura di due "Cosmonettæ histrionicæ" per la prima volta in Italia. Boll. Soc. Ital. xi, p. 1. [*Anseriformes.*]

144. Farquhar, A. M. On the nesting of *Falco eleonoræ* in the Levant. Ibis 1902, pp. 166–168. [*Accipitriformes.*]

144a. Feilden, H. W. Birds of Barbados. [Reprinted from the Ibis, 1889, pp. 477–503.] West. Ind. Bull. iii, pp. 334–352.

145. Felger, A. H. A plan for recording in a condensed form the life-history notes of birds. Auk xix, pp. 189–195.

146. Finn, F. Notes on the Painted Snipe (*Rostratula capensis*) and Pheasant-tailed Jaçana (*Hydrophasianus chirurgus*). P. Zool. Soc. London 1902, Vol. i, pp. 261–264. [*Charadriiformes.*]

147. [FINN, F.] Occurrence of the Knot (*Tringa canutus*) near Calcutta. Ibis 1902, pp. 351 & 352. [*Charadriiformes.*]

148. ——. On Baer's Pochard. T. c. p. 524. [*Anseriformes.*]

149. ——. Notes on the White-breasted Kingfisher (*Halcyon smyrnensis*). Zoologist 1902, p. 149. [*Halcyones.*]

150. ——. Notes on the nesting of the Indian Dabchick (*Podicipes capensis*). T. c. pp. 300–304. [*Podicipedidiformes.*]

151. ——. The cage-birds of Calcutta. J. Bombay Soc. xiv, pp. 564–578. [Reprint, cf. Zool. Rec. XXXVIII, Aves, p. 13, No. 230.]

151A. ——. On some cases of Abrupt variation in Indian Birds. J. Asiat. Soc. Bengal (2) lxxi, pp. 81–85, pls. i–iii. [*Galliformes, Charadriiformes.*]

151B. ——. On specimens of two Mauritian Birds in the collection of the Asiatic Society. T. c. pp. 87–91, pls. iv & v. [*Ralliformes, Pelecaniformes.*]

151C. ——. On hybrids between Guinea-fowl and Common Fowl. T. c. pp. 91 & 92, pl. vi. [*Galliformes.*]

151D. ——. General notes on the variation in birds. T. c. pp. 154–184, pls. vii–ix.

FINN, F. [See also WOOD, H. (613A).]

152. FINSCH, O. Ueber zwei neue vogelarten von Java. Notes Leyden Mus. xxiii, pp. 147–152. [*Caprimulgi, Fringillidæ.*]

153. ——. Ueber *Dicæum sollicitans* Hartert. T. c. pp. 153–155. [*Dicæidæ.*]

154. ——. Ueber zwei bisher verkannte arten: *Centropus nigrorufus* (Cuv.) und *C. grilli* Hartl. T. c. pp. 156–161.

155. ——. Zur catalogisirung der ornithologischen abtheilung. T. c. pp. 162–176. [*Indicatores.*]

156. ——. Zur Versöhnung zweier toten Meister. (Hartlaub-Petényi.) J. Ornith. 1902, pp. 349–356.

157. ——. Zur Verbreitung von *Collocalia gigas.* Ornith. Monber. x, p. 38. [*Cypselidæ.*]

158. FISHER, W. H. Notes on the specialized use of the bastard wing. Auk xix, pp. 246 & 247, pl. viii. [*Ciconiiformes.*]

159. FISHER, W. K. A trip to Mono lake, ornithological or otherwise. Condor iv, pp. 3–11.

160. ——. The Oregon Song Sparrow. T. c. pp. 36 & 37. [*Fringillidæ.*]

161. ——. Status of *Cyanocitta stelleri carbonacea* Grinnell. T. c. pp. 41–44. [*Corvidæ.*]

162. ——. The Downy Woodpeckers of California. T. c. pp. 68–70. [*Pici.*]

163. ——. The Redwood belt of Northwestern California. II. Land birds. T. c. pp. 131–135.

164. FLEMING, J. H. Cory's Bittern (*Ardetta neoxena*). Auk xix, pp. 77 & 78. [*Ardeiformes.*]

165. ——. American Avocet (*Recurvirostra americana*), and American Three-toed Woodpecker (*Picoides americanus*), at Toronto. T. c. p. 79. [*Charadriiformes, Pici.*]

166. Fordyce, G. L. Nest and eggs of the Red-shouldered Hawk (*Buteo lineatus*). Auk xix, p. 287, pl. ix, fig. 1. [*Accipitriformes.*]

167. Forgách, K. Ornithologische Erinnerungen eines alten Jägers. Aquila ix, pp. 209–217.

168. Forrest, H. E. Nutcracker (*Nucifraga caryocatactes*) in Herefordshire. Zoologist 1902, p. 25. [*Corvidæ.*]

169. Foster, N. H. Observations on the weights of birds' eggs. Irish Natural. xi, pp. 237–245.

170. Fothergill, F. Rheas in captivity. Avicult. Mag. viii, p. 127, pl. e. [*Rheiformes.*]

170a. French, C. On the necessity for the preservation of our Insect-destroying Birds, with an alphabetical list of the principal kinds. J. Agric. Victoria i, pp. 69–73.

170b. ——. Insectivorous Birds of Australia. T. c. pp. 200–202 cum tab. [*Accipitriformes, Meropes*], p. 403 cum tab. [*Sylviidæ*].

170c. ——. Masked Wood Swallow (*Artamus personatus*). T. c. p. 520 cum tab. [*Artamidæ.*]

170d. ——. Hooded Robin (*Melanodryas bicolor*). T. c. p. 531 cum tab.

170e. ——. The Flame-breasted Robin (*Petræca phœnicea*). T. c. pp. 906 & 907 cum tab.

171. Frivaldsky, E. Rövid áttekentése egy természetrajzi utazásnaw. Aquila ix, pp. 206–208.

172. Frohawk, F. W. On the breeding of *Anser albifrons* in captivity. Bull. B. O. C. xii, p. 82. [*Anseriformes.*]

172a. Fuhrmann, O. Die Anoplocephaliden der Vögel. Centrbl. Bakter. Bd. xxxiii, pp. 122–147.

172b. Fürbringer, M. Zur vergleichenden Anatomie des Brustschulterapparates und der Schultermuskeln. v. Teil. Vögd. Jena. Zeitschr. xxxvi, pp. 289–736 q., Taf. xviii–xxii.

173. Gaal, G. Der Frühjahrzug der Rauchschwalbe in Ungarn im Jahre 1899. Aquila ix, pp. 30–42, Tab. iv, v. [*Hirundinidæ.*]

174. Gadow, H. The wings and the skeleton of *Phalacrocorax harrisi*. Nov. Zool. ix, pp. 169–176, pls. xiv & xv. [*Pelecaniformes.*]

175. Giannelli, L. Ricerche istologiche sul pancreas degli Uccelli. Monit. Zool. ital. xiii, pp. 171–183, Tav. ii & iii.

176. Gill, E. L. Early Flycatcher (*Muscicapa grisola*) in Northumberland. Zoologist 1902, p. 193. [*Muscicapidæ.*]

177. ——. Condor (*Sarcorhamphus gryphus*) laying in confinement. T. c. pp. 194 & 195. [*Carthartidiformes.*]

178. Godman, F. D. Biologia Centrali-Americana; or contributions to the knowledge of the fauna and flora of Mexico and Central America. London, 1902, 4to, Aves, Vol. iii, pts. clxx, clxxi, clxxii, clxxv, pp. 193–280, pls. lxvii, lxviii, lxix, lxx, lxxi. [*Ardeiformes, Phœnicopteriformes, Anseriformes, Columbiformes, Galliformes.*]

179. Goebel, H. Zip Nawolok. Ornith. Jahrb. xiii, pp. 107–126.

180. —— & Ssmirnow, N. Die Wintervögel der Murmanküste. T. c. pp. 44–49.

181. Goeldi, E. A. & Hagmann, G. Lista das Aves Amazonicas. Bol. Mus. Para. iii, pp. 276–327.

182. Goldman, E. A. In search of a new Turkey in Arizona. Auk xix, pp. 121–127. [*Galliformes.*]

183. Goodfellow, W. Results of an ornithological journey through Colombia and Ecuador. Part iv. [Cf. Zool. Rec. xxxviii, Aves, p. 15.] Ibis, 1902, pp. 59–67. Part v. T. c. pp. 207–233. [*Accipitriformes.*]

184. Grandidier, G. Madagascar au début du xxe siècle. Oiseaux, pp. 186–199.

185. Grant, W. R. Ogilvie. Remarks on the species of American *Galliné* recently described, and notes on their nomenclature. Ibis 1902, pp. 233–245. [*Galliformes.*]

186. ——. On a collection of Birds made on the White Nile between Khartoum and Fashoda. With an introduction and field-notes by by R. McD. Hawker. T. c. pp. 393–470, pls. x & xi. [*Eulabetidæ, Alaudidæ, Turdidæ, Piciformes, Capitones, Upupæ, Charadriiformes, Columbiformes, Galliformes.*]

187. ——. On the display of the male Robin during the breeding-season. T. c. pp. 677 & 678, cum fig. [*Turdidæ.*]

188. ——. On a new *Fringillaria* from Southern Arabia. Bull. B. O. C. xii, p. 80. [*Fringillidæ.*]

189. ——. On the occurrence of *Emberiza pusilla* near Teesmouth. Op. cit. xiii, p. 14. [*Fringillidæ.*]

190. ——. On two new species of birds from South Arabia. T. c. p. 21. [*Fringillidæ, Sylviidæ.*]

191. ——. On two new species of African birds. T. c. p. 22. [*Ploceidæ, Galliformes.*]

192. ——. On new species of African birds. T. c. pp. 27 & 28. [*Alaudidæ, Capitones.*]

193. ——. On a new species of *Dissoura* from Borneo. T. c. pp. 26 & 27. [*Ciconiiformes.*]

194. ——. A review of the species of Shrikes of the genus *Lanius.* Nov. Zool. ix, pp. 449–486, pls. xxiv–xxviii. [*Laniidæ.*]

195. Graves, F. S. Wood-Warbler (*Phylloscopus sibilatrix*) in the Isle of Man. Zoologist 1902, p. 23. [*Sylviidæ.*]

196. Grinnell, J. Northern visitants to Oregon. Auk xix, pp. 92 & 93.

197. ——. Geographical variation in abrasion. T. c. pp. 128–131.

198. ——. The Wilson Plover (*Ægialitis wilsonia*) in California. T. c. p. 197. [*Charadriiformes.*]

199. ——. The Western Barn Swallow. Condor iv, p. 71. [*Hirundinidæ.*]

200. ——. The Southern White-headed Woodpecker. T. c. pp. 89 & 90. [*Pici.*]

201. Grote, H. Über die Functionen des Vogelschnabels (Versuch). Ornith. Monber. x, pp. 59–63.

202. ——. Ueber eine neue europäische Blaumeisenform. T. c. pp. 181 & 182. [*Paridæ.*]

203. Gunnis, F. G. On the occurrence of the Carolina Crake [*Porzana carolina* (Linn.)] in the island of Tiree. Ann. Scott. Nat. Hist. 1902, pp. 9 & 10. [*Ralliformes.*]

204. Gurney, J. H. On *Anser erythropus* and its allies. Ibis 1902, pp. 269–275. [*Anseriformes.*]

205. ——. Ornithological notes from Southern Norway. Tr. Norfolk Soc. vii, pp. 367–371.

206. ——. Tengmalm's Owl in Northamptonshire (*Nyctala tengmalmi*). Zoologist 1902, p. 68. [*Strigiformes.*]

207. ——. Ornithological notes for 1901 from Norfolk and the North of Suffolk. T. c. pp. 81–100. [*Cuculi, Ralliformes, Pici.*]

208. Haagner, A. C. More ornithological notes from the Transvaal. Ibis 1902, pp. 569–581.

209. Haase, O. Ornithologische Notizen aus "St Hubertus," 1899 und 1900. Ornith. Monber. x, pp. 85–90, pp. 104–109.

210. ——. Über die Weindrossel der Färöer. T. c. pp. 79 & 80. [*Turdidæ.*]

Hagmann, G. [See Goeldi, E. A. (181).]

211. Haigh, G. H. Caton. Gadwall (*Anas strepera*) in Merionethshire. Zoologist 1902, p. 112. [*Anseriformes.*]

212. ——. Migration of birds in N.E. Lincolnshire during the autumn of 1901. T. c. pp. 121–132.

213. Hall, R. Revised List of the Birds found on the Houtman's Abrolhos, and their Nesting dates. Ibis 1902, pp. 205 & 206.

214. ——. On a collection of birds from Western Australia. T. c. pp. 121–143, 180–206. [*Meliphagidæ, Diceidæ, Lariformes.*]

215. ——. Among the birds of Western Australia. Victorian Natural. xviii, pp. 164–168, 175–181.

216. ——. The Insectivorous Birds of Western Australia. J. Dep. Agric. Western Australia, 7, pt. i, pp. 6–12.

216a. ——. Notes on a collection of bird-skins from the Fitzroy river, North-Western Australia. Emu i, pp. 87–112, ii, pp. 49–68.

217. Hanson [the late Nikolai]. Extracts from the private diary of. Rep. Coll. 'Southern Cross,' Aves, pp. 79–105.

218. Hantzsch, B. Schnabelmissbildung. Ornith. Monber. x, pp. 5 & 6. [*Fringillidæ.*]

219. ——. Mitheilungen aus Sachsen. T. c. pp. 126 & 127.

220. ——. Ueber das Vorkommen von *Locustella fluviatilis* (Wolf) im Königreich Sachsen. T. c. pp. 165–170. [*Sylviidæ.*]

221. Hänisch, R. Über den winterkleid-isabellismus zweier in austro-adriatischen lagunen erbeuteten exemplare von *Anas boscas* L. Ornith. Jahrb. xiii, pp. 65–67. [*Anseriformes.*]

221a. Hanitsch, R. Catalogue of the birds in the Raffles Museum. Ann. Rep. Raffles Mus. 1902, pp. 5–14.

Härms, M. [See Zarudny, N. (623).]

222. Harper, E. W. On *Ploceus megarhynchus.* Ibis 1902, p. 169. [*Ploceidæ.*]

223. [Harper, E. W.] The Yellow-eyed Babbler (*Pyctorhis sinensis*). Avicult. Mag. viii, pp. 108–110. [*Timeliidæ.*]

224. ——. The Blue-winged Siva (*Siva cyanuroptera*). T. c. pp. 243–245 cum tab. [*Timeliidæ.*]

225. Harrington, H. H. Notes on birds nesting in the southern Shan States of Burma. J. Bombay Soc. xiv, pp. 596–599.

226. Hartert, E. Aus den Wanderjahren eines Naturforschers. Nov. Zool. ix, pp. 193–221. [*Pici, Pycnonotidæ, Fringillidæ, Icteridæ, Turdidæ, Paridæ, Laniidæ, Alaudidæ, Nigriformes, Accipitriformes.*]

227. ——. The Birds of the Kangean Islands. T. c. pp. 419 etc., pl. xiii. [*Coraciiformes, Timeliidæ, Dicruridæ.*]

228. ——. On Birds from Pahang, Eastern Malay Peninsula. T. c. pp. 537–580. [*Galliformes, Strigiformes, Psittaciformes, Cuculi, Pittidæ, Muscicapidæ, Campophagidæ, Pycnonotidæ, Timeliidæ, Troglodytidæ, Turdidæ, Sylviidæ, Diceidæ.*]

230. ——. Some further notes on the birds of North-west Ecuador. T. c. pp. 599–617, pl. viii. [*Tinamiformes, Galliformes, Accipitriformes, Pici, Tyrannidæ, Cotingidæ, Formicariidæ, Dendrocolaptidæ, Vireonidæ.*]

231. ——. On the Birds collected by William Doherty in the Kikuyu Mountains, near Escarpment Station, in British East Africa. T. c. pp. 620–625, pl. lx. [*Laniidæ.*]

232. ——. On a new Pigeon from N. W. Ecuador, and a new subspecies of Desert-Lark from E. Persia. Bull. B. O. C. xii, pp. 42 & 43. [*Columbiformes, Alaudidæ.*]

232a. ——. Notes on *Chætocercus burmeisteri*. T. c. pp. 43 & 44. [*Trochili.*]

233. ——. On a new subspecies of *Pterocles coronatus* from E. Persia. T. c. p. 48. [*Pteroclidiformes.*]

234. ——. A new species of *Cotile* from Angola. T. c. pp. 76 & 77. [*Hirundinidæ.*]

234a. ——. On the penis of *Textor niger*. T. c. pp. 77 & 78. [*Ploceidæ.*]

235. ——. On species of *Ciccaba*. T. c. pp. 68 & 69. [*Strigiformes.*]

236. ——. On a new species of Bullfinch from the Malay Peninsula. T. c. pp. 69 & 70. [*Fringillidæ.*]

237. —— & Hellmayr. On a new species of Tyrant[-bird] in the Vienna Museum. T. c. pp. 63 & 64. [*Tyrannidæ.*]

——. [See Berlepsch (34)].

238. Harvie-Brown, J. A. Further notes on the Birds of the Outer Hebrides. Ibis 1902, pp. 275–278.

239. ——. Waxwing (*Ampelis garrulus*), in the Outer Hebrides. Ann. Scott. Nat. Hist. 1902, p. 52.

239a. ——. Waxwings in Scotland. T. c. pp. 52 & 53. [*Ampelidæ.*]

240. ——. Great Snipe (*Gallinago major*), in Shetland. T. c. 1902, p. 54. [*Charadriiformes.*]

241. ——. On the avifauna of the Outer Hebrides, 1888–1902. T. c. pp. 83–91, 136–151, 199–217.

Hawker, R. McD. [See Grant, W. R. Ogilvie (186).]

242. Hay, O. P. On the finding of the bones of the Great Auk (*Plautus impennis*) in Florida. Auk xix, pp. 255–258. [*Alciformes.*]

243. Hegefoky, J. Die Witterung zur Zeit der Ankunft der Rauch-Schwalbe. Aquila ix, pp. 42–72, Taf. vi. [*Hirundinidæ.*]

244. ——. Das Erscheinen des Kuckucks in Österreich und Ungarn im Jahre 1897 und 1898. T. c. pp. 72–80. [*Cuculi.*]

245. Heinroth, O. Ueber *Centropus ateralbus.* J. Ornith. 1902, p. 258. [*Cuculi.*]

246. ——. Ornithogische Ergebnisse der "I. Deutschen Südsee Expedition von Br. Meneke." T. c. pp. 390–457, Taf. viii & ix. [*Halcyones, Muscicapidæ.*]

246a. Held, O. Bemerkungen und Zusätze zu der ornithologischen Abhandlung "Die Vögel der Grossherzogthümer Mecklenburg von G. Wüstnei und G. Clodius." Arch. Ver. Mecklenb. 1902, pp. 58–76.

247. Hellmayr, C. E. Revision einiger neotropischen *Turdidæ.* J. Ornith. 1902, pp. 44–69. [*Turdidæ.*]

248. ——. Übersicht der von Dr A. Penther in Südafrika gesammelten Vögel. T. c. pp. 210–237. [*Turdidæ.*]

249. ——. Zwei neue Formicariiden. Ornith. Monber. x, pp. 33–35. [*Formicariidæ.*]

250. ——. Untersuchungen über einige paläarctische Vögel. Ornith. Jahrb. xiii, pp. 26–43. [*Paridæ.*]

251. ——. Die Formen von *Passer petronius.* T. c. pp. 126–129. [*Fringillidæ.*]

252. ——. Beschreibung von zwei neuen brasilianischen Vögeln. Verh. Ges. Wien, lii, pp. 95–98. [*Cotingidæ, Formicariidæ.*]

253. ——. Noch einige worte über *Thryophilus.* T. c. pp. 169 & 170. [*Troglodytidæ.*]

——. [See Hartert, E. & Hellmayr (237).]

——. [See Lorenz, L. von (322).]

254. Helm, F. In welcher Entfernung werden in der Luft-schwebende Vögel für das unbewaffnete Auge des Beobachters unsichtbar? Ornith. Monber. x, pp. 151 & 152.

255. Helms, O. Ueber Gronlands Vogelwelt. J. Ornith. 1902, pp. 91–101, 126. [*Motacillidæ.*]

256. ——. Ornithologische Beobachtungen. Aquila ix, pp. 195–205.

256a. Hennicke, C. R. Naumann's Naturgeschichte der Vögel Mittel-Europa's. Liefr. 92–117.

257. Henrici, F. Brüten der Brandente (*Tadorna tadorna*, L.) an der ost-preuissischen Küste. Ornith. Monber. x, pp. 101–104. [*Anseriformes.*]

258. Henshaw, H. W. On the various plumages of *Buteo solitarius.* Ibis 1902, pp. 386–392. [*Accipitriformes.*]

259. ——. Occurrence of the Arctic Tern (*Sterna paradisea*) in the Hawaiian Islands. Auk xix, p. 195. [*Lariformes.*]

260. ——. *Buteo solitarius* off the coast of Hawaii. T. c. pp. 197 & 198. [*Accipitriformes.*]

261. [Henshaw, H. W.] Belted Kingfisher (*Ceryle alcyon*) in the island of Hawaii. T. c. p. 199.

262. ——. The Elepaio of Hawaii. T. c. pp. 225–232. [*Muscicapidæ.*]

263. Hepburn, T. Notes on birds made during three short visits to the beach at Dungeness. Zoologist 1902, pp. 59–65.

264. ——. Sea-birds and Plovers noticed in Lancashire and Cumberland. T. c. pp. 374–383.

265. Herman, Otto. Die Bedeutung der Anatomie der Vögel. Aquila ix, pp. 1–11.

266. *Herrick, F. H. The home life of Wild Birds : a new method of the Study and Photography of Birds.

267. Herrick, H. The European Widgeon (*Anas penelope*) in Michigan. Auk xix, p. 284. [*Anseriformes.*]

268. Hill, J. H. The White-winged Crossbill (*Loxia leucoptera*), in captivity. Auk xix, pp. 13–15. [*Fringillidæ.*]

269. Hollister, N. The Yellow Rail (*Porzana noveboracensis*) in Wisconsin. Auk xix, p. 197. [*Ralliformes.*]

269a. Holmberg, E. C. La Fauna de la República Argentina. Aves. Segundo Censo de la Republica Argentina, Tomo I, Territorio, pp. 494–574.

Holub, E. Obituary. Ibis 1902, p. 521.

270. Horwood, A. R. Statistics relating to British birds. Zoologist 1902, pp. 55–58.

271. Howard, H. E. On Mr Selous' theory of the origin of nests. Zoologist 1902, pp. 145–148.

272. ——. Cirl Bunting (*Emberiza cirlus*) in Ireland. T. c. pp. 353 & 354. [*Fringillidæ.*]

273. ——. The birds of Sark ; and variation in song. T. c. pp. 416–422.

Howe, C. D. [See Perkins, G. H. (409).]

274. Howe, R. H. The European Widgeon (*Mareca penelope*), in North Carolina. Auk xix, p. 76. [*Anseriformes.*]

275. ——. Occurrence of the Barn Owl (*Strix pratincola*), in Canada. T. c. p. 79. [*Strigiformes.*]

276. ——. The Labrador Savanna Sparrow (*Passerculus savanna labradorius*). T. c. pp. 85 & 86. [*Fringillidæ.*]

277. ——. *Hylemathrous* vs. *Troglodytes* for the House Wren. T. c. pp. 89 & 90. [*Troglodytidæ.*]

278. Hublard, E. Notes sur l'architecture des oiseaux et l'instinct. Mem. Soc. Hainaut (5) x, pp. 1–49.

279. Humphrys, Russell. The Rufous-bellied Niltava or Fairy Blue Chat (*Niltava sundara*). Avicult. Mag. (2) i, pp. 24–26. [*Muscicapidæ.*]

279a. Hutton, F. W. On migratory birds of New Zealand. Emu i, pp. 139–141.

279b. ——. Penguins. Op. cit. ii, pp. 1–9. [*Sphenisciformes.*]

280. Ihering, H. von. Contribuições para o conhecimento da Ornithologia de São Paulo. Rev. Mus. Paulista v, pp. 261–329, pl. xi. [*Caprimulgi*, *Pici*, *Cotingidæ*, *Pipridæ*, *Tyrannidæ*, *Dendrocolaptidæ*.]

281. Inglis, C. M. The birds of the Madhubani subdivision of the Darbhanga district, Tirhut, with notes on species noticed elsewhere in the district. J. Bombay Soc. xiv, pp. 132–139, 362–371, 554–563, 764-771. [Cf. Zool. Rec. xxxviii, Aves, p. 20, No. 384.]

282. Inkster, A. The occurrence of Tengmalm's Owl (*Nyctala tengmalmi*) in Shetland. Ann. Scott. Nat. Hist. 1902, p. 119. [*Strigiformes*.]

283. Jackson, F. J. List of Birds obtained in British East Africa. Part iii. With notes by R. Bowdler Sharpe. Ibis 1902, pp. 611–643, pl. xvi. [*Coraciiformes*, *Meropes*, *Cypseli*, *Capitones*, *Pici*.]

284. Janda, G. Ueber *Erithacus cairii* (Gerbe) in Ost-Mähren. Ornith. Monber. x, pp. 35 & 36. [*Turdidæ*.]

285. ——. Weitere Berichte über den Röthelfalken in Süd-Mähren. Ornith. Jahrb. xiii, pp. 49–56.

286. Jesse, W. A list of the Birds of Lucknow. Ibis 1902, pp. 470–490, 531–566, pl. xii (Map).

287. Johansen, H. Ornithologisches von der sibirischen Eisenbahn. Ornith. Jahrb. xiii, pp. 1–26.

288. ——. Ornithologische Beobachtungen im Gouvernement Tomsk während des Jahres 1899 (mit einer Tafel). T. c. pp. 161–189. [*Galliformes*.]

289. Johnston, Sir H. H. On the occurrence of *Balæniceps rex* on Lake Victoria. Ibis 1902, pp. 334–336. [*Ciconiiformes*.]

——. [See Sharpe (525).]

290. Jones, H. Exhibition of his paintings of *Anatidæ*. Bull. B. O. C. xiii, p. 6.

291. Jourdain, F. C. R. Rough notes on Derbyshire Ornithology 1900–1902. Zoologist 1902, pp. 455–459.

Kalinowski, J. [See Berlepsch, H. & Stolzman, J. (35).]

292. Keays, J. E. The Cardinal (*Cardinalis cardinalis*) an established resident in Ontario. Auk xix, pp. 205 & 206. [*Fringillidæ*.]

293. Keller, C. Zur Ornithologie der Somaliländer. Mt. Thurgau. Ges. xiii, pp. 34–45.

294. Kelso, J. E. H. Unusual nest of the Ringed Plover (*Ægialitis hiaticula*). Zoologist 1902, pp. 28 & 29. [*Charadriiformes*.]

295. Kempen, Ch. van. Oiseaux dont la capture est rare ou fortuite dans les departements du Nord et du Pas-de-Calais conservés dans la collection van Kempen, a Saint-Omer. Bull. Soc. zool. France xxvii, pp. 5–16.

296. ——. Notice sur un Faucon Gerfaut Blanc, *Falco candicans* Gmel., tué aux îles Glenans (Finistère). Bull. Soc. Ouest France (2) ii, p. 3. [*Accipitriformes*.]

296a. *Keyser, L. S. Birds of the Rockies. 8vo, 355 pp., 1902.

296b. Kieffer, J. J. Observations ornithologiques. Bull. Soc. Metz (2) ix, pp. 1–8.

297. Kněžourek, K. Weitere ornithologische Notizen aus der Umgebung von Starkoč bei Caslau. Ornith. Jahrb. xiii, pp. 135–141.

298. Kobbe, W. H. The status of certain supposed species of the genus *Larus*. Auk xix, pp. 19–24. [*Lariformes.*]

299. Kölliker, A. Über die oberflächlichen Nervenkerne im Marke der Vögel und Reptilien. Zeitschr. wiss. Zool. lxxii, pp. 126–179 mit tafel viii–xii.

299a. Krohn, H. Zur Kenntnis der Ornis des Grossen Plöner See's. Forschber. Plon, Teil 9, pp. 1–16.

300. Kopman, H. H. Winter notes from Louisiana. Auk xix, pp. 210 & 211.

301. Kormos, T. Zehn Tage an der Maros. Ornith. Jahrb. xiii, pp. 141–147.

302. Krause, G. Gefleckte Segler-eier. Ornith. Monber. x, pp. 183 & 184. [*Cypseli.*]

303. Krohn, H. Sammler und Sammlungen. Ornith. Monber. x, pp. 163 & 164.

304. Kunz, H. *Otis tetrax*, Die Zwergtrappe, ein indeutscher Brutvogel. J. Ornith. 1902, pp. 284–290. [*Charadriiformes.*]

305. Laidlaw, T. G. Report on the movements and occurrence of birds in Scotland during 1901. Ann. Scott. Nat. Hist. 1902, pp. 66–82, 129–136, 193–199.

306. Lankester, E. Ray. Report on the Collections of Natural History made in the Antarctic Regions during the voyage of the "Southern Cross." London, royal 8vo, pp. ix+344, pls. i–liii.

307. Latter, O. H. The egg of *Cuculus canorus*. An enquiry into the dimensions of the Cuckoo's egg and the relation of the variations to the size of the eggs of the foster-parent, with notes on coloration, etc. Biometrika i, part ii, pp. 164–176. [*Cuculi.*]

308. Lawrence, N. T. European Widgeon (*Mareca penelope*) on Long Island, N. Y. Auk xix, pp. 195 & 196. [*Anseriformes.*]

Lecomte, L. [See Sanson, L. (487).]

308a. Legge, W. V. Presidential address to the Australian Ornithologists' Union. Emu i, pp. 36–51.

308b. ——. Notes on various birds found in Tasmania. T. c. pp. 82–86.

308c. Lemaire, C. [Captain]. Mission Scientifique du Ka-Tanga. Brussels, 1902, 4to, xii, 348 pp. cum tab.

309. Le Roi, Otto. Beobachtungen aus Ostpreussen. Ornith. Monber. x, pp. 127 & 128.

310. ——. Zur Avifauna von Mecklenburg und Pommern. T. c. pp. 55–59.

311. Le Souëf, D. A visit to the Furneaux group of islands. Victorian Natural. xviii, pp. 181–188.

312. ——. Descriptions of some Australian birds' eggs. Op. cit. xix, pp. 91 & 92. [*Psittaci, Strigiformes.*]

312a. ——. Emu (*Dromæus novæ hollandiæ*). Feathers. Emu i, pp. 6–8.

312B. [LE SOUËF, D.] Protective colouration of Australian birds and their nests. Part I. T. c. pp. 57–62, pls. iv & v. Part II. pp. 128–132.

312C. ——. A young Penguin at the Melbourne Zoo. Op. cit. ii, pp. 26 & 27, pls. ii & iii. [*Sphenisciformes.*]

312D. ——. Descriptions of Birds' eggs from the Port Darwin District, Northern Australia. T. c. pp. 85–96, pl. v.

312E. LEWIN, MAX. Ueber die Entwickelung des Schnabels von *Eudyptes chrysocome.* Jena. Zeitschr. xxxvii Bd., Heft 1, pp. 41–82, taf. ii, iii. [*Sphenisciformes.*]

313. LEWIS, S. Notes on the nesting of a pair of Green Woodpeckers (*Gecinus viridis*) at Wells, Somerset. Zoologist 1902, pp. 313–315. [*Pici.*]

313A. LINDNER, F. Zum Vorkommen der Steppenweihe (*Circus macrurus*) in Mitteleuropa, während der letzen 12 Jahre, mit besonderer Berücksichtigung der diesjahrigen Invasion. Monatschr. Ver. Schutz. xxvii, pp. 51–59.

314. LITTLER, F. M. Notes on the Lesser White-backed Magpie (*Gymnorhina hyperleuca*) in Tasmania. Zoologist 1902, pp. 428–431. [*Laniidæ.*]

315. LLEWELLYN, R. W. On the occurrence of *Muscicapa parva* on migration at the Casquets Lighthouse in 1902. Ibis 1902, pp. 673 & 674. [*Muscicapidæ.*]

316. LODGE, G. E. Exhibition of a specimen of *Lanius minor* shot in Norfolk. Bull. B. O. C. xiii, p. 14. [*Laniidæ.*]

317. ——. Lesser Grey Shrike (*Lanius minor*) in Norfolk. Zoologist 1902, p. 433. [*Laniidæ.*]

318. LOOMIS, L. M. The Elf Owl as a California bird (*Micropallas whitneyi*). Auk xix, p. 80. [*Strigiformes.*]

319. ——. The Yellow Vireo (*Vireo hypochryseus*) in Sinaloa. T. c. p. 88. [*Vireonidæ.*]

320. LOOS, K. Einiges über einen Fundort von Krähenauswürfen. Ornith. Jahrb. xiii, pp. 58–61.

321. LORENZ-LIBURNAU, L. VON. Zur Ornis Neuseelands. Ann. Hofmus. Wien xvii, pp. 301–322, Taf. xii. [*Psittaci, Motacillidæ, Timeliidæ, Muscicapidæ.*]

322. —— & HELLMAYR, C. E. Ein Beitrag zur Ornis Südarabiens. Denk. Ak. Wien lxxi, pp. 103–121, Taf. i, figg. 1–4. [*Fringillidæ, Alaudidæ, Zosteropidæ, Nectariniidæ, Laniidæ, Upupæ, Charadriiformes.*]

323. —— & ——. *Fringillaria arabica*, n. sp. Ornith. Monber. x, p. 55. [*Fringillidæ.*]

324. LORT PHILLIPS, E. On *Numida somaliensis.* Bull. B. O. C. xii, p. 50. [*Galliformes.*]

325. LOUDON, H. [BARON]. Ergebnisse einer ornithologischen Sammelreise nach Central-Asien (1901). Ornith. Jahrb. xiii, pp. 81–106, 190–233.

——. [See ZARUDNY (624).]

326. —— & TSCHUSI ZU SCHMIDTHOFFEN, V. RITTER. *Coracias garrulus semenowi*, n. subsp. T. c. pp. 148–150. [*Coraciæ.*]

327. Lucanus, F. von. Die Höhe des Vogelzuges auf Grund aeronautischen Beobachtungen. J. Ornith. 1902, pp. 1–9.

328. ——. Schutzfärbungen und Nutztrachten. T. c. pp. 356–361.

329. Lucas, F. A. Clark on the classification of birds. Auk xix, pp. 95 & 96.

330. Lyons, C. M. Some notes on the Lake Eyre District. (Geological expedition under the leadership of Professor Gregory, F.R.S.) Emu ii, pp. 133–138.

331. McLain, R. B. The Bald Eagle (*Haliaetus leucocephalus*) in Ohio County, West Virginia. Auk xix, p. 287. [*Accipitriformes.*]

[Macpherson, H. A.] Obituary. Ibis 1902, pp. 174 & 175, and Zoologist 1902, pp. 18–20.

332. Macrury, J. The Green Sandpiper (*Helodromas ochropus*) in the Outer Hebrides. Ann. Scott. Nat. Hist. 1902, p. 55. [*Charadriiformes.*]

333. Madarász, J. von. Magyarország Madarai a Hazai Madarvillag Megismerésének Vezérfonala. Mit Anhang: Die Vögel Ungarns [pp. 483–630]. Budapest, 1899–1903*. [*Sylviidæ, Turdidæ, Paridæ, Panuridæ, Caprimulgi, Pici, Strigiformes, Sturnidæ, Motacillidæ, Accipitriformes, Anseriformes.*]

334. ——. *Buettikoferia*, n. gen., vice *Muelleria* Büttik. (nec auct.). Bull. B. O. C. xii, p. 49. [*Timeliidæ.*]

335. ——. Schnabelmissbildung. Ornith. Monber. x, pp. 36 & 37. [*Fringillidæ, Paridæ.*]

336. ——. Der cyprische Heher (*Garrulus glaszneri*, n. sp.). T. c. p. 163. [*Corvidæ.*]

337. ——. Über einen neuen Palæarktischen Vogel: *Acanthopneuste puella* n. sp. Termes. Fuzetek xxv, pp. 1–3, tab. i. [*Sylviidæ.*]

337a. ——. Beiträge zur Ornis der Salomon-Inseln, mit der Beschreibung von drei neuen Arten, Tab. xvii. T. c. pp. 350 & 351. [*Columbiformes, Psittaci.*]

337b. ——. Ein neues Blaukehlchen. T. c. p. 535. [*Turdidæ.*]

[Mansel-Pleydell, J. C.] Obituary. Zoologist 1902, p. 191.

——. [See Stuart-Gray, M. G. (558).]

338. Mann, Richard. The nesting of *Tringa canutus* in confinement. Bull. B. O. C. xiii, pp. 12 & 13. [*Scolopacidæ.*]

338a. Mánnich, H. Beiträge zur Entwickelung der Wirbels äule von *Eudyptes chrysocome.* Jena. Zeitschr. xxxvii Bd., Heft 1, pp. 1–40, Taf. 1. [*Sphenisciformes.*]

339. Marek, M. Zum Schwalbenzug im Jahre 1899. Aquila ix, pp. 165–170.

340. Marshall, T. E. Notes on the birds near Quetta. J. Bombay Soc. xiv, pp. 601–606.

---

* Parts iii, iv, v, published in 1900, have been accidentally omitted from the previous volume of the Record.

341. Martorelli, G. Nota ornitologica. Ulteriori osservazioni sull'*Athene chiaradiæ*, Gigioli. Atti Soc. Ital. xl, pp. 325–338 cum tab. [*Strigiformes.*]

342. Masefield, R. B. Rufous variety (*Perdix montana*, Brisson) of the common Partridge in Staffordshire. Rep. North Staffordsh. Club xxxvi, pp. 65–68, pl. i. [*Galliformes.*]

343. Masha, E. Ueber den Bau der Schwungfeder. Zool. Anz. xxvi, pp. 142–144.

344. Maumus, J. Les cæcums des oiseaux. Ann. Sci. nat. (8) xv, pp. 1–148, pls. i–iv. Introduction, pp. 1–23. Première partie, anatomie macroscopique. Chapitre premier, formes des cæcums, pp. 24–42. Chapitre ii, vascularisation, pp. 42–47. Chapitre iii, innervation, pp. 47–52. Chapitre iv, comparaison entre les cæcums des oiseaux et les cæcums des reptiles et des mammiferes, pp. 52–65. Chapitre v, le troisieme cæcum, pp. 65–69. Deuxième partie, histologie et physiologie. Chapitre premier, histologie, pp. 70–96. Chapitre ii, physiologie, pp. 96–119. Troisième partie, embryologie, pp. 120–138.

345. ——. Sur le troisieme cæcum des oiseaux. Bull. Mus. Paris 1902, pp. 36–38, 362–364.

346. Meade-Waldo, E. G. B. Note on birds from the Atlas Mountains. Bull. B. O. C. xii, p. 70.

347. Mearns, E. A. Descriptions of three new birds from the Southern United States. P. U. S. Mus. xxiv, pp. 915–926. [*Fringillidæ*, *Hirundinidæ*, *Sittidæ.*]

348. ——. Description of a new Swallow from the Western United States. P. Soc. Washington xv, pp. 31 & 32. [*Hirundinidæ.*]

349. ——. Two subspecies which should be added to the check-list of North American Birds. Auk xix, pp. 70–72. [*Mimidæ*, *Tyrannidæ.*]

350. ——. Description of a hybrid between the Barn and Cliff Swallows. T. c. pp. 73 & 74. [*Hirundinidæ.*]

351. ——. Capture of the Mexican Jacana in Florida (*Jacana spinosa*). T. c. p. 79. [*Charadriiformes.*]

352. ——. An addition to the avifauna of the United States. T. c. p. 87. [*Vireonidæ.*]

353. ——. The Cactus Wrens of the United States. T. c. pp. 141–145. [*Troglodytidæ.*]

354. Mellersh, W. L. A treatise on the birds of Gloucestershire, with a reference list of all the species known to have appeared in the County. Gloucester and London, 1902.

355. Meyer, A. B. Über einige Europäische Museen und verwandte Institute Reiseerfahrungen. Abh. Mus. Dresden x, No. 1, pp. vi & 1–66.

356. Milburn, C. E. Occurrence of the Little Bunting (*Emberiza pusilla*) at Tees Mouth, Co. Durham. Naturalist 1902, p. 353. [*Fringillidæ.*]

357. Millais, J. G. On the courting of *Fuligula baeri*. Ibis 1902, pp. 164 & 165. [*Anseriformes.*]

358. ——. On the changes of plumage in the Wild Duck (*Anas boscas*). Bull. B. O. C. xii, pp. 45 & 46. [*Anseriformes.*]

358a. ——. The natural history of the British surface-feeding Ducks. 1902, 4to, pp. 1–168, pls. 66. [*Anseriformes.*]

358B. MILLIGAN, A. W. Description of a new Bristle Bird (*Sphenura*). Emu i, pp. 67–69. [*Sylviidæ.*]

358C. ——. Field observations on Western Australian Birds. Op. cit. ii, pp. 68–77.

MINNIGERODE, L. VON. [See BLATH (49A).]

359. MITROPHANOW, P. Beitrage zur Entwicklung der Wasservögel. Zeitschr. wiss. Zool. lxxi, pp. 189–210, mit tafel ix und x.

360. ——. Wodurch unterscheiden sich die jungen Embryonen des Strausses von denen anderer Vögel? Anat. Anz. xx, pp. 572–574.

361. MONTAGU, E. J. On a web-footed example of *Columba livia*. Bull. B. O. C. xii, pp. 42 & 43. [*Columbiformes.*]

362. MOORE, W. H. The winter Fringillidæ of New Brunswick. Auk xix, pp. 199–202. [*Fringillidæ.*]

363. MUDGE, G. P. On the myology of the tongue of Parrots, with a classification of the order, based upon the structure of the tongue. Tr. Zool. Soc. London xvi, pt. 5, pp. 211–278, pls. xxvi–xxix, text-figg. 1–16. [*Psittaci.*]

364. MUNT, H. On the eggs of *Carpococcyx viridis*. Bull. B. O. C. xii, p. 70. [*Coccyges.*]

365. ——. On the egg of *Ptilonorhynchus violaceus*. T. c. pp. 81 & 82. [*Ptilonorhynchidæ.*]

366. NEALE, J. J. The Raven (*Corvus corax*) at home and in captivity. Rep. Cardiff Soc. xxxii, pp. 49–53 cum tab [eggs]. [*Corvidæ.*]

367. NECSEY, S. V. Obituary. Herman, Aquila ix, pp. 245–254, Tab. vii & viii. [*Galliformes, Alaudidæ.*]

368. NEHRKORN, A. Über *Panyptila cayanensis*. Ornith. Monber. x, p. 24. [*Cypselidæ.*]

369. NELSON, E. W. A new subspecies of the Cuban Cliff Swallow. P. Soc. Washington xv, p. 211. [*Hirundinidæ.*]

370. ——. The nomenclature and validity of certain North American Gallinæ. Auk xix, pp. 386–391, pls. xiv & xv. [*Galliformes.*]

NELSON, T. H. [See CLARKE, W. EAGLE (104).]

371. NEUBAUER, E. Eine Saatkrähenkolonie. Ornith. Monber. x, pp. 93–95. [*Corvidæ.*]

372. NEUMANN, O. Anzahl der von seiner Reise durch Nordost-Afrika mitgetrachten Vögel vor. J. Ornith. 1902, pp. 131–134. [*Galliformes, Meropes, Zosteropidæ, Turdidæ.*]

373. ——. Diagnosen neuer Vogelarten aus Süd-Äthiopien. Ornith. Monber. x, pp. 8–10. [*Galliformes, Pici, Ploceidæ, Muscicapidæ, Zosteropidæ.*]

374. ——. On the type of *Centropus nigrorufus*. T. c. p. 75. [*Coccyges.*]

375. ——. Neue Afrikanische Vögel. T. c. pp. 138 & 139. [*Accipitriformes, Zosteropidæ.*]

376. ——. On *Otus abyssinicus* and other African Owls. Bull. B. O. C. xii, pp. 73–75. [*Strigiformes.*]

377. NEWTON, A. Ootheca Wolleyana: an illustrated catalogue of the collection of birds' eggs formed by the late John Wolley, Jun., M.A., F.Z.S. Part II. Picariæ–Passeres. London, 1902, 8vo, xxxix, 531 pp., tab. x–xiii, J–M.

378. Nicoll, M. J. A moulting Nightingale in April. Bull. B. O. C. xiii, p. 14. [*Turdidæ.*]

379. ——. On the occurrence of *Cyanecula leucocyanea* in Kent. T. c. p. 14. [*Turdidæ.*]

380. ——. On the occurrence of *Anthus spipoletta* in Sussex. T. c. p. 20. [*Motacillidæ.*]

381. ——. A British example of the White-spotted Bluethroat (*Cyanecula wolfi*). Zoologist 1902, p. 464. [*Turdidæ.*]

382. Ninni, E. Sopra un Ibrido di *Dafila acuta* e *Anas boscas*. Avicula vi, pp. 61 & 62. [*Anseriformes.*]

383. ——. Note ornitologiche per la provincia di Venezia. Atti Soc. Ital. xl, pp. 315–324. [*Accipitriformes.*]

384. N. O. Il Linguaggio degli Uccelli. Avicula vi, pp. 33–36.

385. Noble, H. Forty-four days' nesting in Andalusia. Ibis 1902, pp. 67–89. [*Anseriformes.*]

386. Nordhoff, C. B. February water-birds of Elsinore Lake, California. Auk xix, pp. 212–214.

387. Norris, J. P. Nesting of the Tennessee Warbler (*Helminthophila peregrina*) in British Colombia. Auk xix, pp. 88 & 89. [*Mniotiltidæ.*]

388. North, A. J. Descriptions of some Australian birds' eggs. Victorian Natural. xix, pp. 34–36. [*Ptilonorhynchidæ, Pittidæ, Ralliformes, Anseriformes.*]

389. ——. On three apparently undescribed species of Australian birds. T. c. pp. 101–104. [*Muscicapidæ.*]

389a. ——. Nests and birds found breeding in Australia and Tasmania. Second edition of Catalogue No. 12, entirely rewritten with additions. Australian Museum, Sydney. Special Catalogue No. 1, Sydney, 1902, 4to, Part ii, pp. 37–120, pls. ii–iv.

389b. ——. A list of Insectivorous Birds of New South Wales. Agric. Gaz. N. S. W. xii, pp. 183–186, pl. xvi, 407 & 408, pl. xvii. [*Cuculi.*]

389c. ——. Description of the Eggs of the Fawn-breasted Bower-bird and Varied Lorikeet. T. c. p. 409. [*Ptilonorhynchidæ, Psittaci.*]

390. Oates, E. W. Catalogue of the collection of Birds' Eggs in the British Museum (Natural History). Vol. ii. London, 1902, 8vo, xx, 400 pp., xv pls.

390a. ——. On the generic name *Sittiparus*. Bull. B. O. C. xii, pp. 67 & 68. [*Timeliidæ.*]

391. Oberholser, H. C. Catalogue of a collection of Hummingbirds from Ecuador and Colombia. P. U. S. Mus. xxiv, pp. 309–342. [*Trochili.*]

392. ——. A review of the Larks of the genus *Otocoris*. T. c. pp. 801–883, pls. xliii–xlv, xlvi–xlviii maps. [*Alaudidæ.*]

393. ——. A synopsis of the genus commonly called *Anorthura*. Auk xix, pp. 175–181. [*Troglodytidæ.*]

394. ——. Some notes from Western Texas. T. c. pp. 300 & 301.

[Ohlsen, C.] Obituary. Herman, Aquila ix, pp. 255–263.

395. Oldham, C. Sooty Tern in Lancashire (*Sterna fuliginosa*). Zoologist 1901, p. 355.

——. [See also Coward, T. A. (113).]

396. Orlandi, S. Contribuzione allo studio della struttura e dello sviluppo della glandula uropigetica degli Uccelli. Atti Soc. Ligustica xiii, pp. 45–56, tav. ii; Boll. Mus. Genova 1902, pp. 1–11, tav. ii.

397. Osmaston, B. B. Curious course taken by the hyoid cornua or tongue muscles in certain Woodpeckers. J. Bombay Soc. xiv, pp. 587 & 588. [*Pici.*]

398. ——. Notes on the nidification of some birds, the nests and eggs of which have not been previously described. T. c. pp. 815–817. [*Timeliidæ, Sylviidæ, Nectariniidæ.*]

398a. Oustalet, E. Revision de quelques espèces d'oiseaux de la Chine occidentale et méridionale. Arch. Mus. Paris (4) iii, pp. 269–296, pls. xi & xii. [*Turdidæ, Troglodytidæ, Timeliidæ, Motacillidæ.*]

399. Palmer, J. Eggs of the Cuckoo (*Cuculus canorus*) in nests of the Hawfinch (*Coccothraustes vulgaris*). Zoologist 1902, p. 279. [*Cuculi.*]

400. Palmer, W. & Riley, J. H. Descriptions of three new birds from Cuba and the Bahamas. P. Soc. Washington xv, pp. 33 & 34. [*Columbiformes, Trochili.*]

400a. Palmgren, R. Anteckningar gjorda under er ornitologisk resa till Lunkulans-aare och Mantsinaari i Salmis socken. Medd. Soc. Faun. Fenn. xxviii, pp. 52–72.

401. Parkin, T. Moor-hen (*Gallinula chloropus*) breeding in a Rook's nest (*Trypanocorax frugilegus*). Zoologist 1902, pp. 279 & 280. [*Ralliformes.*]

401a. Parona, C. Catalogo di elminti raccolti in Vertebrati dell' isola d' Elba. Atti Soc. Ligustica xiii, *Uccelli*, pp. 28 & 29.

Paterson, D. R. [See Proger, T. W. (421).]

402. Patten, C. J. A list of birds observed west of Dingle, Co. Kerry. Irish Natural. xi, pp. 125–137.

403. Patterson, A. Waxwings (*Ampelis garrulus*) at Great Yarmouth. Zoologist 1902, p. 25. [*Ampelidæ.*]

404. Pauli, M. Zur Wanderung der Störche. Ornith. Monber. x, pp. 158 & 159. [*Ciconiiformes.*]

405. Pavesi, P. Il settimo calendario ornitologico Pavese (1898–1902). Rend. Ist. Lombardo (2) xxxv, pp. 367–376.

406. Peacock, M. The birds of north-west Lindsey. Naturalist 1902, pp. 197–204.

407. Percival, A. Blayney. Field-notes on Birds seen and collected during eight months stay on the Ruo and Shiré Rivers, British Central Africa, 1898–99. Ibis 1902, pp. 581–599. [*Accipitriformes.*]

408. Percival, W. G. Breeding of Sheld-Ducks in confinement (*Tadorna cornuta*). Avicult. Mag. viii, pp. 255 & 256. [*Anseriformes.*]

409. *Perkins, G. H. & Howe, C. D. A preliminary list of the birds found in Vermont. Ann. Rep. Vermont State Board of Agriculture for 1901, 1892, 85–118 pp.

410. Philippi, R. A. Figuras i Descripciones de Aves Chilenas. An. Mus. Chile, Entr. 15, pp. 1–114, Lam. i–li. [*Accipitriformes, Caprimulgi, Dendrocolaptidæ, Phœnicopteriformes, Charadriiformes, Sphenisciformes.*]

411. Phillipps, R. The European Bee-eater (*Merops apiaster*). Aviculit. Mag. viii, pp. 103–108, 128–132, 152–162, cum tab. [*Meropes.*]

412. ——. The Indian Pitta (*Pitta brachyura*). T. c. pp. 179–185, 257–262, cum tab. [*Pittidæ.*]

413. ——. The Australian Waxbill (*Ægintha temporalis*). T. c. pp. 289–293. [*Ploceidæ.*]

414. Pigott, T. Digby. On the early breeding of *Turdus musicus* and *Anorthura troglodytes*. Bull. B. O. C. xiii, p. 26.

415. Pogge, —. Beobachtungen aus dem Nordöstlichen China gesammelt während des Krieges in China. J. Ornith. 1902, pp. 369–390.

416. Pomayer, C. Die Vögel. Mit Tafel ix und 8 figuren im text. Morphol. Jahrb. xxx, pp. 614–651.

417. Popham, H. L. On Thrushes from the Yenesei Valley. Bull. B. O. C. xii, p. 68.

418. Preble, E. A. A biological investigation of the Hudson Bay region. North Amer. Fauna, No. 22. Bull. U. S. Dep. Agric. Biol., Birds of Keewatin, pp. 75–131.

420. Primrose, A. M. The Masked Finfoot (*Heliopais personata*) in Cachar. J. Bombay Soc. xiv, pp. 173. [*Ralliformes.*]

421. Proger, T. W. & Paterson, D. R. Notes on Ornithology. Rep. Cardiff Soc. xxxii, pp. 57–60. [*Ardeiformes, Galliformes.*]

422. Proud, D. F. Exhibition of supposed authentic eggs of the Knot (*Tringa canutus*). Bull. B. O. C. xiii, pp. 12 & 13. [*Charadriiformes.*]

423. Punkur, G. Frühjahrs-daten von vierzehn Jahren (Nach den Aufzeichnungen des Herrn Br. Snouckaert). Aquila ix, pp. 187–192.

424. Purdy, J. B. Snowy Owl (*Nyctea nyctea*) and Golden Eagle (*Aquila chrysaetos canadensis*) at Plymouth, Michigan. Auk xix, p. 80. [*Accipitriformes, Strigiformes.*]

425. Pycraft, W. P. Contributions to the osteology of birds. Part v *Falconiformes*. P. Zool. Soc. London 1902, i, pp. 277–320, pls. xxxi–xxxiii, text-figg. 33–37. [*Accipitriformes.*]

426. ——. The bird's wing, and the problem of diastataxy. Tr. Norfolk Soc. vii, pp. 312–327, text-figg. 1–5.

427. Raspail, X. Le Martinet (*Cypselus apus*) posé a terre peut-il prendre son vol? Bull. Soc. zool. France xxvii, pp. 72–77.

428. Rathburn, S. F. A list of the land birds of Seattle, Washington, and vicinity. Auk xix, pp. 131–141.

429. Read, R. H. Yellow-billed Cuckoo (*Coccyzus americanus*) in Somerset. Zoologist 1902, p. 26. [*Cuculi.*]

429a. Regalia, E. Sette Uccelli pliocenici del Pisano e del Valdarno superiore. Palæontogr. ital. viii, pp. 219–238, tav. xxvii. [*Corvidæ, Accipitriformes, Pelecaniformes, Alciformes, Colymbiformes, Podicipediformes.*]

430. Reichenow, A. Die Vögel Afrikas. Zweiter Band. Erste Hälfte. Dritter Halbband. Neudamm: 1902, 4to, 384 pp., 5 pls. and map. [*Psittaci, Musophagi, Cuculi, Indicatores, Capitones, Pici, Colii, Trogones, Coraciæ, Bucerotes, Halcyones, Meropes, Upupæ, Caprimulgi, Cypseli, Motacillidæ, Corvidæ, Ploceidæ, Ralliformes.*]

431. ——. Die Vögel des deutschen Schutzgebietes Togo. J. Ornith. 1902, pp. 9–43. [*Prionopidæ, Nectariniidæ, Turdidæ.*]

432. ——. Ueber *Erythacus cairii.* T. c. p. 123. [*Turdidæ.*]

433. ——. *Stizorhina vulpina*, n. sp. T. c. p. 125. [*Muscicapidæ.*]

434. ——. *Colymbus nigricans poggei*, n. subsp., W. China. T. c. p. 125. [*Podicipedidiformes.*]

435. ——. Ueber *Chalcopelia chalcospilos.* T. c. p. 134. [*Columbiformes.*]

436. ——. Ueber *Muscicapa riisi.* T. c. p. 254. [*Muscicapidæ.*]

437. ——. Ueber Vögel von Nauru. T. c. pp. 254–257.

438. ——. Ueber einige neue Arten. T. c. pp. 257 & 258. [*Campophagidæ, Laniidæ.*]

439. ——. Ueber den Auffassung des Begriffes der Subspecies. T. c. pp. 363–365.

440. ——. Neues aus Afrika. Ornith. Monber. x, p. 8. [*Nectariniidæ, Fringillidæ.*]

441. ——. Ueber *Vinago calva.* T. c. p. 45. [Review.] [*Columbiformes.*]

442. ——. Neue Vogelarten aus Damaraland, gesammelt von Oberstabsarzt Dr. Lübbert. T. c. pp. 77–79. [*Laniidæ, Ploceidæ, Paridæ, Muscicapidæ, Fringillidæ, Turdidæ, Alaudidæ, Irrisoridæ.*]

443. ——. Ueber *Turtur capicola tropica*, n. consp. T. c. pp. 139 & 140. [*Columbiformes.*]

444. ——. *Thamnolæa coronata, Ploceus schillingsi*, n. spp. T. c. pp. 157 & 158. [*Turdidæ, Ploceidæ.*]

445. Reiser, O. Der Harpyien Wohnsitz. Ornith. Monber. xiii, pp. 133–138. [*Procellariiformes, Sylviidæ.*]

445a. Renvall, T. Spridda ornitologiska meddelanden. Medd Soc. Faun. Fenn. xxviii, pp. 97–101.

445b. Rey, E. Die Eier der Vögel Mitteleuropas. Gera-Untermhaus [1900], 8vo, Liefer. 1–16, pp. 1–264, Tafeln 1–69.

446. Richmond, C. W. List of generic terms proposed for birds during the years 1890 to 1900 inclusive to which are added names omitted by Waterhouse in his "Index Generum Avium". P. U. S. Mus. xxiv, pp. 663–729. [*Sturnidæ.*]

447. ——. General notes. P. Soc. Washington xv, pp. 85, 86 & 89. [*Strigiformes, Pici, Trochili, Turdidæ, Icteridæ.*]

448. ——. Descriptions of two new birds from Trong, Lower Siam. T. c. pp. 157 & 158. [*Timeliidæ, Turdidæ.*]

449. ——. Description of a new subspecies of *Stenopsis cayennensis* from Curaçao. T. c. pp. 159 & 160. [*Caprimulgi.*]

450. [RICHMOND, C. W.] Descriptions of eight new birds from the islands off the west coast of Sumatra. T. c. pp. 187–190. [*Columbiformes, Psittaci, Pici, Muscicapidæ, Timeliidæ.*]

450A. ——. Note on *Pinaroloxias inornata* (Gould). T. c. pp. 242, 248. [*Fringillidæ.*]

450B. ——. *Parus inornatus griseus* renamed. T. c. p. 155. [*Paridæ.*]

451. ——. Note on the name *Colinus.* Auk xix, p. 79. [*Galliformes.*]

452. ——. Note on '*Delattria henrici.*' T. c. p. 83. [*Trochili.*]

453. ——. *Vestipedes* vs. *Eriocnemis.* T. c. p. 83. [*Trochili.*]

454. ——. The correct name for the Canadian Pine Grosbeak. T. c. p. 85. [*Fringillidæ.*]

455. ——. *Tiaris* instead of *Euetheia.* T. c. p. 87.

456. ——. *Toxostoma* vs. *Harporhynchus.* T. c. p. 89. [*Mimidæ.*]

457. ——. Necessary generic changes in nomenclature. T. c. p. 92. [*Accipitriformes, Troglodytidæ, Sturnidæ, Tyrannidæ, Sittidæ, Trochili.*]

458. RIDGWAY, R. The Birds of North and Middle America: A descriptive Catalogue of the higher groups, genera, species and subspecies of Birds known to occur in North America, from the Arctic Lands to the Isthmus of Panama, the West Indies and other islands of the Caribbean Sea, and the Galapagos Archipelago. Part II. Family *Tanagridæ*—The Tanagers: *Icteridæ*—The Trupials: *Cærebidæ*—The Honey Creepers: *Mniotiltidæ*—The Wood Warblers. Bull. U. S. Mus. l, part ii, pp. xx, 1–834, pls. i–xxii. [*Tanagridæ, Icteridæ, Cærebidæ, Mniotiltidæ.*]

459. ——. Descriptions of three new birds of the families *Mniotiltidæ* and *Corvidæ.* Auk xix, pp. 69 & 70. [*Mniotiltidæ, Corvidæ.*]

460. RILEY, J. H. Note on the name of Audubon's Shearwater (*Puffinus auduboni*). Auk xix, p. 195. [*Procellariiformes.*]

——. [See also PALMER, W. (400).]

461. RIVIÈRE, B. B. King-Eider (*Somateria spectabilis*) in Fifeshire. Zoologist 1902, p. 27. [*Anseriformes.*]

462. ROEBUCK, W. D. List of Yorkshire and Lincolnshire birds. Naturalist 1902, pp. 97–112.

463. ROTHSCHILD, N. CHARLES, & WOLLASTON, A. F. R. On a collection of Birds from Shendi, Soudan. Ibis 1902, pp. 1–33, pl. i. [*Alaudidæ, Fringillidæ, Sylviidæ, Caprimulgi, Strigiformes.*]

464. ROTHSCHILD, WALTER. List of a collection of birds made south of the Issi-Kul in Russian Turkestan. Nov. Zool. ix, pp. 162–168. [*Pici, Paridæ, Laniidæ, Fringillidæ.*]

465. ——. On the British Dipper. Ibis 1902, pp. 524 & 525. [*Cinclidæ.*]

466. ——. On nests and eggs from the Galapagos Islands. Bull. B. O. C. xii, pp. 46 & 47. [*Cærebidæ, Fringillidæ, Tyrannidæ, Mimidæ.*]

467. ——. Exhibition of type specimens of *Loborhamphus nobilis* and *Parotia duivenbodei.* T. c. p. 47.

468. ——. A curious variety of *Eclectus roratus.* T. c. pp. 47 & 48. [*Psittaciformes.*]

469. ——. On a new species of Argus Pheasant. T. c. pp. 55 & 56. [*Galliformes.*]

470. [ROTHSCHILD, WALTER.] On a new Petrel from the Pacific. T. c. pp. 62 & 63. [*Procellariiformes.*]

471. ——. On a new species of *Hypotænidia.* T. c. pp. 75 & 76. [*Ralliformes.*]

472. ——. On a new subspecies of *Francolinus coqui.* T. c. p. 76. [*Galliformes.*]

473. ——. On birds from the Cocos Islands, Pacific Ocean. Op. cit. xiii, p. 6. [*Fringillidæ.*]

474. ——. Exhibition of *Micranous diamezus* and species of *Sula.* T. c. p. 7.

475. ——. On a new species of Gannet from the Galapagos. T. c. p. 7. [*Pelecaniformes.*]

476. —— & HARTERT, E. Further notes on the Fauna of the Galapagos Islands. Nov. Zool. xi, pp. 373–418. Notes on the Birds, iid. t. c. pp. 381–416. Annotated List of the Birds of the Galapagos Islands, iid. t. c. pp. 416–418. [*Pelecaniformes, Procellariiformes, Strigiformes, Fringillidæ, Cærebidæ, Mimidæ, Corvidæ.*]

477. —— & ——. List of a collection of Birds made on Ysabel Island in the Solomon Group by Mr A. S. Meek. T. c. pp. 581–594, pls. vii, xi. [*Lariformes, Accipitriformes, Strigiformes, Psittaciformes, Coraciiformes, Cuculi, Campophagidæ, Zosteropidæ, Meliphagidæ, Eulabetidæ.*]

478. —— & ——. List of a small collection of Birds made by Mr A. S. Meek on Treasury Island, Solomon Islands. T. c. p. 594.

479. SALTER, J. H. Ornithological notes from Mid-Wales. Zoologist 1902, pp. 1–7.

480. ——. The Tree-Sparrow (*Passer montanus*) in Cardiganshire. T. c. p. 25. [*Fringillidæ.*]

481. SALVADORI, I. Due nuove specie di Uccelli dell' isola di S. Thomé e dell' isola del Principe raccolte dal sig. Leonardo Fea. Boll. Mus. Torino xvi, No. 414. [*Zosteropidæ, Turdidæ.*]

482. ——. Nuova specie del genere *Ammomanes.* Op. cit. xvii, No. 425. [*Alaudidæ.*]

483. ——. *Zosterops feae,* n. sp., S. Thomé, W. Africa. Op. cit. xvi, No. 414.

484. ——. On the ornithological collection formed by King Victor Emanuel I. Ibis 1902, pp. 523 & 524. [*Corvidæ.*]

485. ——. On a new Kingfisher of the genus *Corythornis.* T. c. pp. 566–569, pl. xiii. [*Coraciiformes.*]

485A. ——. Osservazioni scientifiche eseguite durante la spedizione polare di S.A.R. Luigi Amedeo di Savoia, Duca degli Abruzzi, 1899–1900. Uccelli ii, pp. 597–607.

486. SANDYS, E. & VAN DYKE, T. S. Upland Game Birds. New York 1902, 8vo, ix, 429 pp.

487. SANSON, L. & LECOMTE, L. Les Oiseaux remarquables du Musée d'Elbeuf. Bull. Soc. Elbeuf xx, pp. 77–84.

488. SAUNDERS, HOWARD. On the probable nesting of the Spoonbill in Norfolk. Bull. B. O. C. xii, p. 68. [*Ardeiformes.*]

489. [SAUNDERS, HOWARD.] On the occurrence of *Phylloscopus viridanus* off the coast of Sutherlandshire. Op. cit. xiii, p. 12.

490. ——. *Anthus spipoletta* near Rye in Sussex. T. c. p. 20.

491. SAUNDERS, W. E. The Ipswich Sparrow (*Ammodramus princeps*) in its summer home. Auk xix, pp. 267–271. [*Fringillidæ.*]

492. SAXBY, T. E. Notes from Shetland. Zoologist 1902, pp. 112 & 113.

493. ——. Ornithological notes from Shetland. T. c. p. 468. [*Fringillidæ.*]

494. SCHAFFER, J. Über die Sperrvorrichtung an den Zehen der Vögel. Ein Beitrag zur Mechanik des Vogelfusses und zur Kenntnis der Bindesubstanz. Zeitschr. wiss. Zool. lxxiii, pp. 377–428 mit tafel xxvi–xxviii.

495. SCHALOW, H. Ueber *Erythacus cairii.* J. Ornith. 1902, pp. 122–124. [*Turdidæ.*]

496. ——. *Anas crecca* in Spitzbergen. T. c. p. 126. [*Anseriformes.*]

497. SCHENK, J. Die Frage des Vogelzuges. Aquila ix, Suppl. pp. 1–25.

498. SCHMITT, J. A summer colony at Anticosti. Auk xix, pp. 181–183, pl. vii.

499. SCHMITZ, E. Aus dem Vogelleben der Insel Porto Santo. Ornith. Jahrb. xiii, pp. 130–135.

499a. ——. As aves da Madeira. Ann. Sci. nat. Porto vii, pp. 125–135.

500. SCHULZ, W. A. Die Brüllaffen unter den Vögeln. J. Ornith. 1902, pp. 361–363.

501. SCHUSTER, L. Aus dem Familienleben unserer Spechtmeise (*Sitta europæa*). Zool. Garten xliii, pp. 319–323. [*Sittidæ.*]

502. ——. Schutzfärbung und Instinkt der Vögel. J. Ornith. 1902, pp. 70–86.

503. SCHUSTER, W. Die Vogelwelt und die Tertiärzeit. T. c. pp. 331–348.

504. SCLATER, P. L. List of the Parrots represented in the Society's collection in January 1902, with remarks on some of the rarer species. P. Zool. Soc. London 1902, vol. i, pp. 166–171, pls. xviii & xix. [*Psittaci.*]

505. ——. Remarks on two lately-described Australian birds. Ibis 1902, pp. 608–610, pls. xiv & xv. [*Sylviidæ, Psittaciformes.*]

506. ——. On new and rare species of Australian birds. Bull. B. O. C. xii, pp. 50 & 51. [*Psittaciformes, Meliphagidæ, Alaudidæ, Sylviidæ, Muscicapidæ.*]

507. ——. On *Phyllomyias berlepschi* from Tucuman. T. c. p. 52. [*Tyrannidæ.*]

508. ——. On a living specimen of *Tichodroma muraria.* T. c. p. 64. [*Certhiidæ.*]

509. ——. On birds obtained by the exploring ship 'Discovery.' T. c. pp. 64 & 65.

510. ——. Chairman's annual address to the B. O. C. Op. cit. xiii, pp. 1–6.

511. ——. On the occurrence of *Porphyrio poliocephalus* in Hampshire. T. c. pp. 17 & 18. [*Ralliformes.*]

512. [SCLATER, P. L.] On *Sphenura broadbenti*. T. c. p. 23. [*Timeliidæ*.]

512A. ——. On a living specimen of *Paradisea apoda*. T. c. pp. 23 & 24. [*Paradiseidæ*.]

513. SCLATER, W. L. On birds obtained by Capt. Barrett-Hamilton in the Orange River Colony. Bull. B. O. C. xii, p. 71. [*Ploceidæ*.]

514. ——. On Stark's 'Birds of South Africa.' T. c. p. 71.

515. ——. On some South African Coots. T. c. p. 70. [*Ralliformes*.]

516. ——. On the occurrence of *Porzana marginalis* in Cape Colony. T. c. p. 82. [*Ralliformes*.]

517. ——. Some account of the Ground Hornbill, or Brom-Vogel (*Bucorax cafer*). Zoologist 1902, pp. 49–52 cum fig. [*Bucerotes*.]

518. SEEBOHM, H. A monograph of the *Turdidæ*, or Family of Thrushes. Edited and completed (after the Author's death) by R. Bowdler Sharpe. London, 1902, Imp. 4to, parts xii & xiii, with introduction, list of plates, appendix and index. [*Turdidæ*.]

519. SELOUS, E. An observational diary of the habits—mostly domestic—of the Great Crested Grebe (*Podicipes cristatus*), and of the Peewit (*Vanellus vulgaris*), with some general remarks. Zoologist 1902, pp. 133–144. [*Podicipedidiformes*, *Charadriiformes*.]

520. ——. Variations in colouring of *Stercorarius crepidatus*. T. c. pp. 368–373. [*Lariformes*.]

521. SERVICE, R. The Black-headed Gull (*Larus ridibundus*): some modifications of habits. Zoologist 1902, pp. 216–219. [*Lariformes*.]

522. SETH-SMITH, D. The Parrot-Finch (*Erythrura psittacea*). Aviculf. Mag. viii, pp. 59 & 60 cum tab. [*Psittaci*.]

523. SHARPE, R. BOWDLER. Report on the Collections of Natural History made in the Antarctic Regions during the voyage of the "Southern Cross." Aves, pp. 106–173, pls. vii, viii, ix, x. [*Sphenisciformes*, *Lariformes*, *Procellariiformes*.]

524. ——. On a small collection of birds from Efulen in Cameroons, W. Africa. Ibis 1902, pp. 89–96, pl. iv. [*Timeliidæ*, *Turdidæ*.]

525. ——. On the collections of birds made by Sir Harry Johnston in Equatorial Africa. T. c. pp. 96–121, pl. v. [*Columbiformes*, *Accipitriformes*, *Caprimulgi*, *Coliidæ*, *Scansores*, *Nectariniidæ*, *Ploceidæ*, *Eulabetidæ*.]

526. ——. On the changes of plumage in the Wild Duck, without moult. Bull. B. O. C. xiii, pp. 46 & 47.

527. ——. On a new Petrel from the island of South Trinidad. T. c. p. 49. [*Procellariiformes*.]

528. ——. *Pitta longipennis* in Rhodesia. T. c. p. 49. [*Pittidæ*.]

529. ——. On some changes of generic names preoccupied in other classes of Zoology. T. c. p. 54. [*Timeliidæ*.]

530. ——. A new species of *Gymnopelia* from Argentina. T. c. p. 54. [*Columbiformes*.]

531. ——. Notes on African Larks. T. c. pp. 61 & 62. [*Alaudidæ*.]

532. ——. On the foot-marks scored on rocks by the Rock-hopper Penguins in the Falkland Islands. T. c. p. 67. [*Sphenisciformes*.]

533. [SHARPE, R. BOWDLER.] Note on the penis of *Textor niger*. T. c. p. 78.

534. ——. On birds from the Cameroons. T. c. pp. 79 & 80. [*Accipitriformes, Indicatores.*]

535. ——. On the species of *Chalcopelia*. T. c. pp. 83 & 84. [*Columbiformes.*]

536. ——. New species of birds obtained by Mr F. J. Jackson from the Ruwenzori Range. Op. cit. xiii, p. 7. [*Cuculi, Pici, Ploceidæ, Nectariniidæ, Turdidæ, Sylviidæ, Muscicapidæ, Timeliidæ, Pycnonotidæ.*]

537. ——. On new species of birds collected by Colonel Rippon in Yun-nan. T. c. pp. 11 & 12. [*Fringillidæ, Muscicapidæ, Certhiidæ, Troglodytidæ, Paridæ, Timeliidæ.*]

538. ——. On authentic eggs of *Tringa canutus*. T. c. pp. 12 & 13. [*Scolopacidæ.*]

539. ——. On two new species of birds from Ruwenzori. T. c. p. 21. [*Ploceidæ.*]

540. ——. On the occurrence of *Ægialitis venusta* in S. E. Africa. T. c. p. 29. [*Charadriiformes.*]

540A. ——. On a new species of *Gennæus*. T. c. p. 29. [*Galliformes.*]

——. [See also JACKSON (283), and SEEBOHM (518).]

541. SHELLEY, G. E. The birds of Africa, comprising all the species which occur in the Ethiopian Region. Vol. iii. London, 1902, 8vo, x, 278 pp., pls. xv–xxviii. [*Motacillidæ, Alaudidæ, Fringillidæ.*]

541A. SHUFELDT, R. W. Osteology of the *Psittaci*. Ann. Carnegie Mus. i, no. 4, pp. 399–421.

541B. ——. The Osteology of the *Steganopodes*. Mem. Carnegie Mus. i, pp. 109–223, pls. xxi–xxx. [*Pelecaniformes.*]

542. SIM, G. The Little Owl (*Athene noctua*) in Kincardineshire. Ann. Scott. Nat. Hist. 1902, p. 119. [*Strigiformes.*]

543. SIMON, E. Étude sur les Trochilidés observés au Pérou par G. A. Baer (1900–1901). Nov. Zool. ix, pp. 177–183. [*Trochili.*]

544. SLATER, H. H. The birds of Northamptonshire. Report for 1900. J. Northants. Soc. xi, pp. 57–63, 141–148.

545. SMITH, H. M. A supposed new colony of Least Terns (*Sterna antillarum*) on Martha's Vineyard. Auk xix, p. 76. [*Lariformes.*]

546. SMYTH, E. A. Franklin's Gull in the Virginia Mountains (*Larus franklinii*). Auk xix, pp. 74 & 75. [*Lariformes.*]

547. SNODGRASS, R. E. The relation of the food to the size and shape of the bill in the Galapagos genus *Geospiza*. T. c. pp. 367–381, pls. xi–xiii. [*Fringillidæ.*]

547A. —— & HELLER, E. The birds of Clipperton and Cocos Islands. P. Washington Ac. iv, pp. 501–520.

548. SNOUCKAERT VAN SCHAUBURG, R. Ornithologisches aus Holland. Ornith. Monber. x, pp. 1–4. [*Charadriiformes, Procellariiformes, Anseriformes.*]

549. ——. Zwei neue Vögel für Holland. T. c. p. 157. [*Accipitriformes.*]

550. ——. Vogelzugsdaten und Notizen. Aquila ix, pp. 171–186.

550A. ——. Ornithologie van Nederland waarnemingen van 1 Mei 1901 tot en Met 30 April 1902. Tijdschr. Nederland. Dierk. Ver. (2) vii, pp. 254–275.

551. Southwell, T. The Great Bustard in Norfolk. Tr. Norfolk Soc. vii, pp. 328–330. [*Otides.*]

Ssmirnow, N. [See Goebel, H. (180).]

552. Steele-Elliott, J. The Vertebrate Fauna of Bedfordshire. Zoologist 1902, p. 117.

553. Sterling, E. A. Notes on the spring migration of birds in the northern Adirondacks. Auk xix, pp. 297–300.

Stolzmann, J. [See Berlepsch, H. (25).]

554. Stone, W. A collection of birds from Sumatra, obtained by Alfred C. Harrison, Jr. and Dr H. M. Hiller. P. Ac. Philad. 1902, pp. 670–691. [*Halcyones, Muscicapidæ, Timeliidæ.*]

555. ——. Report of the committee on the protection of North American birds. Auk xix, pp. 31–34.

556. Stott, J. Birds of Hollingworth Lake. Tr. Rochdale Soc. vi, pp. 64–72.

557. Strong, R. M. The development of color in the definitive feather. Bull. Mus. Harvard xl, pp. 147–186, pls. 1–9.

558. Sturt-Gray, M. G. In Memoriam. The late John Clavell Mansel-Pleydell. P. Dorset. Club xxiii, pp. lxii–lxxii.

559. Styan, F. W. On the occurrence of *Nycticorax magnifica* in China. Ibis 1902, p. 164. [*Ardeiformes.*]

560. Swainson, E. A. Nesting of the Hawfinch (*Coccothraustes vulgaris*) in Breconshire. Zoologist 1902, pp. 465 & 466. [*Fringillidæ.*]

561. Swenander, G. Studien über den Bau des Schlundes und des Magens der Vögel. Danske Selsk. Skr. 1901, No. 6, pp. 1–240, Tafeln i–viii.

562. Szalay, L. von. Comparative Osteologie der Brust-Schulterapparate von *Anser fabalis* und *A. neglectus*, *Larus ridibundus* und *L. canus*. Aquila ix, pp. 12–29, Tab. i–iii. [*Anseriformes, Lariformes.*]

562a. Szielasko, A. Die Bildungsgesetze der Vogeleier bezüglich ihrer Gestalt. Gera, 1902.

563. Tegetmeier, W. B. On a curious variety of the Wood-cock (*Scolopax rusticula*). Bull. B. O. C. xiii, p. 29. [*Charadriiformes.*]

564. Thayer, G. H. Some southern New Hampshire and western Massachusetts notes. Auk xix, pp. 294–297.

565. Thilenius, G. Ergebnisse einer Reise durch Oceanien. Zool. Jahrb. Syst. xvii, pp. 425–443.

566. Thienemann, J. I Jahresbericht (1901) der Vogelwarte Rossitten der Deutschen Ornithologischen Gesellschaft. I. Einleitung (pp. 137–159). II. Wissenschaftlicher Theil (pp. 159–203). III. Vogelschutz (pp. 204–209). J. Ornith. 1902, pp. 137–209, Taf. ii–viii. [*Charadriiformes, Motacillidæ.*]

567. ——. Vogelwarte Rossitten. Ornith. Monber. x, pp. 65 & 66, 152–157, 187 & 188. [*Anseriformes, Corvidæ, Strigiformes.*]

568. ——. *Fuligula islandica* bei Nemonien am Kurischen Haff. T. c. p. 80. [*Anseriformes.*]

569. ——. Das häufige Vorkommen von Filarien in *Lanius collurio*. T. c. pp. 91–93. [*Laniidæ.*]

571. Thompson [Lady]. The Santa Lucia Parrot (*Chrysotis versicolor*). Avicult. Mag. viii, pp. 275 & 276. [*Psittaci.*]

572. Thompson, H. N. & Craddock, W. H. Notes on the occurrence of certain birds in the Southern Shan States of Burma. J. Bombay Soc. xiv, p. 600. [*Timeliidæ, Sittidæ, Accipitriformes, Strigiformes, Columbiformes.*]

573. Ticehurst, N. F. *Melanocorypha sibirica* in Kent. Bull. B. O. C. xii, p. 50. [*Alaudidæ.*]

574. ——. On the occurrence of *Alauda sibirica* and *Emberiza rustica* in Sussex. Op. cit. xiii, pp. 14 & 15. [*Alaudidæ, Fringillidæ.*]

575. ——. On the occurrence of *Motacilla flava* in the south of England. T. c. p. 20.

576. —— & C. B. An account of the birds met with during a short stay in East Finmark. Zoologist 1902, pp. 261–277. [*Turdidæ.*]

577. Townsend, C. W. The occurrence of the Lapland Longspur (*Calcarius lapponicus*) in mid-winter in Massachusetts. Auk xix, p. 202. [*Fringillidæ.*]

578. Townsend, G. Great Black Woodpecker (*Picus martius*) in Herefordshire. Zoologist 1902, pp. 25 & 26. [*Pici.*]

579. Tristram, H. B. Curious accident to a Kingfisher (*Alcedo ispida*). Zoologist 1902, p. 68. [*Halcyones.*]

580. Trotter, S. Observations of a pair of Mockingbirds (*Mimus polyglottis*) seen during the summer of 1901 in Solebury Township, Bucks Co., Pennsylvania. Auk xix, pp. 206–208. [*Mimidæ.*]

581. Tschusi zu Schmidhoffen, V. Über das Vorkommen des rotsternigen Blaukehlchens im Elbethale. Ornith. Monber. x, pp. 22–24. [*Turdidæ.*]

582. ——. *Passer hispaniolensis transcaspicus*, n. subsp., Lenkoran. T. c. p. 96. [*Fringillidæ.*]

583. ——. *Accentor collaris caucasicus*, n. subsp. T. c. p. 186. [*Accentoridæ.*]

584. ——. Über palaarctische Formen. Ornith. Jahrb. xiii, pp. 68–72. [*Cinclidæ, Corvidæ, Upupæ, Otides.*]

585. ——. Über palæarctische Formen. T. c. pp. 234 & 235. [*Cypseli, Muscicapidæ.*]

586. Unstersteiner, E. L' anno ornithologico al piede delle alpi. Avicula vi, pp. 1–3, 76– .

587. Vallon, G. Note ornitologiche per la provincia del Friuli durante l' anno 1901–1902. Avicula vi, pp. 5–14, 108–117, 126–130, 137. [*Turdidæ, Strigiformes.*]

588. Vezenyi, A. Der Vogelzug in Ungarn im Frühjahre 1900. Aquila ix, pp. 81–155.

589. Voeltzkow, A. Die von Aldabra bis jetzt bekannte Flora und Fauna. Abh. Senckenb. Ges. xxvi, part iv, Aves, pp. 552–555.

590. Wallis, H. M. An abnormal nest of *Chelidon urbica*. Bull. B. O. C. xiii, p. 18. [*Hirundinidæ.*]

591. Walter, H. Ornithologische Beobachtungen an der Westlichen Taimyrhalbinsel vom 1900 bis August 1901. Annuaire Mus. St. Petersb. vii, pp. 152–160.

592. WARREN, R. Increase in the numbers of breeding birds in Mayo and Sligo. Irish Natural. xi, pp. 246–249.

593. WAYNE, A. T. The Ipswich Sparrow (*Ammodramus princeps*) in South Carolina. Auk xix, p. 203. [*Fringillidæ.*]

594. WEBER, A. Observations d'embryons d'oiseaux anamniotes et normalement conformés. C.R. Soc. Biol. liv, pp. 1117 & 1118.

595. ——. Quelques faits concernant le développement de l'intestin moyen et de ses glandes annexes chez les oiseaux. T. c. pp. 1268 & 1269.

595A. WEISKE, E. Ein Beitrag zur Naturgeschichte der Laubenvogel. Monatschr. Ver. Schutze xxvii, pp. 41–45.

596. WELLS, J. G. Birds of the island of Carriacou. Auk xix, pp. 237–246, 343–349. [*Lariformes, Procellariiformes.*]

597. WHITAKER, J. I. S. Further information on two recently described species of Passerine birds. Ibis 1902, pp. 54–59, pls. ii & iii. [*Paridæ, Turdidæ.*]

598. ——. On a small collection of birds from Tripoli. T. c. pp. 643–656. [*Alaudidæ.*]

599. ——. On the Scops Owl from Cyprus (*Pizorhina cypria*). Bull. B. O. C. xii, p. 55. [*Strigiformes.*]

600. ——. Notes on *Saxicola caterinæ*. T. c. pp. 78 & 79.

601. ——. On rare species of birds from Tripoli. Op. cit. xiii, pp. 15–17. [*Turdidæ, Sylviidæ, Alaudidæ.*]

602. WHITAKER, J. The Two-barred Crossbill (*Loxia bifasciata*) in Nottinghamshire. Zoologist 1902, p. 353. [*Fringillidæ.*]

603. WHYMPER, S. L. Birds' nesting in Kumaon. J. Bombay Soc. xiv, pp. 624–626.

604. WICKERSHAM, C. W. Sickle-billed Curlew (*Numenius longirostris*). Auk xix, pp. 353–356. [*Charadriiformes.*]

605. WIDMANN, O. List of birds observed in the neighbourhood of Wequetonsing, Emmet Co., Mich., July 9 to July 23, 1901. Auk xix, pp. 232–237.

[WIGGLESWORTH, L. W.] Obituary. Auk xix, p. 119.

606. WILLIAMS, J. J. A study of bird songs. The Condor iv, pp. 12–14.

607. WILLIAMS, R. W. Unusual nesting date of the Barn Owl (*Strix pratincola*). Auk xix, pp. 198 & 199. [*Strigiformes.*]

608. WILSON, W. Kingfisher (*Alcedo ispida*) near Aberdeen. Zoologist 1902, p. 27. [*Halcyones.*]

609. WINGE, H. Fuglene ved de danske Fyr i 1901, 19de Aarsberetning om danske Fugle. Vid. Medd. 1902, pp. 259–323.

610. WITHERBY, H. F. Bird hunting on the White Nile, a naturalist's experiences in the Soudan. London, 1902, 8vo.

611. ——. Across Russian Lapland in search of birds. Knowledge xxv, pp. 25–27, 88–91, 123–127, 222–225, fig. 7.

612. ——. The migrations of the Skylark (*Alaudo arvensis*) and the Swallow (*Hirundo rustica*). T. c. pp. 52–54. [*Alaudidæ, Hirundinidæ.*]

613. [WITHERBY, H. F.] On birds collected in Southern Persia. Bull. B. O. C. xiii, p. 23.

613A. WOHLAUER, E. Entwicklung des embryonalgefieders von *Eudyptes chrysocome*. Zeitschr. Morphol. iv, pp. 149–178, taf. iv & v. [*Sphenisciformes.*]

WOLLASTON, A. F. R. [See ROTHSCHILD, N. CHARLES (463).]

WOLLEY, J. [See NEWTON, A. (377).]

613A. WOOD, H. & FINN, F. On a collection of birds from Upper Burmah. J. Asiat. Soc. Bengal lxxi, pt. ii, pp. 121–131, pl. 7.

614. *WOODCOCK, A. R. An annotated list of the Birds of Oregon. Bull. No. 68. Oregon Agricultural Experiment Station, Corvallis, Oregon, 1902, 8vo, pp. 118.

615. WORKMAN, W. H. Golden Eagle in Co. Donegal (*Aquila chrysaëtus*). Zoologist 1902, p. 150. [*Accipitriformes.*]

616. ——. Ornithological notes from the West of Scotland. T. c. pp. 423–427.

617. WORTHINGTON, W. W. Connecticut Warbler (*Geothlypis agilis*) and Philadelphia Vireo (*Vireo philadelphia*) at Shelter Island, N. Y. Auk xix, p. 89. [*Mniotiltidæ, Vireonidæ.*]

618. WRIGHT, W. C. Ravens (*Corvus* [illegible] *corax*) nesting in Co. Antrim Zoologist 1902, p. 194. [*Corvidæ.*]

619. WÜSTNEI, C. Der Vogelzug in [illegible] Mecklenburg. J. Ornith. 1902, pp. 238–253, 265–283.

619A. WÜSTNEI, G. & CLODIUS, G. D[illegible]er Weisse Storch, *Ciconia alba* Bechst. in Mecklenburg. Eine Stat[illegible]istik seiner Niststätten im Jahre 1901. Arch. Ver. Mecklenb. 1902, [illegible] pp. 1–57. [*Ardeiformes.*]

[YOUNG, JOHN.] Obituary. Ibis 1[illegible]902, pp. 173 & 174.

620. ZARUDNY, N. Über einen neuen [illegible] Wasserschwätzer. Ornith. Jahrb. xiii, pp. 57 & 58. [*Cinclidæ.*]

621. ——. Über eine wenig bekannte F[illegible]orm von *Emberiza citrinella* L. (*Emberiza citrinella mollessoni* Zarud.). T. c. p. 58. [*Fringillidæ.*]

622. ——. *Lullula arborea pallida*, n. su[illegible]bsp. von Transcaspia. Ornith. Monber. x, p. 54. [*Alaudidæ.*]

623. —— & HÄRMS, M. Neue Vogelart[illegible]en. T. c. pp. 49–54. [*Strigiformes, Accipitriformes, Fringillidæ, Alaudidæ, Paridæ.*]

624. —— & LOUDON, H. B. Zwei neue [illegible] Vogelarten. T. c. pp. 149–151, 180. [*Columbiformes, Lariformes.*]

625. —— & ——. Beschreibung einer neue[illegible]n *Podiceps*-subspecies. T. c. p. 186. [*Podicipedidiformes.*]

626. —— & ——. Über Einteilung des g[illegible]enus *Podoces* in Subgenera. T. c. p. 185. [*Corvidæ.*]

627. ZODDA, C. Contributo allo studio de[illegible]gli Uccelli Siciliani. Avicula vi, pp. 14–23, 36–40, 100–103, 133.

II. SUBJECT INDEX.

FAUNISTIC.

Palæarctic Region. ANDERSEN (7), ARRIGONI (13), BACKHOUSE (19), BIANCHI (39), BRUSINA (68), DINNIK (125A), GURNEY (205), HARVIE-BROWN (238), HELLMAYR (250), JOHANSEN (287), KEMPEN (295), LOUDON (325), MADARÁSZ (334), MELLERSH (354), ROTHSCHILD (464), TICEHURST (576), TSCHUSI (581), WALTER (591), WINGE (609), WITHERBY (611).

Ethiopian Region. ALEXANDER (3), BIANCHI (43), CHUBB (95), ERLANGER (142), GRANT (186), HARTERT (231), JACKSON (283), KELLER (293), NEUMANN (372), REICHENOW (430), ROTHSCHILD (463), SALVADORI (481), SHARPE (525), SHELLEY (541), WITHERBY (610).

Indian Region. BAKER (17), CAMPBELL (84A), DONALD (126), FINSCH (152), HARTERT (228), INGLIS (281), JESSE (286), RICHMOND (450), STONE (554), THOMPSON (572).

Australian Region. BURKHARDT (75), HALL (214), HANSON (217), LANKESTER (306), LE SOUËF (311), NORTH (389A), SHARPE (523), THILENIUS (565).

Nearctic Region. ALDERSON (1), BREWSTER (65), DWIGHT (133), GRANT (185), MEARNS (347), OBERHOLSER (392), PREBLE (418), RATHBURN (428), RIDGWAY (458), THAYER (564).

Neotropical Region. BERLEPSCH (34), BONHOTE (55), CLARK (96), GODMAN (178), GOELDI (181), GOODFELLOW (183), HARTERT (340), HELLMAYR (252), IHERING (280), OBERHOLSER (391), PHILIPPI (410), RICHMOND (449), RIDGWAY (458), SIMON (543), STOLZMANN (35), WELLS (596).

Galapagos. RIDGWAY (458), ROTHSCHILD (466), SNODGRAS (547).

Nineteenth Congress of the American Ornithologists' Union. Auk xix, pp. 64–69.

Report of the committee on the protection of North American birds. WITMER STONE, Chairman, Auk xix, pp. 31–34.

Eleventh Supplement to the American Ornithologists' Union Check-list of North American Birds. Auk xix, pp. 315–342. [*Fringillidæ, Vireonidæ, Mimidæ, Turdidæ.*]

ANATOMY AND MISCELLANEOUS.

Anatomy. BEDDARD (26), FÜRBRINGER (172B), GADOW (174), KÖLLIKER (299), MÄNNICH (338A), MAUMUS (343), MITROPHANOW (360), MUDGE (363), ORLANDI (396), POMAYER (416), PYCRAFT (426), SCHAFFER (494), SWENANDER (561).

Osteology. PYCRAFT (425), SHUFELDT (541A), SZALAY (562).

Pterylography. PYCRAFT (426).

Moults. DWIGHT (134).

Embryology. WEBER (594), WOHLAUER (613A).

Nesting and Oology. BETHAM (36), FOSTER (169), HARRINGTON (225), LATTER (307), NEWTON (377), NORTH (388), OATES (390), OSMASTON (398).

Classification. LUCAS (330), MUDGE (363).

Literature. RICHMOND (446).

Migration. BRUSINA (70), CLARKE (99), EKAMA (140), GAAL (173), HAIGH (212), HEGEFOKY (243), HERMAN (265), LAIDLAW (305), LUCAMUS (328), MAREK (339), PUNKER (423), SCHENK (497), SNOUCKAERT (550), STERLING (553), WINGE (609), WITHERBY (612).

Bird Migration in Great Britain and Ireland. Fourth interim report of the Committee, consisting of Professor NEWTON (*Chairman*), Rev. E. P. KNUBLEY (*Secretary*), Mr JOHN A. HARVIE-BROWNE, Mr R. M. BARRINGTON, and Mr A. H. EVANS, appointed to work out the details of the Observations of Migration of Birds at Lighthouses and Lightships, 1880–87. Rep. Brit. Ass. 1901, p. 364.

Statement made to the Committee. By W. EAGLE CLARKE. T. c. pp. 365–376. [*Alaudidæ, Hirundinidæ.*]

Fifth interim report of the Committee, consisting of Professor NEWTON (*Chairman*), Rev. E. P. KNUBLEY (*Secretary*), Mr JOHN A. HARVIE-BROWNE, Mr R. M. BARRINGTON, Mr A. H. EVANS, and Dr H. O. FORBES, appointed to work out the details of the Observations of Migration of Birds at Lighthouses and Lightships, 1880–1887. Op. cit. 1902, pp. 273 & 274.

Statement furnished to the Committee by Mr W. EAGLE CLARKE. T. c. pp. 274–283. [*Turdidæ, Charadriiformes.*]

III. SYSTEMATIC.

Sub-class RATITÆ.

Order RHEIFORMES.

Rhea americana, in captivity; FOTHERGILL, Avicult. Mag. viii, p. 127, pl. E.

Order CASUARIIFORMES.

Dromæus novæhollandiæ, pterylography of; LE SOUËF, Emu i, pp. 6–8 cum tab.

Order ÆPYORNITHIFORMES.

Æpyornis, egg of; remarks on species; CAPELLINI, Mem. Acc. Bologna (5) viii, pp. 139–153 [1900]: id. Rend. Acc. Bologna, n. s. iv, pp. 45–47.

Sub-class CARINATÆ.

Order TINAMIFORMES.

Tinamus latifrons, notes on; HARTERT, Nov. Zool. ix, p. 599.

Crypturus meserythrus distinct from *C. pileatus*; id. t. c. pp. 599 & 600.

Nothoprocta fulvescens, n. sp., S. E. Peru, BERLEPSCH, Verh. v. Int. Zool. Congr. 1902, p. 548.

Order GALLIFORMES.

Gallinæ of Central America; see GODMAN, Biol. Centr.-Amer. Aves iii, pp. 270–280, pl. lxxi.

Crax sulcirostris=*C. pinima*; GRANT, Ibis 1902, pp. 244 & 245: *C. panamensis*, notes on; HARTERT, Nov. Zool. ix, p. 601.

Penelope sclateri plumosa, n. subsp., Maraynioc, Central Peru; BERLEPSCH & STOLZMANN, P. Zool. Soc. London 1902, ii, p. 45.

Ortalis struthopus not distinct from *O. cinereiceps*; GRANT, Ibis 1902, p. 245: *O. wagleri*, figured; GODMAN, Biol. Centr.-Amer. Aves iii, Tab. 72.

Chamæpetes unicolor, figured; id. t. c. Tab. 71.

Lagopus leucurus altipetens=*L. leucurus*; GRANT, Ibis 1902, p. 233: *L. leucurus peninsularis*, n. subsp., Kenai Mts., Alaska; CHAPMAN, Bull. Amer. Mus. xvi, pp. 236–238.

Tetrao tetrix tschusii, note on; JOHANSEN, Ornith. Jahrb. xiii, pp. 178–183, Taf. 1.

Canachites. Notes on *C. canadensis* and its allies; GRANT, Ibis 1902, pp. 233–235.

Caccabis petrosa, in Glamorganshire; PROGER & PATERSON, Rep. Cardiff Soc. xxxii, p. 57.

Francolinus coqui angolensis, n. subsp., Angola; ROTHSCHILD, Bull. B. O. C. xii, p. 76: *F. castaneicollis* and *F. bottegi*, notes on; NEUMANN, J. Ornith. 1902, pp. 132 & 133: *F. gedgei*, near Fashoda; GRANT, Ibis 1902, pp. 468 & 469: *F. nigrisquamatus*, n. sp., Omo River, Equat. Africa; NEUMANN, Ornith. Monber. x, pp. 8 & 9: *F. thornei*, n. sp., Sierra Leone; GRANT, Bull. B. O. C. xiii, p. 22.

Perdix montana, in Staffordshire; MASEFIELD, Rep. North Staffordsh. Club xxxvi, pp. 65–68, pl. i.

Coturnix coturnix, var. (form *melanoerythrina*), figured; HERMAN, Aquila ix, Tab. vii.

Gennæus ripponi, n. sp., S. Shan Hills; SHARPE, Bull. B. O. C. xiii, p. 29.

Phasianus ijimæ, n. sp., Kiu-Siu I., Japan; DRESSER, Ibis 1902, pp. 656 & 657.

Gallus pseudhermaphroditus, Blyth, note on; FINN, J. Asiat. Soc. Bengal (2) lxxi, pp. 84 & 85.

Polyplectron chinquis must be called *P. bicalcaratus* (L.); HARTERT, Nov. Zool. ix, pp. 538 & 539.

Rheinardius ocellatus nigrescens, n. subsp., Ulu Pahang, E. Malay Peninsula; W. ROTHSCHILD, Bull. B. O. C. xii, pp. 55 & 56.

Numida somaliensis distinct from *N. ptilorhyncha*; LORT PHILLIPS, Bull. B. O. C. xii, p. 50.

Numida meleagris × *Gallus domesticus*, note on; FINN, J. Asiat. Soc. Bengal (2) lxxi, pp. 91 & 92, pl. vi.

Meleagris, notes on the species and their synonymy; GRANT, Ibis 1902, pp. 235–237; NELSON, Auk xix, p. 388: *M. gallopavo merriami*, note on; GOLDMAN, Auk xix, pp. 121–127.

Dendrortyx macrurus and allies, notes on; GRANT, Ibis 1902, pp. 237 & 238; NELSON, Auk xix, p. 388.

Lophortyx, notes on the species; GRANT, Ibis 1902, p. 238; NELSON, Auk xix, p. 389: *L. californicus*, breeding in captivity; Avicult. Mag. viii, p. 136–140 cum fig.

Eupsychortyx pallidus not distinct from *E. sonnini*; GRANT, Ibis 1902, p. 239.

Colinus, Goldfuss, Handbuch der Zoologie ii, p. 220 (1820), preoccupies name of *Colinus*, Less.; RICHMOND, Auk xix, p. 79: Notes on the species; GRANT, Ibis 1902, pp. 239–241; NELSON, Auk xix, pp. 389 & 390, pl. xiv.

Cyrtonyx, notes on the species; GRANT, t. c. pp. 241 & 242; NELSON, Auk xix, pp. 390 & 391, pl. xv.

Dactylortyx, notes on the species; GRANT, t. c. pp. 242 & 243; NELSON, Auk xix, p. 391.

Odontophorus melanotis, figured; GODMAN, Biol. Centr.-Amer. Aves iii, Tab. 73: *O. leucolæmus*, figured; id. t. c. Tab. 74: *O. cinctus* [i.e. *Rhynchortyx cinctus*], figured; id. t. c. Tab. 75.

O. spodiostethus = *O. cinctus*; HARTERT, Nov. Zool. ix, pp. 600 & 601.

O. castigatus = *O. marmoratus*; GRANT, Ibis 1902, p. 243: *O. consobrinus* = *O. guttatus*; id. t. c. p. 244.

Order PTEROCLIDIFORMES.

Pterocles coronatus atratus, n. subsp., E. Persia; HARTERT, Bull. B. O. C. xii, p. 48.

Order COLUMBIFORMES.

Columbæ of Central America; see GODMAN, Biol. Centr.-Amer. Aves iii, pp. 231–270, pls. lxvii–lxx.

Vinago pytiriopsis distinct from *V. calva* and *V. nudirostris*; SHARPE, Ibis 1902, pp. 98 & 99: *V. calva sharpei*, n. subsp., Gold Coast, etc.; REICHENOW, Ornith. Monber. x, p. 45.

Ptilopus ponapensis and *P. pelewensis*, figured; DUBOIS, Synopsis Avium, pl. xiii, figg. 1 & 2.

Megaloprepia salomonis, n. sp., Solomon Is.; MADARÁSZ, Termes. Fuzetek xxv, p. 351.

Globicera rufigula, figured; id. t. c. pl. xiii, fig. 3.

Columba livia, Domestic Pigeon with webbed feet; MONTAGU, Bull. B. O. C. xii, pp. 42 & 43: *C. œnas*, in Caithness; BUCKLEY, Ann. Scott. Nat. Hist. 1902, p. 53: *C. purpureotincta*, notes on; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 117: *C. goodsoni*, n. sp., N. W. Ecuador; HARTERT, Bull. B. O. C. xii, p. 42.

Alsocomus pulchricollis, in Burma; THOMPSON & CRADDOCK, J. Bombay Soc. xiv, p. 600.

Macropygia simalurensis, n. sp., Simalur Is., Sumatra; RICHMOND, P. Soc. Washington xv, pp. 187 & 188.

Zenaidura macroura bella, n. subsp., Mariel, Cuba; PALMER & RILEY, P. Soc. Washington xv, p. 33.

Turtur communis, var. *gregorjewi*, n. subsp., Baluchistan; ZARUDNY & LOUDON, Ornith. Monber. x, pp. 149 & 150, 180: *T. ambiguus*=*T. decipiens*; GRANT, Ibis 1902, pp. 465 & 466: *T. capicola tropica*, n. consp., E. Africa; REICHENOW, Ornith. Monber. xiii, pp. 139 & 140.

Gymnopelia morenoi, n. sp., Prov. Salta, Argentina; SHARPE, Bull. B. O. C. xii, p. 54.

Chalcopelia chalcospilos erlangeri, Angola, *Ch. ch. volkmanni*, Damara Land, *Ch. ch. caffra*, S. E. Africa, nn. subspp.; REICHENOW, J. Ornith. 1902, p. 134: *C. abyssinica*, n. sp., Bogos Land, SHARPE, Bull. B. O. C. xii, pp. 83 & 84: *C. delicatula*, n. sp., White Nile; id. t. c. p. 84.

Columbigallina passerina aflavida, n. subsp., Cuba; PALMER & RILEY, P. Soc. Washington xv, pp. 33 & 34.

Leptoptila plumbeiceps (tab. lxvii, fig. 1), *L. cerviniventris* (tab. lxvii, fig. 2), *L. cassini* (tab. lxviii, fig. 1), *L. rufinucha* (tab. lxviii, fig. 2), figured; GODMAN, Biol. Centr.-Amer. Aves iii, pp. 261–264.

Geotrygon laurencei, figured; id. t. c. tab. lxix: *G. rufiventris*, figured; id. t. c. tab. lxx [*G. veraguensis*].

Order RALLIFORMES.

Rallidæ of Central America. See GODMAN, Biol. Centr.-Amer. Aves iii, pp. 314–332.

Rallus nigricans humilis, n. subsp., Chanchamayo, Eastern Central Peru; BERLEPSCH & STOLZMANN, P. Zool. Soc. London 1902, ii, p. 48.

Hypotænidia kuehni, n. sp., Tukan Bessi I., S.E. of Celebes; ROTHSCHILD, Bull. B. O. C. xii, pp. 75 & 76.

Rallina superciliaris, note on; BELL, J. Bombay Soc. xiv, pp. 393 & 394: BETHAM, t. c. pp. 813 & 814.

Porzana carolina, on the island of Tiree; GUNNIS, Ann. Scott. Nat. Hist. 1902, pp. 9 & 10.

P. marginalis near East London; W. L. SCLATER, Bull. B. O. C. xii, p. 82.

P. noveboracensis, in Wisconsin; HOLLISTER, Auk xix, p. 197.

Ortygometra cinerea, eggs described; NORTH, Victorian Natural. xix, pp. 34 & 35: LE SOUËF, t. c. p. 68.

Rallus (*Porzana*) *salinasi*, figured; PHILIPPI, An. Mus. Chile xv, pl. xxiii, fig. 2: *R. antarcticus*, figured; id. t. c. pl. xxviii.

Creciscus alfari = *C. albigularis*; GODMAN, Biol. Centr.-Amer. Aves iii, p. 324.

C. leucogaster = *C. cinereiceps*; id. t. c. p. 325: *C. viridis subrufescens*, n. subsp., Eastern Peru; BERLEPSCH & STOLZMANN, P. Zool. Soc. London 1902, ii, p. 49.

Gallinula chloropus, breeding in Rook's nest; PARKIN, Zoologist 1902, pp. 279 & 280: *G. chloropus*, var., Mauritius, notes on; FINN, J. Asiat. Soc. Bengal (2) lxxi, pp. 87-89.

Porphyriola alleni, near Great Yarmouth; GURNEY, Zoologist, pp. 98 & 99, 150.

Ionornis martinica, in Illinois; DEANE, Auk xix, p. 77.

Porphyrio poliocephalus, in Hampshire; SCLATER, Bull. B. O. C. xiii, pp. 17 & 18: *P. melanonotus*, in New Zealand; MCLEAN, Emu i, pp. 52–56, pl. iii.

Fulica atra, nesting at Poona; BETHAM, J. Bombay Soc. xiv, pp. 176 & 177: in the Mozufferpore district; INGLIS, t. c. p. 392: at Chulla bheel; PRIMROSE, t. c. p. 392: Cuddapah district; CAMPBELL, t. c. pp. 392 & 393: *F. leucopyga* at Durban, Natal; W. L. SCLATER, Bull. B. O. C. xii, p. 70. [The specimen, examined by the Recorder, was *F. americana*.]

Podica senegalensis (1), *P. camerunensis* (2), figured; REICHENOW, Vög. Afrikas ii, pl. 5.

Heliopais personata, in Cachar; PRIMROSE, J. Bombay Soc. xiv, p. 173.

Order PODICIPEDIDIFORMES.

Podicipes capensis, nesting habits; FINN, Zoologist 1902, pp. 300–304: *P. auritus* var. *Korajevi*, n. subsp., S. E. Russia; ZARUDNY & LOUDON, Ornith. Monber. x, p. 186: *P. nigricollis*, probably breeding in Oxfordshire; APLIN, Ibis 1902, pp. 165 & 166: *P. cristatus*, notes on; SELOUS, Zoologist 1902: *P. pisanus*, Portis MSS., n. sp. [fossil], bones figured; REGALIA, Palæontogr. ital. viii, Tav. xxvii, figg. 21 & 22.

Colymbus nigricans poggei, n. subsp., N. China; REICHENOW, J. Ornith. 1902, p. 125.

Order COLYMBIFORMES.

C. portisi, n. sp. [fossil]; REGALIA, Palæontogr. ital. viii, Tav. xxvii, figg. 19 & 20.

Order SPHENISCIFORMES.

Penguins, notes on; HUTTON, Emu ii, pp. 1–9.

Aptenodytes patagonica, note on the young bird; LE SOUËF, Emu ii, pp. 26 and 27, pls. ii & iii.

Pygoscelis adeliæ, ad. et juv figured; SHARPE, Rep. Coll. 'Southern Cross,' Aves, pls. vii & viii: eggs figured; id. t. c. pl. x, figg. 4–6.

Catarrhœtes chrysocome, footprints scored on rocks in the Falkland Islands; id. Bull. B. O. C. xii, p. 67: feather of embryo; WOHLAUR, Zeitschr. Morphol. iv, pp. 149-178, taf. iv & v: development of vertebral column; v. MÄNNICH, Jena. Zeitschr. xxxvii, pp. 1–40, taf. i: development of bill; LEWIN, t. c. pp. 41–82, taf. ii, iii.

Spheniscus humboldti (pls. xxxvi & xxxvii), *S. meyeni* (pl. xxxviii), *S. modestus* (pl. xxxix), and *S. flavipes* (pl. xl), figured; PHILIPPI, An. Mus. Chile xv.

Order PROCELLARIIFORMES.

Oceanodroma leucorrhoa, note on young; BACHMANN, Monatschr. Ver. Schutze xxvii, p. 76.

Procellaria pelagica, at Guildford; DALGLEISH, Zoologist 1902, p. 32: *P.* (*Oceanites*) *collaris*, figured; PHILIPPI, An. Mus. Chile xlii, fig. 3.

Thalassidroma (*Oceanites*) *segethi*, figured; id. t. c. pl. xliv.

Puffinus [*kuhli*?], on the Strophaden Islands in the Ionian Sea: they are the Harpies of the Ancients; REISER, Ornith. Monber. xiii, pp. 133–138: *P. auduboni*, notes on; WELLS, Auk xix, pp. 240 & 241: *P. lherminieri* Less. vice *P. auduboni* Finsch; RILEY, Auk xix, p. 195: *P. griseus*, in Holland; SNOUCKAERT VAN SCHAUBURG, Ornith. Monber. x, pp. 2 & 3: *P. melanoleucus*, figured; PHILIPPI, An. Mus. Chile xv, pl. xli: *P. turtur* Schlegel, figured; id. t. c. pl. xliii: *P. tenuirostris*, notes on; CAMPBELL, Emu ii, pp. 42–44.

Œstrelata wortheni, n. sp., Pacific Ocean, near the Galapagos Id.; ROTHSCHILD, Bull. B. O. C. xii, pp. 62 & 63: notes on; ROTHSCHILD & HARTERT, Nov. Zool. ix, pp. 414 & 415: *Œ. wilsoni*, n. sp., S. Trinidad Id.; SHARPE, Bull. B. O. C. xii, p. 49.

Pagodroma nivea, eggs figured; SHARPE, Rep. Coll. 'Southern Cross,' Aves, pl. x, figg. 1–3.

Order ALCIFORMES.

Plautus impennis, bones discovered in Florida; HAY, Auk xix, pp. 255–258.

Fratercula corniculata, notes on; M^c^GREGOR, Condor iv, pp. 137 & 138.

Alcida sp. [fossil], bones figured; REGALIA, Palæontogr. ital. viii, Tav. xxvii, figg. 17 & 18.

Order LARIFORMES.

Laridæ. Results of special protection to the Gulls and Terns obtained through the Thayer fund; DUTCHER, Auk xix, pp. 34–64, pl. i.

Sterna caspia near Peenemünde on the Pomeranian coast; BALLOWITZ, Ornith. Monber. x, pp. 4 & 5: *S. paradisea*, at the Hawaiian Islands; HENSHAW, Auk xix, p. 195: *S. fluviatilis*, nesting in the Shetland Islands; CLARKE, Ann. Scott. Nat. Hist. 1902, p. 121: *S. dougalli*, note on; BLATHWAYT, Zoologist 1902, pp. 53 & 54: *S. dougalli gracilis* is a small race from Australian and Papuan Islands; ROTHSCHILD & HARTERT, Nov. Zool. 1902, p. 595: *S. lorata*, figured; PHILIPPI, An. Mus. Chile xv, pl. xlv, fig. 2: *S. luctuosa* (fig. 1), *S. comata* (fig. 2), figured; id. t. c. pl. xlvi: *S. atrofasciata*, figured; id. t. c. pl. xlvii, fig. i: *S. frobeni*, figured; id. t. c. pl. xlvii, fig. 2: *S. cantiaca*, *S. bergei* and *S. fuliginosa*, *Micranous tenuirostris* nesting on Houtman's Abrolhos; HALL, Ibis 1902, pp. 195–203: *S. fuliginosa*, at Tirhut, India; INGLIS, J. Bombay Soc. xiv, pp. 627 & 628: *S. minuta innominata*, n. subsp., Persian Baluchistan; ZARUDNY & LOUDON, Ornith. Monber. x, pp. 150 & 151: *S. antillarum*, on Martha's Vineyard; SMITH, Auk xix, p. 76.

Rhynchops nigra cinerascens, Spix., vice *R. melanura*; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 102.

Larus, notes on; KOLBE, Auk xix, pp. 19–24: *L. philadelphia* and *L. argentatus smithsonianus*, remarkable flight at Cumberland Md.; EIFRIG, Auk xix, p. 75: *L. frobeni*, figured; PHILIPPI, An. Mus. Chile xv, pl. xlv, fig. 1: *L. franklinii*, in the Virginia Mountains; SMYTH, Auk xix, pp. 74 & 75: *L. atricilla*, note on; WELLS, Auk xix, p. 239: *L. ridibundus* and *L. canus*, osteology of; CZALAY, Aquila ix, pp. 12–

29, Tab. ii: *L. ridibundus*, habits; SERVICE, Zoologist 1902, pp. 216–219: *L. ridibundus*, *L. melanocephalus* and *Rissa tridactyla*, pattern of quills figured; MADARÁSZ, Magyar. Madarai, Tab. vii–ix: *L. smithsonianus* is identical with *L. argentatus*; ALLEN, Auk xix, pp. 283 & 284: *L. audouini*, on the Italian coasts, breeding on Mal di Ventre Island; ARRIGONI DEGLI ODDI, Ibis 1902, p. 672: notes on, history and plumages, with figure of head; id. t. c. pp. 491–499.

Megalestris maccormicki, eggs figured; SHARPE, Rep. Coll. 'Southern Cross,' Aves, pl. ix.

Stercorarius crepidatus, notes on; SELOUS, Zoologist 1902, pp. 368–373.

Order CHARADRIIFORMES.

Vanellus vanellus, migration; CLARKE, Rep. Brit. Ass. 1902, pp. 277–283: *V. vulgaris*, notes on; SELOUS, Zoologist 1902, pp. 133–144.

Chettusia leucura, eggs figured; DRESSER, Ibis 1902, pl. vi, figg. 1 & 2.

Squatarola helvetica, in Birmingham; COBURN, Zoologist 1902, p. 280.

Ægialitis wilsonia, in California; GRINNELL, Auk xix, p. 197: *Æ. hiaticula*, unusual nest; KELSO, Zoologist 1902, pp. 28 & 29: *Æ. venusta* at Port Elizabeth, S.E. Africa; SHARPE, Bull. B. O. C. xiii, p. 29: *Æ. alticola*, n. sp., Peruvian Andes; BERLEPSCH & STOLZMANN, P. Zool. Soc. London 1902, vol. ii, pp. 51 & 52.

Recurvirostra americana, at Toronto; FLEMING, Auk xix, p. 79: *R. andina*, figured; PHILIPPI, An. Mus. Chile xv, pl. xxxii.

Numenius longirostris, notes on; WICKERSHAM, Auk xix, pp. 353–356.

Totanus chilensis and *T. melanoleucus*, figured; PHILIPPI, An. Mus. Chile xv, pl. xxix, figg. 1 & 2: *T. flavipes*, pl. xxx.

Helodromas ochropus, in the Outer Hebrides; MACRURY, Ann. Scott. Nat. Hist. 1902, p. 55.

Rhyacophilus glareola, in the Orkney Islands; BUXTON, Zoologist 1901, p. 391.

Pavoncella pugnax, white-ruffed specimens; A. CHAPMAN, Ibis 1902, pp. 676 & 677: *P. pugnax leucoprora*, n. subsp., Calcutta; FINN, J. Asiat. Soc. Bengal (2) lxxi, p. 84.

Tringa canutus near Calcutta; FINN, t. c. pp. 351 & 352: nesting in confinement; SHARPE, Bull. B. O. C. xiii, pp. 1–13: PROUD, t. c. pp. 12 & 13: *T. alpina* and *T. alpina schinzi* at Rossiten; THIENEMANN, J. Ornith. 1902, pp. 202 & 203.

Gallinago stenura, eggs figured; DRESSER, Ibis 1902, pl. vi, figg. 3–6: *G. major*, in Shetland; HARVIE-BROWN, Ann. Scott. Nat. Hist. 1902, p. 54: in Orkney; BELL, t. c. p. 54.

Scolopax rusticula, a curious variety; TEGETMEIER, Bull. B. O. C. xiii, p. 29.

Rostratula capensis, notes on; FINN, P. Zool. Soc. London 1902, vol. i, pp. 262 & 263.

Phalaropus antarcticus, figured; PHILIPPI, An. Mus. Chile xv, pl. xxvii, fig. 2: *P.* (*Lobipes*) *wilsoni*, figured; id. t. c. pl. xxxi.

Hydrophasianus chirurgus, notes on; FINN, P. Zool. Soc. London 1902, vol. i, pp. 263 & 264.

Metopidius indicus, has two broods in the year; TOOTH, J. Bombay Soc. xiv, pp. 817 & 818.

Jacana spinosa, in Florida; MEARNS, Auk xix, p. 79.

Glareola pratincola, in Holland, in November; SNOUCKAERT VAN SCHAUBURG, Ornith. Monber. x, p. 2.

Œdicnemus capensis dodsoni, notes on; LORENZ & HELLMAYR, Denk. Ak. Wien lxxi, p. 118.

Otis tarda, in Norfolk ; SOUTHWELL, Tr. Norfolk Soc. vii, pp. 328–330 : its re-introduction into Great Britain ; BONHOTE, Bull. B. O. C. xiii, pp. 13 & 14.
Otis tetrax, note on ; TSCHUSI, Ornith. Jahrb. xiii, pp. 72 & 73 : nesting in Germany ; KUNZ, J. Ornith. 1902, pp. 284–290.
Lissotis lovati, figured ; GRANT, Ibis 1902, pl. xi.

Order GRUIFORMES.

Aramidæ, *Eurypygidæ*, *Gruidæ* of Central America. See GODMAN, Biol. Centr.-Amer. Aves iii, pp. 232–238.
Aramus scolopaceus, its osteology ; BEDDARD, Ibis 1902, pp. 33–54.
Eurypyga major meridionalis, n. subsp., Central Peru ; BERLEPSCH & STOLZMANN, P. Zool. Soc. London 1902, vol. ii, pp. 50 & 51.

Order ARDEIFORMES.

Herodiones of Central America continued [cf. Zool. Rec. XXXVIII, Aves, p. 50]; GODMAN, Biol. Centr.-Amer. Aves iii, pp. 193–195.
Phimosus azaræ, n. sp., Paraguay; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 123 : distinct from *P. nudifrons* (Spix=*P. infuscata*, auct.); id. t. c. p. 123.
Plegadis falcinellus, in Sussex ; BUTTERFIELD, Bull. B. O. C. xiii, pp. 25 & 26.
Platalea leucerodia, in Surrey; DALGLEISH, Zoologist 1902, p. 32: in Norfolk, in the spring of 1902 ; SAUNDERS, Bull. B. O. C. xii, p. 68.
Dissoura mortoni, n. sp., N. Borneo ; GRANT, op. cit. xiii, pp. 26 & 27.
Ciconia alba, in Glamorganshire ; PROGER & PATERSON, Rep. Cardiff Soc. xxxii, p. 57 : notes on the bastard wing ; FISHER, Auk xix, pp. 246 & 247, pl. viii, fig. 2 : nests in Mecklenburg in 1901; WÜSTNEI & CLODIUS, Arch. Ver. Mecklenb. 1902, pp. 1–57 : *C. ciconia*, its line of migration in Germany ; PAULI, Ornith. Monber. x, pp. 158 & 159.
Balæniceps rex, on the Victoria Nyanza ; JOHNSTON, Ibis 1902, pp. 334–336 : in captivity (photo), t. c. pp. 526 & 527.
Ardea thula, Mol., notes on the synonymy ; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 124, note.
Nycticorax violaceus, at Portland, Maine ; BROCK, Auk xix, p. 285 : *N. magnifica*, in Anhwei Prov. Yangtze River, China ; STYAN, Ibis 1902, p. 164.
Gorsachius melanolophus, note on ; BELL, J. Bombay Soc. xiv, pp. 394 & 395.
Syrigma sibilatrix, colours of bill and face, notes on synonymy ; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 126.
Ardetta neoxena, note on ; FLEMING, Auk xix, pp. 77 & 78.

Order PHŒNICOPTERIFORMES.

Phœnicopteri of Central America ; see GODMAN, Biol. Centr.-Amer. Aves iii, p. 196.
Phœnicopterus ruber, nesting, in the Bahamas ; BONHOTE, Bull. B. O. C. xii, p. 83 : *P. jamesi* and *P. andinus*, figured ; PHILIPPI, An. Mus. Chile xv, pls. xxxiii & xxxiv.

Order ANSERIFORMES.

MILLAIS, J. Natural History of the British surface-feeding Ducks, 4to, 1902, pp. 168, pls. 66.
Anseres of Central America ; see GODMAN, Biol. Centr.-Amer. Aves iii, pp. 197–231.

Nettopus pulchellus, eggs described ; NORTH, Victorian Natural. xix, p. 35 ; LE SOUËF, t. c. p. 68.

Æx galericulata, in India ; BAKER, J. Bombay Soc. xiv, pp. 626 & 627, 660–665.

Anser rubrirostris, in Ireland ; COBURN, Bull. B. O. C. xii, pp. 80 & 81 : *A. fabalis*, notes on ; id. t. c. p. 81 : *A. neglectus*, in Hungary ; MADARÁSZ, Magyar. Madarai, p. 304 : *A. albifrons*, breeding in captivity ; FROHAWK, Bull. B. O. C. xii, p. 82 : *A. gambeli* and *A. albifrons*, notes on ; COBURN, Zoologist 1902, pp. 337–351 : *A. erythropus* and its allies ; GURNEY, Ibis 1902, pp. 269–275 : *A. fabalis* and *A. neglectus*, osteology ; SZALAY, Aquila ix, pp. 12–29, tab. i–iii : *A. paludosus* (Strickland), is a good species ; COBURN, Zoologist 1902, pp. 441–448, pl. iii.

Branta canadensis, nest and eggs described ; BENT, Auk xix, pp. 173 & 174, pl. vi, fig. 2.

Bernicla dispar, figured ; PHILIPPI, An. Mus. Chile xv, pl. xxxv.

Dendrocygna arcuata and *D. eytoni*, eggs described ; NORTH, Victorian Natural. xix, p. 35 ; LE SOUËF, t. c. p. 68.

Tadorna tadorna, nesting on the coast of East Prussia ; HENRICI, Ornith. Monber. x, pp. 101–104 : *T. cornuta*, breeding in confinement ; PERCIVAL, Avicult. Mag. viii, pp. 255 & 256 : *T. radjah*, eggs described ; NORTH, Victorian Natural. xix, p. 36 : LE SOUËF, t. c. p. 68.

Anas boscas, the changes of plumage ; MILLAIS, Bull. B. O. C. xii, pp. 45 & 46 : *A. boscas*, var. ; HANISCH, Ornith. Jahrb. xiii, pp. 65–67.

A. obscura rubripes, n. subsp., Lake Umbagog, New Hampshire ; BREWSTER, Auk xix, p. 184.

Anas boscas × *Dafila acuta* ; NINNI, Avicula vi, pp. 61 & 62.

A. boscas × *Mareca penelope*, *A. boscas* × *Nettion crecca* ; SNOUCKAERT VAN SCHAUBURG, Ornith. Monber. x, pp. 3 & 4.

Chaulelasmus streperus, in Massachusetts ; BENT, Auk, xix, p. 196 : figured ; PHIPSON & MILLARD, J. Bombay Soc. xiv, pl. xi.

Anas strepera, in Merionethshire ; HAIGH, Zoologist 1902, p. 112.

Mareca penelope, in North Carolina ; HOWE, Auk xix, p. 76 : on Long Island, N. Y. ; LAWRENCE, t. c. pp. 195 & 196.

Anas penelope, in Michigan ; HERRICK, t. c. p. 284.

A. crecca, in Spitzbergen ; SCHALOW, J. Ornith. 1902, p. 126.

Nettion carolinensis, nesting habits ; BENT, Auk xix, p. 1.

Dafila acuta, nesting in Andalusia ; NOBLE, Ibis 1902, p. 83 : nesting habits ; BENT, Auk xix, pp. 4–7, pl. ii, fig. 2 : figured ; PHIPSON & MILLARD, J. Bombay Soc. xiv, pl. xii.

Querquedula circia, figured ; iid. t. c. pl. xiii : *Q. discors*, nesting habits ; BENT, Auk xix, pp. 2 & 3.

Spatula clypeata, nesting habits ; id. t. c. pp. 3 & 4, pl. ii, fig. 1.

Aythya americana and *A. vallisneria*, nesting habits ; id. t. c. pp. 7–11, pls. iii & iv : *A. affinis*, nest and eggs described ; id. t. c. pp. 165 & 166, pl. v, fig. 1 : *A. collaris*, notes on ; id. t. c. pp. 166–168.

Nyroca ferina, figured ; PHIPSON & MILLARD, J. Bombay Soc. xiv, pl. xiv.

Fuligula baeri, its method of courting ; MILLAIS, Ibis 1902, pp. 164 & 165 : habits ; FINN, t. c. p. 524.

Clangula glaucion, in Surrey ; DALGLEISH, Zoologist 1902, p. 32 : *C. clangula americana*, nest and eggs described ; BENT, Auk xix, pp. 168–170, pl. v, fig. 2.

Fuligula islandica, on the N. German coast ; THIENEMANN, Ornith. Monber. x, p. 80.

Cosmonetta histrionica in Italy ; FALCONIERI DI CARPEGNA, Boll. Soc. zool. Ital. xi, p. 1.

Oidemia deglandi, nest and eggs described ; BENT, Auk xix, pp. 170 & 171.

Somateria spectabilis, in Massachusetts ; id. t. c. p. 196 : in Fifeshire ; RIVIERE, Zoologist 1902, p. 27.

Erismatura jamaicensis, nest and egs described ; BENT, Auk xix, pp. 172 & 173, pl. vi, fig. 1.

Order PELECANIFORMES.

Steganopodes, osteology of; SHUFELDT, Mem. Carnegie Mus. i, pp. 109–223.
Phalacrocorax croaticus, notes on ; BRUSINA, J. Ornith. 1902, p. 471 : *P. cirrhatus* (pl. xlviii), *P. gracilis* (pl. xlix), *P. ventralis* (pl. l), *P. promaucanus* (pl. li), figured ; PHILIPPI, An. Mus. Chile xv : *P. harrisi*, figured ; ROTHSCHILD & HARTERT, Nov. Zool. ix, pl. x : notes on the anatomy ; GADOW, t. c. pp. 169–176, pls. xiv & xv : *P. de stefanii*, n. sp. [fossil], bones figured ; REGALIA, Palæontogr. ital. viii, tav. xxvii, figg. 4–14.
Sula granti, n. sp., Galapagos Islands ; W. ROTHSCHILD, Bull. B. O. C. xiii, p. 7 : *S. websteri* and other species of Gannets ; ROTHSCHILD & HARTERT, Nov. Zool. ix, pp. 406–408.
Phæton lepturus, note on ; FINN, J. Asiat. Soc. Bengal (2) lxxi, pp. 89–91 cum fig.

Order CATHARTIDIFORMES.

Sarcorhamphus gryphus, breeding in confinement ; GILL, Zoologist 1902, pp. 194 & 195 : anatomy of the windpipe and heart ; BEDDARD, P. Zool. Soc. London 1902, vol. i, pp. 239–247, text-figg. 29–32 : *S. æquatorialis* is distinct from *S. gryphus* ; GOODFELLOW, Ibis 1902, pp. 223–225.
Cathartes burrovianus, colour of head ; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 111.

Order ACCIPITRIFORMES.

Note ornitologiche per la provincia di Venezia (*Accipitres*); NINNI, Atti Soc. Ital. xl, pp. 315–324.
Accipitrine birds. A key to the genera and species of the Indian forms ; DONALD, J. Bombay Soc. xiv, pp. 588–594, 805–813.
Falconiformes, Osteology of ; PYCRAFT, P. Zool. Soc. London 1902, pp. 277–320, pls. xxxi–xxxiii, text-figg. 33–37.
Neophron perenopterus rubripersonatus, n. subsp., Persian Baluchistan ; ZARUDNY & HÄRMS, Ornith. Monber. x, pp. 52 & 53.
Circus macrurus in Central Europe ; LINDNER, Monatschr. Ver. Schutze xxvii, pp. 51–59.
Gymnogenys, Less., has priority over *Polyboroides*, Smith ; RICHMOND, Auk xix, p. 92.
Astur tachiro nyansæ, n. subsp., Victoria Nyanza ; NEUMANN, Ornith. Monber. xiii, pp. 138 & 139 [=*A. sparsimfasciatus*, from Uganda ; SHARPE, Ibis 1902, p. 107] : *A. rufoschistaceus*, n. sp., Yzabel Island, Solomon Archipelago ; ROTHSCHILD & HARTERT, Nov. Zool. ix, p. 590 : compared with *A. pusillus* ; iid. t. c. p. 590.
Accipiter chilensis, figured ; PHILIPPI, An. Mus. Chile xv, pl. i.
Buteo ferox, in Switzerland ; BURG, Ornith. Monber. x, p. 38 : *B. ménétriesi*, in Hungary, tail figured ; MADARÁSZ, Magyar. Madarai, pp 252–255, tab. v, fig. 1 : *B. zimmermannæ*, in Hungary, pp. 255–257, figured, tab. vi, tail figured ; id. t. c. tab. vi, fig. 2 : in Holland ; SNOUCKAERT VAN SCHAUBURG, Ornith. Monber. x, p. 157 : *B. solitarius*, changes of plumage ; HENSHAW, Ibis 1902, pp. 386–392 : off the coast of Hawaii ; id. Auk xix, pp. 197 & 198 : *B. lineatus*, note on ; FORDYCE, t. c. p. 287, pl. ix, fig. 1 : *B. melanostethos* (pl. ii) ; PHILIPPI, An. Mus. Chile xv : *B. pœcilogaster* (pl. iii), *B. macrorhynchus*

(pl. iv), *B. ater* (pl. v), *B. albigula* (pl. vi), figured; id. t. c.: *B.* (*Asturina*) *elegans*, figured; id. t. c. pl. vii: *Asturina*? *æthiops*? (pl. viii), *A.*? *picta*? (pl. ix); id. t. c.

Leucopternis princeps, from N. Ecuador; HARTERT, Nov. Zool. ix, p. 605.

Aquila chrysaetos, its earliest reference; RICHMOND, Auk xix, p. 79: in Co. Donegal; WORKMAN, Zoologist 1902, p. 150: *A. chrysaetos canadensis*, in S. Michigan; PURDY, Auk xix, p. 80: *A. heliaca*, in Burma; THOMPSON & CRADDOCK, J. Bombay Soc. xiv, p. 600: *Aquila*, sp. [fossil], ungual phalanx figured; REGALIA, Palæontogr. ital. viii, tav. xxvii, fig. 2.

Lophotriorchis lucani, from the Cameroons, the adult plumage described; SHARPE, Bull. B. O. C. xii, p. 79.

Helotarsus, Smith is slightly antedated by *Terathopius*, Less.; RICHMOND, Auk xix, p. 92.

Haliaetus leucocephalus, in Ohio County, West Virginia; MCLAIN, t. c. p. 287.

Milvus govinda, nesting habits; COSTELLO, Zoologist 1902, pp. 460–463.

Machœrhamphus anderssoni, from Uganda; SHARPE, Ibis 1902, p. 108: on the Ruo River, British Central Africa; PERCIVAL, t. c. p. 593.

Pernis apivorus, wintering on the Black Sea [S. E.]; CHAPMAN, t. c. p. 529.

Falco biarmicus and allies, notes on; HARTERT, Nov. Zool. ix, pp. 337 & 338: *F. eleonoræ*, nesting in the Levant; FARQUHAR, Ibis 1902, pp. 166–168: *F. columbarius suckleyi*, described; ECKSTORM, Auk xix, pp. 382–385: *F. candicans*, from the Glénans; KEMPEN, Bull. Soc. Ouest France (2) ii, p. 3.

Hierofalco cherrug, in Hungary; MADARÁSZ, Magyar. Madarai, p. 230.

Tinnunculus vespertinus, in Holland; SNOUCKAERT VAN SCHAUBURG, Ornith. Monber. x, p. 157: *T. cenchroides*, figured; FRENCH, J. Agric. Victoria i, pp. 200 & 201 cum tab.

Pandion haliaetus, in the Outer Hebrides; BUCKLEY, Ann. Scott. Nat. Hist. 1902, p. 184.

Order STRIGIFORMES.

Asio nisuella and *A. nisuella maroccanus*, notes on; HARTERT, Nov. Zool. ix, p. 337: *A. abyssinicus* is a distinct species, from the Mts. of Abyssinia; NEUMANN, Bull. B. O. C. xii, p. 74.

Bubo virginicus subarcticus (Hoy) is the proper name for the Arctic Horned Owl; RICHMOND, P. Soc. Washington xv, p. 86: *B. ascalaphus desertorum*, at Shendi, in the Egyptian Soudan; C. ROTHSCHILD & WOLLASTON, Ibis 1902, p. 27: *B. abyssinicus*, Sharpe (nec Guér.) is a red phase of *B. cinerascens*; NEUMANN, Bull. B. O. C. xii, p. 74; GRANT, Ibis 1902, p. 438: *B. dilloni* is the Abyssinian form of *B. capensis*; NEUMANN, Bull. B. O. C. xii, p. 74: *B. maculosus*, breeding in confinement; BONHOTE, Avicult. Mag. viii, pp. 39–42, pls. c & c*.

Pseudoptynx solomonensis, notes on; ROTHSCHILD & HARTERT, Nov. Zool. ix, pp. 591 & 592.

Nyctea nyctea, at Michigan; PURDY, Auk xix, p. 80: unusual abundance in New England and Canada; DEANE, t. c. pp. 271–283.

Pizorhina cypria, notes on; WHITAKER, Bull. B. O. C. xii, p. 55: *P. choliba*, notes on; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 116.

Scops semenowi, n. sp., Persian Baluchistan; ZARUDNY & HÄRMS, Ornith. Monber. x, pp. 49–52.

Heteroscops not distinct from *Pizorhina*; HARTERT, Nov. Zool. ix, pp. 541 & 542.

Ninox connivens (subspecies *occidentalis*) and *N. strenua*, eggs described; LE SOUËF, Victorian Natural. xix, p. 92: *N. jacquinoti*, notes on; ROTHSCHILD & HARTERT, Nov. Zool. ix, p. 592.

Syrnium nivicola, in Burma; THOMPSON & CRADDOCK, J. Bombay Soc. xiv, p. 600.
Ciccaba albitarsus from Colombia and Venezuela distinct from *C. hylophila* of Brazil; HARTERT, Bull. B. O. C. xii, pp. 68 & 69.
Nyctala tengmalmi, in Northamptonshire; GURNEY, Zoologist 1902, p. 68: in Shetland; INKSTER, Ann. Scott. Nat. Hist. 1902, p. 119.
Surnia ulula, in the Kurische Nehrung; THIENEMANN, Ornith. Monber. x, pp. 182 & 183.
Athene noctua, in Kincardineshire; SIM, Ann. Scott. Nat. Hist. 1902, p. 119: *A. brama*, note on; DALGLEISH, Zoologist 1902, pp. 212 & 213: *A. chiaradiæ*, note on; MARTORELLI, Atti Soc. Ital. xl, pp. 325–338 cum tab: notes on; VALLON, Avicula vi, pp. 115–117, 126.
Speotyto cunicularia becki, n. subsp., Guadeloupe Isl., Pacific; ROTHSCHILD & HARTERT, Nov. Zool. ix, p. 405.
Gymnasio nudipes, notes on; BOWDISH, Auk xix, pp. 362 & 363.
Glaucidium setipes, n. sp., Hungary; MADARÁSZ, Magyar. Madarai, p. 203, cum fig. [1900]: *G. albiventer*, figured; ALEXANDER, Ibis 1902, pl. ix.
Micropallas whitneyi, in California; LOOMIS, Auk xix, p. 80.
Strix pratincola, unusual nesting date; WILLIAMS, t. c. pp. 198 & 199: in Canada; HOWE, t. c. p. 79: *S. lapponica*, first described by Thunberg; RICHMOND, t. c. p. 79.

Order PSITTACIFORMES.

Osteology of the *Psittaci*; SCHUFELDT, Ann. Carnegie Mus. i, pp. 399–421.
Psittacidæ of Africa; see REICHENOW, Vög. Afrikas ii, pp. 1–25.
Myology of the tongue of Parrots, with a classification of the Order, based upon the structure of the tongue; MUDGE, Tr. Zool. Soc. London xvi, part 5, pp. 211–278, pls. xxvi–xxix, text-figg. 1–16.
Nestor meridionalis, note on; LORENZ, Ann. Hofmus. Wien xvii, pp. 316–318.
Ptilosclera versicolor, egg described; NORTH, Agric. Gaz. N. S. W. xii, p. 409.
Hypocharmosyna meeki, figured; ROTHSCHILD & HARTERT, Nov. Zool. ix, p. 590, pl. vii, fig. 3.
Cyclopsittacus festetichi, n. sp., Solomon Is.; MADARASZ, Termes. Fuzetek xxv, p. 350: *C. purpuratus*, n. sp., Solomon Is.; id. t. c. pp. 350 & 351, tab. xvii.
Calyptorhynchus macrorhynchus, eggs described; LE SOUËF, Victorian Natural. xix, pp. 91 & 92.
Nasiterna nanina, remarks on; ROTHSCHILD & HARTERT, Nov. Zool. ix, p. 589: *N. tristrami*, n. sp., Kulambangra Is.; iid. t. c. p. 389.
Chrysotis versicolor, figured; THOMPSON, Avicult. Mag. viii, pl. to p. 275.
Poiocephalus meyeri virescens, nom. emend. pro *P. v. erythreæ*, REICHENOW, Vög. Afrikas ii, p. 12.
Eclectus roratus, variety of; W. ROTHSCHILD, Bull. B. O. C. xii, pp. 47 & 48: *E. westermanni*, ♂ ♀ figured; SCLATER, P. Zool. Soc. London 1902, i, p. 170, pl. xviii.
Palæornis major, n. sp., Pulo Babi, Sumatra; RICHMOND, P. Soc. Washington xv, p. 188.
Psittinus abboti, n. sp., Simalur Is., Sumatra; id. t. c. pp. 188 & 189: *P. malaccensis* (Lath.) an older name than *P. incertus* (Shaw); HARTERT, Nov. Zool. ix, p. 542.
Platycercus mastersianus, figured; SCLATER, P. Zool. Soc. London 1902, i, p. 170, pl. xix: *P. macgillivrayi*, remarks on; SCLATER, Bull. B. O. C. xii, p. 32: figured; id. Ibis 1902, p. 610, pl. xv.

Order CORACIIFORMES.

Sub-order PODARGI.

Podargus inexpectatus, described ; ROTHSCHILD & HARTERT, Nov. Zool. ix, pp. 585 & 586.

Sub-order CORACIÆ.

Coraciidæ of Africa ; see REICHENOW, Vög. Afrikas ii, pp. 216–232.
Coracias garrulus semenowi, n. subsp., Transcaspia ; LOUDON & TSCHUSI, Ornith. Jahrb. xiii, pp. 148–150 : *C. loquax*=*C. garrula* ; SHARPE, Ibis 1902, pp. 613 & 614.
Eurystomus rufobuccalis is probably *E. afer*, freshly moulted ; id. t. c. pp. 614 & 615.

Sub-order HALCYONES.

Alcedinidæ of Africa ; see REICHENOW, Vög. Afrikas ii, pp. 269–301.
Alcedo capensis Linn. is referable to the Javan *Pelargopsis* ; STONE, P. Ac. Philad. 1902, p. 674.
Alcedo ispida, note on ; TRISTRAM, Zoologist 1902, p. 68 : near Aberdeen ; WILSON, t. c. p. 27.
Corythornis thomensis, n. sp., S. Thomas Is. ; SALVADORI, Ibis 1902, p. 568, pl. xiii.
Ceyx rufidorsa and allies, notes on ; HARTERT, Nov. Zool. ix, pp. 430–432 : *C. meeki*, figured ; ROTHSCHILD & HARTERT, t. c. pl. xi, fig. 1.
Halcyon nusæ, n. sp., New Hanover and other small islands in the Bismarck Archipelago ; HEINROTH, J. Ornith. 1902, p. 437, taf. viii, fig. 2 : *H. mathiæ*, S. Mathias Is. ; id. t. c. p. 438, taf. viii, fig. 1 : *H. smyrnensis*, note on ; FINN, Zoologist 1902, p. 149.

Sub-order BUCEROTES.

Bucerotidæ of Africa ; see REICHENOW, Vög. Afrikas ii, pp. 233–268.
Bucorax cafer, note on ; SCLATER, Zoologist 1902, pp. 49–52, cum fig.
Rhytidoceros narcondami, note on ; CORY, J. Bombay Soc. xiv, p. 372, cum tab.

Sub-order UPUPÆ.

Upupidæ of Africa ; see REICHENOW, Vög. Afrikas ii, pp. 332–349.
Upupa epops loudoni, n. subsp., Transcaspian ; TSCHUSI, Ornith. Jahrb. xiii, pp. 70 & 71 : *U. epops*, ? subsp. n., S. Arabia ; LORENZ & HELLMAYR, Denk. Ak. Wien lxxi, p. 115.
Irrisor, further notes on the genus ; GRANT, Ibis 1902, pp. 432–435 : *I. damarensis* (fig. 1), and *I. somaliensis* (fig. 2), figured ; id. t. c. pl. x : *I. erythrorhynchos guineensis*, n. subsp., Portuguese Guinea to the Niger ; REICHENOW, Ornith. Monber. x, pp. 78 & 79.

Sub-order MEROPES.

Meropidæ of Africa ; see REICHENOW, Vög. Afrikas ii, pp. 301–332.
Dicrocercus chrysolæmus, J. & S., distinct from *D. furcatus* (Stanl.) ; NEUMANN, J. Ornith. 1902, p. 133.
Melittophagus oreobates, figured ; JACKSON, Ibis 1902, p. 620, pl. xvi, fig. 1.

Merops apiaster, breeding in Baluchistan; NURSE, J. Bombay Soc. xiv, p. 627: ♂ ♀ immature figured; PHILLIPPS, Avicult. Mag. viii, pp. 103–108 cum tab., 128–132, 152–162: *M. ornatus*, figured; FRENCH, J. Agric. Victoria i, pp. 201 & 202 cum tab.

Alcemerops vice *Nyctiornis* (nec *Nyctornis* Nitzsch); STONE, P. Ac. Philad. 1902, p. 676.

Sub-order MOMOTI.

Momotus æquatorialis chlorolæmus, n. subsp., Central Peru; BERLEPSCH & STOLZMANN, P. Zool. Soc. London 1902, ii, pp. 35 & 36.

Prionirhynchus platyrhynchus pyrrholæmus, n. subsp., Central Peru; iid. t. c. p. 35.

Sub-order CAPRIMULGI.

Caprimulgidæ of Africa; see REICHENOW, Vög. Afrikas ii, pp. 349–374.

Nyctidromus albicollis gilvus, n. subsp., S. Marta, Colombia; BANGS, P. New England Zool. Club iii, p. 82.

Nyctiprocne leucopygia, from Venezuela; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 90.

Heleothreptus anomalus, egg figured; IHERING, Rev. Mus. Paulista v, pl. xi, fig. 3.

Stenopsis cayennensis insularis, n. subsp., Curaçao; RICHMOND, P. Soc. Washington xv, pp. 159 & 160.

Caprimulgus ocellatus, egg figured; IHERING, Rev. Mus. Paulista v, pl. xi, fig. 2: *C. bartelsi*, n. sp., Java; FINSCH, Notes Leyden Mus. xxiii, pp. 148–151: *C. eximius*, eggs figured, notes on habits; C. ROTHSCHILD & WOLLASTON, Ibis 1902, pp. 20–22, pl. i, figg. 3 & 4: *C. meridionalis*, from Hungary; MADARÁSZ, Magyar. Madarai, p. 182 [1900]: *C. ruficollis*, in the Gold Coast Hinterland; ALEXANDER, Ibis 1902, p. 356: *C. donaldsoni*, from Lake Baringo; SHARPE, Ibis 1902, p. 111: *C.* (*Stenopsis*) *andinus* (pl. x), *C. obscurus* (pls. xi & xii), figured; PHILIPPI, An. Mus. Chile xv.

Sub-order CYPSELI.

Macropterygidæ of Africa; see REICHENOW, Vög. Afrikas ii, pp. 375–384.

Collocalia gigas, in Java; FINSCH, Ornith. Monber. x, p. 38.

Chætura andrei, n. sp., Orinoco River; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 91.

Panyptila cayanensis, its nest described; NEHRKORN, Ornith. Monber. x, p. 24.

Cypselus apus, spotted eggs; KRAUSE, t. c. pp. 183 & 184: *C. barbatus*, in Equatorial Africa; JACKSON, Ibis 1902, p. 625.

Apus apus kollibayi, n. subsp., Curzola Is., Dalmatia; TSCHUSI, Ornith. Jahrb. xiii, p. 234.

Sub-order TROCHILI.

Phaethornis episcopus and *P. caurensis*=*P. ruber* (L.); BERLEPSCH & HARTERT, Nov. Zool. ix, p. 82.

Phaëthornis rufigaster longipennis, n. subsp., Chanchamayo, Central Peru; BERLEPSCH & STOLZMANN, P. Zool. Soc. London 1902, ii, p. 19.

Eutoxeres condaminei gracilis, n. subsp., Central Peru; iid. t. c. pp. 19 & 20.

Agyrtria albiventris, nest and eggs; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 183.

Saucerottea erythronotos caurensis, n. subsp., Orinoco River; iid. t. c. p. 83.

Chrysophonia josephinæ, Elliot (nec Bourc. & Muels.)=*C. œnone intermedia*, Hartert; SIMON, t. c. p. 179.

Chlorostilbon caribæus nanus, n. subsp., Orinoco River; BERLEPSCH & HARTERT, t. c. p. 86.
Riccordia æneoviridis, n. sp., Abaco, Bahamas; PALMER & RILEY, P. Soc. Washington xv, p. 34.
Thalurania furcata fissilis, n. subsp., Cauca River, Venezuela; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 87.
Lampornis amethystinus is the proper name for *Delattria henrici*, and *Anthracothorax*, Boie, for the genus known as *Lampornis*; RICHMOND, Auk xix, p. 83.
Topaza pella pamprepta, n. subsp., East Ecuador; OBERHOLSER, P. U. S. Mus. xxiv, pp. 321 & 322.
Lampropygia columbiana obscura, n. subsp., Central Peru; BERLEPSCH & STOLZMANN, P. Zool. Soc. London 1902, ii, pp. 23 & 24.
Eugenes fulgens, in California; LOOMIS, Auk xix, p. 83.
Lafresnaya saul rectirostris, n. subsp., Maraynioc, Central Peru; BERLEPSCH & STOLZMANN, P. Zool. Soc. London 1902, ii, p. 24.
Docimastes, Gould, is antedated by *Ensifera*, Less.; RICHMOND, Auk xix, p. 92: *Laticauda*, Less., has priority over *Metallura*, Gould; id. t. c. p. 92.
Boissonneaua flavescens tinochlora, n. subsp., West Ecuador; OBERHOLSER, P. U. S. Mus. xxiv, p. 329.
Vestipedes, Less., has priority over *Eriocnemis*, Reichenb.; RICHMOND, Auk xix, p. 83.
Metallura theresiæ, n. sp., Pataz, Peru; SIMON, Nov. Zool. ix, pp. 181 & 182.
Psalidoprymna pallidiventris, n. sp., Peru; id. t. c. p. 182.
Zodalia thaumasta, n. sp., Chillo Valley, Ecuador; OBERHOLSER, P. U. S. Mus. xxiv, pp. 338 & 339.
Anthoscenus, nomen emend. pro *Floricola*, Elliot nec Gistel; RICHMOND, P. Soc. Washington xv, p. 85.
Trochilus atacamensis, ♂ ♀ figured; PHILIPPI, An. Mus. Chile xv, pl. xlii, figg. 1 & 2.
Chætocercus burmeisteri, description of; HARTERT, Bull. B. O. C. xii, pp. 43 & 44.
Lophornis verreauxi klazesi, n. subsp., Caura River, Venezuela; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 89.

Sub-order COLII.

Coliidæ; see REICHENOW, Vög. Afrikas ii, pp. 201–211: *C. indicus angolensis*, n. subsp., ANGOLA, id. t. c. p. 209.
Colius berlepschi and allies, notes on; SHARPE, Ibis 1902, p. 111.

Order TROGONES.

Trogonidæ of Africa; see REICHENOW, Vög. Afrikas ii, pp. 211–216.
Trogon meridionalis, Swains. = *T. violaceus*, Gm.; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 106.

Order COCCYGES.

Sub-order MUSOPHAGI.

Musophagidæ; see REICHENOW, Vög. Afrikas ii, pp. 25–56.
Turacus schütti (1) and *T. emini* (2), figured; id. t. c. pl. 4.
Gallirex johnstoni, figured; SHARPE, Ibis 1902, p. 112, pl. v.

Sub-order CUCULI.

Cuculidæ of Africa ; see REICHENOW, Vög. Afrikas ii, pp. 56–102.

On the syrinx and other points in the structure of *Hierococcyx* and some allied genera of Cuckoos ; BEDDARD, Ibis 1902, pp. 599–608.

Cuculus canorus, note on ; GURNEY, Zoologist 1902, pp. 89–91 ; BAU, Ornith. Jahrb. xiii, pp. 61–65 : the egg ; LATTER, Biometrica i, Pt. II, pp. 164–176 : migration in Hungary ; HEGEFOKY, Aquila ix, pp. 72–80 : parasitic on *Coccothraustes vulgaris* ; PALMER, Zoologist 1902, p. 279 : *C. jacksoni*, n. sp., Toro, Equatorial Africa ; SHARPE, Bull. B. O. C. xiii, p. 7.

Cacomantis meeki, n. sp., Ysabel Island, Solomon Archipelago ; ROTHSCHILD & HARTERT, Nov. Zool. ix, pp. 586 & 587 : *C. merulinus*, distinct from *C. threnodes*, i.e. *C. sepulchralis* ; HARTERT, t. c. p. 545 : *C. flabelliformis*, figured ; NORTH, Agric. Gaz. N. S. W. xii, pl. xvi.

Lamprococcyx plagosus, figured ; NORTH, Agric. Gaz. N. S. W. xii, pl. xvii.

Coccyzus americanus, in Somersetshire ; READ, Zoologist 1902, p. 26.

Centropus ateralbus, only the right testis present ; HEINROTH, J. Ornith. 1902, p. 258 : on its habits ; id. t. c. pp. 428–431.

Centropus purpureus, Shelley, is *C. nigrorufus*, Cuv. ; NEUMANN, Bull. B. O. C. xii, p. 75 : *C. nigrorufus*, auct. (nec Cuv.) must be called *C. grilli*, Hartl. ; id. t. c. p. 75 : FINSCH, Notes Leyden Mus. xxiii, pp. 156–162.

Carpococcyx viridis, its eggs ; MUNT, Bull. B. O. C. xii, p. 70.

Order SCANSORES.

Sub-order INDICATORES.

Indicatoridæ of Africa ; see REICHENOW, Vög. Afrikas ii, pp. 103–115.

Indicator, review of species ; FINSCH, Notes Leyden Mus. xxiii, pp. 162–176 : *I. ussheri*, n. sp., Gold Coast ; SHARPE, Bull. B. O. C. xii, p. 80 : *I. willcocksi*, figured ; ALEXANDER, Ibis 1902, pl. viii.

Sub-order CAPITONES.

Capitonidæ of Africa ; see REICHENOW, Vög. Afrikas ii, pp. 115–161.

Melanobucco tsanæ, n. sp., Lake Tsana, Abyssinia ; GRANT, Bull. B. O. C. xiii, pp. 28 & 29 : *M. rubescens*, distinct from *M. vieilloti* ; id. Ibis 1902, pp. 426 & 427.

Barbatula jacksoni, figured ; JACKSON, t. c. p. 635, pl. xvi, fig. 2.

Capito punctatus, Shelley, Cat. B. = *C. auratus* (Dumont), *C. auratus aurantiicinctus*, notes on ; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 99 : *C. auratus intermedius*, n. subsp., Orinoco River ; iid. t. c. p. 98.

Sub-order RHAMPHASTIDES.

Ramphastos hæmatorhynchus, n. sp., Caura River, Venezuela ; BERLEPSCH & HARTERT, Nov. Zool. ix, pp. 99 & 100 : *R. osculans*, colour of bill ; iid. t. c. p. 100.

Sub-order BUCCONES.

Jacamerops grandis (Gm.) = *J. aureus* (P. L. S. Müll.) ; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 104.

Malacoptila fulvigularis melanopogon, n. subsp., Central Peru ; BERLEPSCH & STOLZMANN, P. Zool. Soc. London 1902, vol. ii, pp. 37 & 38.

Sub-order Pici.

Picidæ of Africa ; see Reichenow, Vög. Afrikas ii, pp. 161–201.
Gecinus viridis, nesting habits ; Lewis, Zoologist 1902, pp. 313–315.
Chloronerpes chrysogaster, n. sp., Central Peru ; Berlepsch & Stolzmann, P. Zool. Soc. London 1902, vol. ii, p. 32 : *C. yucatanensis alleni*, n. subsp., S. Marta, Colombia ; Bangs, P. New England Zool. Club iii, p. 83.
Dendromus pallidus, n. sp., Lamu, E. Africa ; Sharpe, Ibis 1902, p. 638 : *D. hargitti*, n. sp., Niam Niam ; id. t. c. p. 638 : *D. niger*, n. sp., Kaffa, Equat. Africa ; Neumann, Ornith. Monber. x, p. 9 : *D. permistus kaffensis*, n. subsp., Kaffa ; id. t. c. p. 9 : *D. chrysurus suahelicus*, n. subsp., German East Africa, Reichenow, Vög. Afrikas ii, p. 175.
Asyndesmus torquatus, unusual number at Tucson, Arizona ; Brown, Auk xix, pp. 80–83.
Sphyropicus ruber notkensis (Suckow) is the proper name for the northern form of *S. ruber* ; Richmond, P. Soc. Washington xv, p. 89.
Picus major, notes on ; Gurney, Zoologist 1902, pp. 94–96.
Dendrocopus major harterti, n. subsp., Sardinia ; Arrigoni degli Oddi, Avicula vi, p. 193 : *D. cissa*, in Hungary ; Madarász, Magyar. Madarai, p. 193 [1900].
Dryobates pubescens turati (Malherbe), notes on ; Fisher, Condor iv, pp. 68–70.
Picoides tridactylus and its allies, notes on ; W. Rothschild, Nov. Zool. ix, pp. 162 & 163 : *P. americanus*, at Toronto ; Fleming, Auk xix, p. 79.
Xenopicus gravirostris, n. sp., San Bernardino Mts., California ; Grinnell, Condor iv, pp. 89 & 90.
Dendrobates malherbei pectoralis, n. subsp., Maraynioc (13,000 ft.), Central Peru ; Berlepsch & Stolzmann, P. Zool. Soc. London 1902, vol. ii, p. 33.
Dendropicus hemprichi albicans, n. subsp., Djuba River, N.E. Africa ; Erlanger, J. Ornith. 1902, p. 258.
Veniliornis orenocensis, n. sp., Orinoco River ; Berlepsch & Hartert, Nov. Zool. ix, p. 93.
Mesopicus goertan abessinicus and *M. g. centralis* = *M. pœocephalus*, Swains. ; Grant, Ibis 1902, p. 425 : *M. goertan* and its allies, notes on ; Sharpe, Ibis 1902, pp. 641 & 642 : *M. ruwenzori*, n. sp., Ruwenzori Range ; Sharpe, Bull. B. O. C. xiii, p. 8.
Pyrrhopicus pyrrhotus, the course of the hyoid cornua ; Osmaston, J. Bombay Soc. xiv, pp. 587 & 588.
Micropternus brachyurus and its subspecies ; Hartert, Nov. Zool. ix, p. 197.
Thriponax parvus, n. sp., Simalun Is., Sumatra ; Richmond, P. Soc. Washington xv, p. 189.
Ceophlœus pileatus, in Minnesota ; Cox, Auk xix, pp. 288 & 289, pl. x.
? *Picus martius*, in Herefordshire ; Townsend, Zoologist 1902, pp. 25 & 26.
Picumnus sagittatus sharpei, n. subsp., São Paulo ; Ihering, Rev. Mus. Paulista v, pp. 279 & 280 : *P. stellæ*, n. sp., Orinoco River ; Berlepsch & Hartert, Nov. Zool. ix, p. 96 : *P. olivaceus*, *P. flavotinctus* and *P. granadensis*, three distinct races ; Hartert, t. c. p. 607.

Order PASSERIFORMES.

Family Pteroptochidæ.

Scytalopus albifrons, figured ; Philippi, An. Mus. Chile xv, pl. xx, fig. 4.
Pteroptochus castaneus, figured ; id. t. c. pl. xvi.

Family Formicariidæ.

Thamnophilus lunulatus, notes on; Berlepsch & Hartert, Nov. Zool. ix, p. 68: *T. canadensis trinitatis*, nest and eggs; iid. t. c. p. 70: *T. doliatus fraterculus*, n. subsp., Venezuela; iid. t. c. pp. 70 & 71: *T. cachabiensis*, Hartert = *Cercomacra berlepschi* ♀ or juv.; Hartert, t. c. pp. 612 & 613.

Myrmotherula cherriei, n. sp., Rio Orinoco; Berlepsch & Hartert, t. c. p. 72: *M. melæna*, nest and eggs described; iid. t. c. p. 74: *M. cinereiventris pallida*, n. subsp., Rio Orinoco to E. Peru and E. Ecuador; iid. t. c. pp. 74 & 75: *M. viduata* is allied to *M. fulviventris*; Hartert, t. c. p. 612.

Rhamphocænus sticturus, n. sp., Matto Grosso; Hellmayr, Verh. Ges. Wien lii, pp. 97 & 98.

Cercomacra nigricans is the ♀ of *C. maculicaudis*; Berlepsch & Hartert, Nov. Zool. ix, p. 76.

Pithys bicolor æquatorialis, n. subsp., N. Ecuador; Hellmayr, Ornith. Monber. x, p. 33.

Myrmeciza swainsoni griseipectus, n. subsp., Rio Orinoco to British Guiana; Berlepsch & Hartert, Nov. Zool. ix, pp. 76 & 77.

Phlogopsis macleannani, from Ecuador; Hartert, t. c. p. 613.

Formicarius analis, *F. analis destructus*, and *F. analis nigricapillus*, notes on; id. t. c. p. 614: *F. ruficeps amazonicus*, n. subsp., Borba, Rio Madeira; Hellmayr, Ornith. Monber. x, pp. 34 & 35: *F. ruficeps* and *F. cayennensis*, notes on; id. t. c. pp. 34 & 35.

Pittasoma rufopileatum, figured; Hartert, Nov. Zool. ix, p. 615.

Grallaria periophthalmica distinct from *G. perspicillata*; id. t. c. p. 615.

Family Dendrocolaptidæ.

Geositta (*Certhilauda*) *frobeni* and *G.* (*Geobamon*) *rufipennis*, figured; Philippi, An. Mus. Chile xv, pl. xxi, figg. 1 & 2.

Upucerthia atacamensis (pl. xiii, fig. 2), *U. albiventris* (pl. xiv, fig. 2); id. t. c.

Synallaxis albescens nesiotis, n. subsp., Margarita Is.; Clark, Auk xix, p. 264: *S. albescens albigularis*, nest and eggs; Berlepsch & Hartert, Nov. Zool. ix, p. 59: *S. alopecias* Pelz. 1859 = *S. vulpina* Pelz. 1856; iid. t. c. p. 59: *S. masafueræ* (pl. xiii, fig. 1), *S. montana* (pl. xv, fig. 1), *S. cinerea* (pl. xviii, fig. 1), *S. melanops* (pl. xv, fig. 2), *S. dorsomaculatus* (pl. xv, fig. 3); Philippi, An. Mus. Chile xv.

Thripophaga cherriei, n. sp., Rio Orinoco; Berlepsch & Hartert, Nov. Zool. ix, pp. 60 & 61, pl. xii, fig. 2.

Xenicopsis anxius, n. sp., S. Marta, Colombia; Bangs, P. New England Zool. Club iii, p. 83.

Automolus sclateri paraensis, n. subsp., Para; Hartert, t. c. p. 61, note.

Dendrocincla phæochroa, n. sp., Rio Orinoco; Berlepsch & Hartert, t. c. p. 67.

Premnoplex coloratus, n. sp., S. Marta, Colombia; Bangs, P. New England Zool. Club iii, p. 84.

Sclerurus salvini and *S. guatemalensis*, notes on; Hartert, t. c. p. 615.

Sittasomus amazonus, notes on; Berlepsch & Hartert, t. c. p. 62: *S. griseus*, from Tobago, and *S. olivaceus*, from Bahia, distinct; iid. t. c. p. 62.

Dendrornis rostripallens sororia, n. subsp., Rio Orinoco; iid. t. c. pp. 63 & 64: notes on allied species; iid. t. c. p. 64: *D. notata* (Eyton) and *D. similis* (Pelz.) = *D. obsoleta* Licht.; iid. t. c. pp. 64 & 65: *D. multiguttata*, Lafr. distinct from *D. similis* (Pelz.); iid. t. c. p. 65.

Xiphocolaptes orenocensis, n. sp., Rio Orinoco; iid. t. c. pp. 65 & 66.

Family TYRANNIDÆ.

Arundinicola citreola, figured; PHILIPPI, An. Mus. Chile xv, pl. xxvii, fig. 1.

Xenopsaris albinucha, figured, from the Orinoco River; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 36, pl. xii, fig. 1.

Muscisaxicola nigrifrons, figured (pl. xiv, fig. 1), *M. flavivertex* (pl. xvii, fig. 2), *M. cinerea* (pl. xix, fig. 2), *M. ruficapilla* (pl. xxiv, fig. 2); PHILIPPI, An. Mus. Chile xv.

Lessonia, Swains., has priority over *Centrites* Cab.; RICHMOND, Auk xix, p. 92.

Platyrhynchus nattereri, n. sp., Rio Madeira, Amazonia; HARTERT & HELLMAYR, Bull. B. O. C. xii, pp. 63 & 64: *P. rostratus* Pelz. (nec Lath.), from the Rio Branco, = *P. senex* Scl. & Salv.; iid. t. c. p. 64.

Rhynchocyclus flaviventer, nest and eggs; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 47: *R. megacephala flavotectus*, n. subsp., N.W. Ecuador; HARTERT, t. c. p. 608.

Craspedoprion, n. gen., type *C. olivaceus*; id. t. c. p. 609, cum fig.

Rhamphotrigon (type *R. ruficauda* Spix) distinct from *Rhynchocyclus*; id. t. c. p. 608.

Tæniotriccus, n. gen., type *T. andrei*, n. sp., Rio Orinoco; BERLEPSCH & HARTERT, t. c. pp. 38 & 39.

Colopteryx pilaris, nest and egg; iid. t. c. p. 39.

Habrura pectoralis brevipennis, n. subsp., Venezuela and British Guiana; iid. t. c. p. 40.

Culicivora fernandeziana, figured; PHILIPPI, An. Mus. Chile xv, pl. xx, fig. 1.

Serpophaga orenocensis, n. sp., Orinoco River; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 40.

Muscicapa parvirostris Ph. figured; PHILIPPI, An. Mus. Chile xv, pl. xxiv, fig. 1.

Phyllomyias salvadorii Dubois (= *P. berlepschi*) Salvad. from Tucuman, scarcely distinct from *P. brevirostris*; SCLATER, Bull. B. O. C. xii, p. 52.

Mionectes olivaceus galbinus, n. subsp., S. Marta, Colombia; BANGS, P. New England Zool. Club iii, p. 85.

Phæomyias, n. gen., type *P. incomta* (Cab.); BERLEPSCH & HARTERT, Nov. Zool. ix, p. 41.

Myiopagis = *Ornithion*. *M. incanescens* Cab. = *M. imberbe* (Scl.) = *M. cinerascens* (Wied); BERLEPSCH, t. c. p. 41, note: *M. placens pallens*, n. subsp., S. Marta, Colombia; BANGS, P. New England Zool. Club iii, p. 85.

Tyranniscus bolivianus paulistus, n. subsp., São Paulo; IHERING, Revist. Mus. Paulista v, p. 272.

Elainea pagana, figured; PHILIPPI, An. Mus. Chile xv, pl. xxvi, fig. 1: *E. murina*, figured; id. t. c. pl. xxvi, fig. 2: *E. pagana*, *E. cristata*, and *E. parvirostris*, nest and eggs; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 43: *E. macilvaini* Lawr., distinct from *E. gaimardi* D'Orb., and is the northern form of *E. caniceps* (Sw.); iid. t. c. p. 45.

Sublegatus arenarum (Salvin), distinct from *S. glaber*; HARTERT, t. c. p. 45, note.

Myiozetetes cayennensis rufipennis, nest and eggs; BERLEPSCH & HARTERT, t. c. p. 46.

Pitangus derbianus rufipennis, eggs described; iid. t. c. p. 48.

Onychorhynchus mexicanus fraterculus, n. subsp., S. Marta, Colombia; BANGS, P. New England Zool. Club iii, p. 86.

Myiobius litæ, described; HARTERT, t. c. p. 607.

Pyrocephalus dubius, nest and eggs; W. ROTHSCHILD, Bull. B. O. C. xii,

p. 47: *P. rubineus saturatus*, n. subsp., Orinoco River; BERLEPSCH & HARTERT, Nov. Zool. ix, pp. 34 & 35.
Mitrephanes berlepschi, n. sp., N.W. Ecuador; HARTERT, t. c. p. 608.
Horizopus brachytarsus depressirostris (Ridgw.), from the Orinoco River; BERLEPSCH & HARTERT, t. c. p. 50: *H. andinus* (Tacz.) probably = *H. virens* (L.); iid. t. c. p. 50, note.
Myiarchus coalei Ridgw. = *M. tricolor* Pelz.; iid. t. c. p. 51.
Tyrannus melancholicus, nest and eggs; iid. t. c. p. 52.
T. albogularis, egg figured; IHERING, Revist. Mus. Paulista v, pl. xi, fig. 7: *T. tyrannus vexator*, should be added to the Check-list of North American birds; MEARNS, Auk xix, p. 72.

Family PIPRIDÆ.

Antilophia galeata, egg figured; IHERING, Revist. Mus. Paulista v, pl. xi, fig. 4.
Pipra leucocilla, notes on. *Parus pipra* Linn., is undecipherable; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 53.
Chiroxiphia caudata, egg figured; IHERING, Revist. Mus. Paulista v, pl. xi, fig. 6.

Family COTINGIDÆ.

Tityra erythrogenys (Selby), from Venezuela and Guiana, distinct from *T. inquisitor* (Licht.) of Southern Brazil; BERLEPSCH & HARTERT, Nov. Zool. ix, pp. 55 & 56.
Tityra brasiliensis, egg figured; IHERING, Revist. Mus. Paulista v, pl. xi, fig. 5.
Lathria unirufus castaneotinctus, n. subsp., N.W. Ecuador; HARTERT, Nov. Zool. ix, p. 610.
Pachyrhamphus albogriseus similis Salvin (nec Cherrie)—potius *P. salvini* Richmond, notes on; id. t. c. p. 609: *P. atricapillus* (Merrem), notes on; BERLEPSCH & HARTERT, t. c. p. 56.
Laniocera Less., pro *Aulia*; iid. t. c. p. 57.
Aulia tertia, n. sp., N.W. Ecuador; HARTERT, t. c. p. 669.
Attila nattereri, n. sp., Rio Madeira and Para; HELLMAYR, Verh. Ges. Wien lii, pp. 95 & 96: *A. brasiliensis parambæ*, notes on; HARTERT, Nov. Zool. ix, p. 610.
Xenopsaris belongs to the *Tyrannidæ*; BERLEPSCH & HARTERT, t. c. p. 36.
Ampelion cucullatus, egg figured; IHERING, Revist. Mus. Paulista v, pl. xi, fig. 1.

Family PITTIDÆ.

Pitta longipennis, near Salisbury, Rhodesia; SHARPE, Bull. B. O. C. xii, p. 49: *P. brachyura*, figured; PHILLIPPS, Avicult. Mag. viii, pl. to pp. 179–185, 257–262; HARPER, op. cit. (2) i, p. 29: *P. borneensis* Elliot = *P. granatina* Temm., *P. coccinea* is from Malacca; HARTERT, Nov. Zool. ix, pp. 548 & 549.
Eucichla irena (Temm.), notes on; id. t. c. p. 549.
Pitta iris, egg described; NORTH, Victorian Natural. xix, p. 34: LE SOUËF, t. c. p. 67: *P. anerythra*, figured; ROTHSCHILD & HARTERT, Nov. Zool. ix, pl. xi, fig. 2.

Family HIRUNDINIDÆ.

Chelidon urbica, abnormal nest; WALLIS, Bull. B. O. C. xiii, p. 18.
Cotile pembertoni, n. sp., Angola; HARTERT, op. cit. xii, pp. 76 & 77: *C. obsoleta sarda*, n. subsp., Sardinia; ARRIGONI DEGLI ODDI, Avicula vi, p. 103.

Tachycineta lepida, n. sp., Laguna Mts., California; MEARNS, P. Soc. Washington xv, pp. 31 & 32.

Hirundo rustica, its migration in Hungary; GAAL, Aquila ix, pp. 30–42; HEGEFOKY, t. c. pp. 42–72, Taf. VI; MAREK, t. c. pp. 165–170: near Agram; BRUSINA, t. c. pp. 225 & 226: nesting on a bough; M. O. K., Aquila ix, pp. 217 & 218, cum fig.: migrations of; WITHERBY, Knowledge xxv, pp. 53 & 54; CLARKE, Rep. Brit. Ass. 1901, pp. 372–376: *H. erythrogastra palmeri*, n. subsp., Alaska to California; GRINNELL, Condor iv, p. 71: *H. leucopygia* and *H. melampyga*, figured; PHILIPPI, An. Mus. Chile xv, pl. xx, figg. 2 & 3: *H. erythrogaster* × *Petrochelidon lunifrons*, described; MEARNS, Auk xix, pp. 73 & 74.

Progne subis floridana, n. subsp., Southern Florida; MEARNS, P. U. S. Mus. xxiv, pp. 918–922.

Petrochelidon fulva pallida, n. subsp., N. W. Mexico; NELSON, P. Soc. Washington xv, p. 211: *P. lunifrons* × *Tachycineta bicolor*; CHAPMAN, Auk xix, pp. 392–394.

Family MUSCICAPIDÆ.

Micræca brunneicauda, n. sp., Northern Australia; CAMPBELL, Emu ii, p. 85.

Stizorhina vulpina, n. sp., Bundeko, Equat. Africa; REICHENOW, J. Ornith. 1902, p. 125.

Muscicapa grisola, in Northumberland in April; GILL, Zoologist 1902, p. 193: *M. reichenowi*, n. sp., Kaffa, Equat. Africa; NEUMANN, Ornith. Monber. x, p. 10: *M. parva*, supposed migration at the Casquets Lighthouse in May; BIDWELL, Bull. B. O. C. xii, p. 83: on migration at the Casquets Lighthouse in May 1902; LLEWELLYN, Ibis 1902, pp. 673 & 674: [*? Erythacus rubecula*; EDD., Ibis 1902, pp. 673 & 674.]

Oreomyias, n. gen., Type *O. riisi* (Hartl.); REICHENOW, J. Ornith. 1902, p. 254.

Cyornis erythrogaster, nom. emend. pro *S. rufigaster* (Raffl. *vox hybrida*!); SHARPE, Handl. B. iii, p. 216 (1901): *C. sumatrensis*, from the Malay Peninsula; HARTERT, Nov. Zool. ix, pp. 549 & 550.

Niltava sundara, in captivity; HUMPHRYS, Avicult. Mag. viii, pp. 24–26.

Petræca phœnicea, figured; FRENCH, J. Agric. Victoria i, pp. 906 & 907: *P. ramsayi*, is a variety of *P. goodenovi*; HALL, Emu i, pp. 9 & 10: *Melanodryas bicolor*, figured; FRENCH, J. Agric. Victoria i, p. 531 cum tab.

Pseudogerygone sylvestris, figured; LORENZ, Ann. Hofmus. Wien xvii, pl. xii, fig. 1: *P. tenebrosa*, notes on; SCLATER, Bull. B. O. C. xii, p. 51.

Chasiempis sandwichensis and *C. sandwichensis ridgwayi*, described; HENSHAW, Auk xix, pp. 230 & 231.

Polioptila sclateri = *P. nigriceps*; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 9.

Parisoma subcæruleum cinerascens, n. subsp., Damara Land; REICHENOW, Ornith. Monber. x, p. 77.

Chloropeta natalensis umbriniceps, n. subsp., Omo River; NEUMANN, Ornith. Monber. x, p. 10.

Hypothymis azurea is the name of the Philippine species, the Indian bird is *H. cœruleocephala*; HARTERT, Nov. Zool. ix, p. 562: *H. abbotti*, n. sp., Pulo Babi, Sumatra: *H. consobrina*, n. sp., Simalur Isl.; RICHMOND, P. Soc. Washington xv, pp. 189 & 190.

Rhipidura preissi = *R. albiscapa*; HALL, Ibis 1902, pp. 134 & 135: *R. atrata* from Mts. of Pahang, Malay Peninsula; HARTERT, Nov. Zool.

ix, pp. 552 & 553: *R. intermedia*, n. sp., North-eastern Queensland; NORTH, Victorian Natural. xix, pp. 101 & 102: *R. matthiæ*, n. sp., S. Matthias' Isl., Bismarck Archipelago; HEINROTH, J. Ornith. 1902, p. 457, Taf. ix, fig. 2.

Rhinomyias umbratilis richmondi, n. subsp., Sumatra; STONE, P. Ac. Philad. 1902, pp. 686 & 687: *R. pectoralis* Salvad. = *R. umbratilis* (Strickl.); id. t. c. p. 686.

Cryptolopha læta, n. sp., Ruwenzori Range; SHARPE, Bull. B. O. C. xiii, p. 9.

Abrornis ripponi, n. sp., W. Yun-nan; id. t. c. p. 11.

Monarcha menckei, n. sp., S. Matthias Isl., Bismarck Archipelago; HEINROTH, J. Ornith. 1902, pp. 451 & 452, Taf. ix, fig. 1.

Family CAMPOPHAGIDÆ.

Edoliisoma erythropygium saturatius, n. subsp., Yzabel Island, Solomon Group; ROTHSCHILD & HARTERT, Nov. Zool. ix, p. 582.

Campephaga ignea, n. sp., Njangabo, Equat. Africa; REICHENOW, J. Ornith. 1902, p. 258.

Pericrocotus wrayi and *P. cinereigula* = *P. montanus*; HARTERT, Nov. Zool. ix, pp. 554 & 555: *P. croceus*, ♀ described; id. t. c. p. 555: *P. speciosus* and *P. fraterculus*, important notes on these two forms; id. t. c. pp. 555 & 556.

Family PYCNONOTIDÆ.

Iole holti binghami, n. subsp., S. Shan States; HARTERT, Nov. Zool. ix, p. 558.

Chloropsis viridis viriditectus, n. subsp., Baram, Sarawak; id. t. c. p. 212.

Criniger tephrogenys and its subspecies, *C. t. gutturalis*, and *C. t. pallidus*, *C. ochraceus* distinct from *C. tephrogenys*; id. t. c. pp. 558 & 559.

Xenocichla leucolæma, n. sp., Toro Forest, Equatorial Africa; SHARPE, Bull. B. O. C. xiii, p. 10.

Pycnonotus barbatus inornatus, a subspecies from West Africa, distinct from typical *P. barbatus* of N. E. Africa; HARTERT, Nov. Zool. ix, p. 329: *P. prillwitzi*, n. sp., Java, distinct from *P. simplex*; id. t. c. pp. 560 & 561.

Family TIMELIIDÆ.

Trochalopterum affine, nest and eggs described; OSMASTON, J. Bombay Soc. xiv, p. 815.

Calamanthus albiloris, n. sp., Victoria; NORTH, Victorian Natural. xix, pp. 102 & 103.

Pyctorhis sinensis, notes on; HARPER, Avicult. Mag. viii, pp. 108–110.

Büttikoferia, nom. emend. pro *Muelleria* Büttik. (nec auct.); MADARÁSZ, Bull. B. O. C. xii, p. 49.

Bowdleria caudata and *B. fulva*, figured; LORENZ, Ann. Hofmus. Wien pl. xii, figg. 2 & 3.

Sphenura broadbenti from Victoria; SCLATER, Bull. B. O. C. xiii, p. 23.

Turdinus abbotti olivaceum is from Malacca and Borneo = *T. buetikoferi* (Finsch); HARTERT, Nov. Zool. ix, p. 562: *T. sepiarius*, notes on; id. t. c. p. 563: *T. batesi*, figured; SHARPE, Ibis 1902, p. 94, pl. iv, fig. 2.

T. albipectus, from Cameroons; id. t. c. p. 94: *T. atriceps*, n. sp., Ruwenzori Range; SHARPE, Bull. B. O. C. xiii, p. 10.

Bathmocercus jacksoni, n. sp., Kibera, Equatorial Africa; SHARPE, Bull. B. O. C. xiii, p. 10.

Aethostoma, nom. n. vice *Trichostoma* Blyth (nec Pictet); SHARPE, Bull. B. O. C. xii, p. 54.

Trichostoma rostratum umbratile from Borneo distinct from *T. rostratum* of the Malay Peninsula; HARTERT, Nov. Zool. ix, p. 563: *T. buttikoferi*, note on; STONE, P. Ac. Philad. 1902, pp. 685 & 686.

Setaria Blyth vice *Malacopterum* Eyton (nec Swains.); SHARPE, Bull. B. O. C. xii, p. 54.

Malacopteron melanocephalum, from Pahang, Malay Peninsula; HARTERT, Nov. Zool. ix, p. 564: *M. notatum*, n. sp., Banjak Is., Sumatra; RICHMOND, P. Soc. Washington xv, p. 190.

Nesobates, nom. n. vice *Oxylabes* Sharpe (nec Forst.); SHARPE, Bull. B. O. C. xii, p. 54.

Turdinulus humei, n. sp., Pahang, Malay Peninsula, review of the six allied species; HARTERT, Nov. Zool. ix, pp. 564 & 565.

Corythocichla leucostriata = *Turdinulus striatus*; id. t. c. pp. 565 & 566.

C. squamata Baker = *Turdinulus roberti*; BAKER, J. Bombay Soc. xiv, p. 626.

Rimator malacoptilus, note on the eggs; id. t. c. p. 814.

Proparoides, n. gen. vice *Sittiparus* Oates (nec Selys Longchamps); BIANCHI, Bull. B. O. C. xii, p. 55 = *Semiparus* Hellm., J. f. O. 1901, p. 171 [= *Pseudominla* Oates, 1894; OATES, t. c. pp. 67 & 68].

Stachyris banjakensis, n. sp., Banjak Is., Sumatra; RICHMOND, P. Soc. Washington xv, p. 190: *S. chrysops*, n. sp., Trong, Lower Siam; id. t. c. pp. 157 & 158.

Stachyridopsis assimilis [*S. bocagei*] distinct from *S. chrysæa*; HARTERT, Nov. Zool. ix, p. 567.

Mixornis prillwitzi (fig. 1), *M. everetti* (fig. 2), and *M. flavicollis* (fig. 3), figured; review of species; id. t. c. pp. 436 & 437, pl. xiii.

Myiophoneus horsfieldi, curious nesting site; BETHAM, J. Bombay Soc. xiv, p. 815.

Heteroxenicus, nom. n. vice *Drymochares* Gould (nec Muls.); SHARPE, Bull. B. O. C. xii, p. 55.

Actinodura souliei, figured; OUSTALET, Arch. Mus. Paris (4) iii, pl. xii.

Siva strigula malayana, n. subsp., Malay Peninsula; HARTERT, Nov. Zool. ix, p. 567: notes on species of *Siva*; id. t. c. p. 568: *S. cyanuroptera*, figured; HARPER, Avicult. Mag. viii, pl. to p. 243.

Yuhina yangpiensis, n. sp., W. Yun-nan; SHARPE, Bull. B. O. C. xiii, p. 12.

Ixulus flavicollis, in Burma; THOMPSON & CRADDOCK, J. Bombay Soc. xiv, p. 600.

Pteruthius tahanensis, n. sp., Pahang, Malay Peninsula; HARTERT, Nov. Zool. ix, p. 576.

Rhabdochlamys dejeani Oust. = *Oreocorys sylvanus*; OUSTALET, Arch. Mus. Paris (4) iii, pp. 295 & 296. [*Motacillidæ*.]

Panurus biarmicus, habits; MADARÁSZ, Magyar. Madarai, pp. 125–128 [1900].

Family TROGLODYTIDÆ.

Heleodytes brunneicapillus anthonyi, n. subsp., S. W. United States, N. W. Mexico and Lower California; MEARNS, Auk xix, pp. 143 & 144: a key to the species of the United States, pp. 144 & 145.

Campylorhynchus griseus (Swains.), notes on: *C. bicolor* Sharpe (nec Pelz.) = *C. griseus* Sw.; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 4.

Thryophilus baroni, n. sp., North Peru; HELLMAYR, Verh. Ges. Wien lii, p. 170.

Thryothorus albipectus and its allies, notes on; BERLEPSCH & HARTERT, Nov. Zool. ix, pp. 6 & 7: *T. griseipectus caurensis*, n. subsp., Caura

River, Venezuela; iid. t. c. pp. 7 & 8: *P. ludovicianus*, nesting in Connecticut; CLARK, Auk xix, pp. 90 & 91.

Cistothorus (*Telmatodytes*) *palustrus dissaëptus*, n. subsp., Eastern United States; BANGS, Auk xix, p. 352.

Troglodytes musculus clarus, n. subsp., Orinoco River; BERLEPSCH & HARTERT, Nov. Zool. ix, pp. 8 & 9: *T. solstitialis macrourus*, n. subsp., Central Peru; BERLEPSCH & STOLZMANN, P. Zool. Soc. London 1902, ii, pp. 55 & 56.

Hylemathrous vice *Troglodytes* for the House Wren; HOWE, Auk xix, pp. 89 & 90.

Spelæornis souliei and allies; OUSTALET, Arch. Mus. Paris (4) iii, pp. 274 & 275.

Anorthura, a synopsis of the genus; OBERHOLSER, Auk xix, pp. 175–181: *A. talifuensis*, n. sp., W. Yun-nan; SHARPE, Bull. B. O. C. xiii, p. 11.

Olbiorchilus, n. g. type *O. troglodytes* (Linn.); OBERHOLSER, Auk xix, p. 177.

Leucolepia Reichenb. should supersede *Cyphorinus* Cab.; RICHMOND, t. c. p. 92.

Microcerculus caurensis, n. sp., Caura River, Venezuela; BERLEPSCH & HARTERT, Nov. Zool. ix, pp. 5 & 6: *M. corrasus*, n. sp., S. Marta, Colombia; BANGS, P. New England Zool. Club iii, p. 87.

Proepyga lepida from the Malay Peninsula; HARTERT, t. c. p. 573.

Family CINCLIDÆ.

Cinclus aquaticus britannicus, n. subsp.; TSCHUSI ZU SCHMIDHOFEN, Ornith. Jahrb. xiii, p. 69; W. ROTHSCHILD, Ibis 1902, pp. 524 & 525: *C. bilkevitchi*, n. sp., Altai; ZARUDNY, Ornith. Jahrb. xiii, pp. 57 & 58.

Family MIMIDÆ.

Mimus polyglottis, note on; TROTTER, Auk xix, pp. 206–208: *M. polyglottus leucopterus*, should be added to the Check-list of North American birds; MEARNS, t. c. pp. 70–72.

Nesomimus, Notes on the species; ROTHSCHILD & HARTERT, Nov. Zool. ix, pp. 381–384: *N. adamsi*, nest and eggs; W. ROTHSCHILD, Bull. B. O. C. xii, p. 47.

Galeoscoptes carolinensis, in Massachusetts in winter; DURFEE, Auk xix, p. 208: wintering at Concord, N. H.; OLIVER, t. c. pp. 208 & 209: *G. bermudianus* Bangs and Bradlee, is not distinguishable from *G. carolinensis*; A. O. U., Checkl. Suppl. t. c. p. 337.

Toxostoma Rafinesque, vice *Harporhynchus* Cab.; RICHMOND, t. c. p. 89.

Rhodinocichla rosea eximia, n. subsp., Central America; RIDGWAY, B. North and Middle America ii, p. 770.

Calyptophilus referred to this family; RIDGWAY, t. c. p. 1.

Family TURDIDÆ.

SEEBOHM, H. A Monograph of the Turdidæ or family of Thrushes. Edited and completed (after the Author's death) by R. BOWDLER SHARPE. London, 1902, Imp. 4to, parts XII & XIII. The following species are figured:—*Merula subalaris*, *M. hortulorum*, *M. protomomelæna*, *M. celænops*, *M. chryslaus*, *M. erythropleura*, *M. obscura*, *M. pallida*, *M. fœæ*, *M. atrigularis*, *M. naumanni*, *M. ruficollis*, *M. eunomus*, *Mimocichla rubripes*, *M. plumbea*, *M. ardesiaca*.

Turdus merula mauritanicus, n. subsp., Marocco, HARTERT, Nov. Zool. ix, p. 323.

Turdus libonyanus and its allies; HELLMAYR, J. Ornith. 1902, pp. 217–221: *T. xanthorhynchus*, n. sp., Prince's Isl. W. Africa, SALVADORI, Boll. Mus. Torino xvi, No. 414, p. 2, [omitted from Zool. Rec. vol. XXXVIII]: *T. gigas pallidiventris*, n. subsp., Andes of Merida, Venezuela; BERLEPSCH, Ornith. Monber. x, p. 71: *T. pilaris*, migration; CLARKE, Rep. Brit. Ass. 1902, pp. 274–277: *T. pilaris* and *T. iliacus*, notes on; N. F. & C. B. TICEHURST, Zoologist 1902, pp. 265 & 266.

Oreocincla horsfieldi affinis, n. subsp., Trong, Lower Siam; RICHMOND, P. Soc. Washington xv, p. 158.

Merula orientalis Seeb., in Hungary; MADARÁSZ, Magyar. Madarai, p. 107 [1900]: *M. leucauchen cnephosa*, n. subsp., Chiriqui; BANGS, P. New England Zool. Club iii, pp. 91 & 92.

Turdus grayi and subspecies, notes on; HELLMAYR, J. Ornith. 1902, pp. 47–53: *T. grayi tamaulipensis*, ranges from Eastern Mexico to Yucatan and Islands (Cozumel, Meco, Mugeres); id. t. c. p. 50: *Merula incompta* Bangs = *Planesticus luridus* Bp.; id. t. c. p. 50.

Turdus maculirostris and its allies, *T. ignobilis* and *T. amaurochalinus*; id. t. c. pp. 53–60, 69: *T. ignobilis debilis*, n. subsp.; id. t. c. pp. 56 & 57: *T. amaurochalinus* Cab. vice *T. leucomelas* V.; id. t. c. pp. 58 & 59: *T. crotopezus contemptus*, n. subsp., Bueyes, Santa Cruz, Bolivia; id. t. c. p. 61: *Merula albiventris fusa* Bangs = *T. albiventer*; id. t. c. p. 62: *T. poiteaui* Less., remarks on; id. t. c. p. 63: *T. phæopygus* and its allies; id. t. c. pp. 63–65, 69: *T. fumigatus* and *T. hauxwelli*, remarks on; id. t. c. pp. 65 & 66: *T. flavipes* and *T. flavipes venezuelensis*, remarks on. *M. polionota* Sharpe, and *M. melanopleura* identical with the latter; id. t. c. pp. 66–68: *T. fuscater amœnus*, n. subsp., Mendoza; id. t. c. p. 68: *T. brunneus* = *T. leucomelas*; id. t. c. p. 69: *T. swainsoni*, on the island of Elba; DAMIANI, Atti Soc. Ligustica xii, pp. 184–191: *T. iliacus* in the Färoes; notes on *T. coburni*; HAASE, Ornith. Monber. x, pp. 79 & 80: *T. iliacus* and *T. pilaris* in the Färoes; ANDERSEN (cf. Ornith. Monber. x, pp. 24 & 25): *T. musicus*, habits of; COX, Knowledge xxv, pp. 269 & 270.

Ixoreus Bp. has priority over *Hesperocichla* Baird; RICHMOND, P. Soc. Washington xv, p. 85.

Hylocichla aonalaschkæ verecunda Osgood = *H. guttata nana*; A. O. U., Checkl. Suppl. Auk xix, p. 337.

Accentor collaris caucasicus, n. subsp., Caucasus; v. TSCHUSI, Ornith. Monber. x, p. 186: *A. montanellus* in Italy (Verona); CARTOLABI, Avicula vi, p. 28.

Hydrocichla rufidorsalis Sharpe = ♀ juv. of *H. ruficapillus* (Termm.); HARTERT, Nov. Zool. ix, p. 571.

H. schistaceus Hodgs., in the Malay Peninsula; id. t. c. pp. 570 & 571.

Ruticilla mesoleuca (fig. 1) and *R. phœnicura* (fig. 2), figured; MADARÁSZ, Magyar. Madarai, Tab. iii (1900): *R. bonapartii* v. Müll., distinct from *R. mesoleuca*; NEUMANN, J. Ornith. 1902, pp. 133 & 134: *R. rufiventris* in S. Arabia; LORENZ & HELLMAYR, Denk. Ak. Wien lxxi, p. 113: *R. rufiventris pleskei*, Nan-schan; SCHALOW, J. Ornith. 1901, p. 454: *R. cairii*, notes on; VALLON, Avicula vi, pp. 112–114.

Diplootocus, n. gen., type *D. moussieri*, Marocco; HARTERT, Nov. Zool. ix, p. 325.

Cyanecula suecica, note on; N. F. & C. B. TICEHURST, Zoologist 1902, pp. 267 & 268: in S. Germany; TSCHUSI, Ornith. Monber. x, pp. 22–24: *C. leucocyanea* in Kent; NICOLL, Bull. B. O. C. xiii, p. 14: Zoologist 1902, p. 464: *C. discessa*, n. sp., Transcaspia; MADARÁSZ, Termes. Fuzetek xxv, p. 535.

Daulias luscinia, moulting in May; NICOLL, Bull. B. O. C. xiii, p. 14.

Erythacus rubecula, the love-display of the male; GRANT, Ibis 1902, pp. 677 & 678, cum fig.: *E. cairii*, nesting in Eastern Moravia; JANDA,

Ornith. Monber. x, pp. 35 & 36: *E. cairii*=*E. titis* ♂ jun.; FREIHERR VON BERLEPSCH, J. Ornith. 1902, p. 123; REICHENOW, l. c.: is a distinct mountain form; SCHALOW, t. c. pp. 122–124.

Calliope davidi, figured; OUSTALET, Arch. Mus. Paris (4) iii, pl. xi, fig. 2.

Thamnolæa coronata, n. sp., Togo Land; REICHENOW, Ornith. Monber. x, pp. 157 & 158.

Callene cyornithopsis, figured; SHARPE, Ibis 1902, p. 95, pl. iv, fig. 1.

Kittacincla macrurus, and its allies; HARTERT, Nov. Zool. ix, pp. 571–573: *K. m. omissa*, n. subsp., Java; id. t. c. p. 572.

Cossypha griseistriata, *C. archeri*, nn. spp., Ruwenzori Range; SHARPE, Bull. B. O. C. xiii, p. 89: *C. albicapilla giffardi*, from Togo Land; REICHENOW, J. Ornith. 1902, p. 43.

Alethe poliophrys, n. sp., Ruwenzori Range; SHARPE, Bull. B. O. C. xiii, p. 10.

Pratincola rubetra noskæ, n. subsp., Caucasus; TSCHUSI, Ornith. Jahrb. xiii, pp. 234 & 235.

Saxicola familiaris lübberti, n. subsp., Damara Land; REICHENOW, Ornith. Monber. x, 77: *S. f. hellmayri*, n. subsp., Transvaal; id. t. c. p. 78: *S. œnanthe*, unusual habit; CLARKE, Ann. Scott. Nat. Hist. 1902, p. 118: *S. heuglini* distinct from *S. bottæ*; GRANT, Ibis 1902, pp. 421 & 422: *S. halophila*, in Tripoli; WHITAKER, Bull. B. O. C. xiii, pp. 15 & 16: *S. cumingi*, figured; WHITAKER, Ibis 1902, pp. 58 & 59, pl. iii: *S. caterinæ* in Sussex; BUTTERFIELD, Bull. B. O. C. xii, p. 78. Remarks on the species; WHITAKER, t. c. pp. 78 & 79.

Sialia sialis, at Cheyenne, Wyoming; BOND, Auk xix, p. 209: *S. sialis bermudensis* Verrill, is not distinguishable; A. O. U., Checkl. Suppl. Auk xix, p. 338.

Catharus, review of the genus; HELLMAYR, J. Ornith. 1902, pp. 45 & 46: *C. melpomene costaricensis*, n. subsp., Costa Rica; id. t. c. p. 45: *fuscater hellmayri*, n. subsp., Veragua to Costa Rica; BERLEPSCH, Ornith. Monber. x, pp. 69 & 70.

Family SYLVIIDÆ.

Locustella fluviatilis, in Saxony; HANTZSCH, Ornith. Monber. x, pp. 165 170.

Acrocephalus aquaticus, near Winchelsea in Sussex; BONHOTE, Bull. B. O. C. xiii, pp. 13 & 14.

Cisticola aridula, figured; C. ROTHSCHILD & WOLLASTON, Ibis 1902, p. 16, pl. i, fig. 1.

Eremiornis carteri, note on; NORTH, Victorian Natural. xix, pp. 71 & 72 cum tab.: figured; SCLATER, Ibis 1902, p. 608, pl. xiv: probably a *Schœnicola*; SCLATER, Bull. B. O. C. xiii, p. 51.

Phlexis rufescens, n. sp., Ruwenzori Range; SHARPE, Bull. B. O. C. xiii, p. 9.

Sylvia momus, at Shendi, Egyptian Soudan; C. ROTHSCHILD & WOLLASTON, Ibis 1902, p. 17: *S. atricapilla*, in Hertfordshire in February; BICKERTON, Tr. Hertfordsh. Soc. xi, p. 143: *S. atricapilla pauluccii*, n. subsp., Sardinia; ARRIGONI DEGLI ODDI, Avicula vi, p. 103: *S. deserti*, in Tripoli; WHITAKER, Bull. B. O. C. xiii, p. 16 & 17: *S. subalpina*, near Fiume; MADARÁSZ, Magyar. Madarai, p. 449.

Phylloscopus sibilatrix, in the Isle of Man; GRAVES, Zoologist 1902, p. 23: *P. viridanus*, at the Suleskerry Lighthouse, Sutherlandshire, in Sept. 1902; CLARKE, Bull. B. O. C. xiii, p. 12.

Phylloscopus rufus sylvestris in Saxony; HANTSCH, Monatschr. Ver. Schutze xxvii, pp. 154 & 155.

Acanthopneuste viridana, nest and eggs described; OSMASTON, J. Bombay Soc. xiv, p. 816: *A. puella*, n. sp., Wladivostok; MADARÁSZ, Termes. Fuzetek xxv, pp. 1–3, Tab. i: *A. coronata*, figured; id. t. c. Tab. i, fig. 2.

Apalis personata, n. sp., Ruwenzori Range; SHARPE, Bull. B. O. C. xiii, p. 9: *A. nigriceps*, figured; ALEXANDER, Ibis 1902, pl. vii.
Scotocerca buryi, n. sp., South Arabia; GRANT, Bull. B. O. C. xiii, p. 22.
Horeites brunneifrons, nest and eggs described; OSMASTON, J. Bombay Soc. xiv, p. 816.
Suya waterstradti, n. sp., Pahang, Malay Peninsula; HARTERT, Nov. Zool. ix, pp. 568 & 569.
Prinia rufescens Blyth, is a *Franklinia*; HARTERT, t. c. p. 568.
Pyrophthalma melanocephala, on the Strophades Isles in the Ionian Sea; REISER, Ornith. Monber. xiii, pp. 137 & 138.
Malurus whitei, n. sp., Interior of Australia; CAMPBELL, Emu i, pp. 65 & 67: *M. cyaneus*, figured; FRENCH, J. Agric. Victoria i, p. 403 cum tab.
Sphenura li[t]toralis, n. sp., Ellensbrook, W. Australia; MILLIGAN, Emu i, pp. 67–69.
Amytis modesta, n. sp., Central and S. Australia and N. S. W.; NORTH, Victorian Natural. xix, pp. 103 & 104.

Family VIREONIDÆ.

Vireo philadelphia, at Shelter Island, N. Y.; WORTHINGTON, Auk xix, p. 89: *V. noveboracensis micrus*, in Texas; MEARNS, t. c. p. 87: *V. pusillus albatus* Grinnell, is not distinguishable from *V. pusillus*; A. O. U., Checkl. Suppl. Auk xix, p. 337: *V. hypochryseus*, in Sinaloa; LOOMIS, Auk xix, p. 88.
Hylophilus thoracicus griseiventris, n. subsp., Orinoco River; BERLEPSCH & HARTERT, Nov. Zool. ix, pp. 11 & 12: *H. acuticauda* Lawr., distinct from *A. flavipes*; iid. t. c. pp. 12 & 13: *H. butunensis*, n. sp., N. Ecuador; HARTERT, t. c. ix, p. 617.
Vireolanius mikettæ, a northern form of *V. leucotis*; id. t. c. p. 616.
Cyclorhis flavipectus, nest and eggs; BERLEPSCH & HARTERT, t. c. pp. 13 & 14.

Family AMPELIDÆ.

Ampelis garrulus, in the Outer Hebrides; HARVIE-BROWNE, Ann. Scott. Nat. Hist. 1902, p. 52: records in Scotland; id. t. c. pp. 52 & 53: unusual number at Great Yarmouth in November; PATTERSON, Zoologist 1902, p. 25.

Family ARTAMIDÆ.

Artamus personatus, figured; FRENCH, J. Agric. Victoria i, p. 520 cum tab.

Family PRIONOPIDÆ.

Prionops. Review of the genus; REICHENOW, J. Ornith. 1902, pp. 31–33; *P. intermedia*. ?=*P. melanoptera*; id. p. 32: *P. talacoma* and *P. cristatus*, in Equatorial Africa; HARTERT, Nov. Zool. ix, p. 621.

Family LANIIDÆ.

Gymnorhina hyperleuca, notes on; LITTLER, Zoologist 1902, pp. 428–431.
GRANT, W. R. OGILVIE. A review of the species of shrikes of the genus *Lanius*, Nov. Zool. ix, pp. 449–486, pls. xxiv–xxviii.
Lanius minor, in Norfolk; LODGE, Bull. B. O. C. xiii, p. 14, Zoologist 1902, p. 433: *L. lübberti*, n. sp., Damara Land; REICHENOW, Ornith. Monber. x, pp. 76 & 77: *L. buryi*, further notes on; LORENZ & HELLMAYR, Denk. Ak. Wien lxxi, p. 112: *L. humeralis congicus*,

n. subsp., Angola to Equatorial Lakes; REICHENOW, J. Ornith. 1902, p. 258: *L. böhmi*, n. subsp., C. Africa; id. t. c. p. 258: *L. collurio*, in Anglesea; CUMMINGS, Zoologist 1902, pp. 433 & 434: breeding near Aberdaron; APLIN, t. c. p. 108: Parasites in; THIENEMAN, Ornith. Monber. x, pp. 91–93: *L. isabellinus* and its allies; W. ROTHSCHILD, Nov. Zool. ix, pp. 165 & 166: *L. senator* and its allies; HARTERT, t. c. p. 329.

Malaconotus blanchoti, from Kikuyu Escarpment; id. t. c. p. 623.

Chlorophoneus dohertyi, figured; id. t. c. pl. ix: *C. sulphureopectus*, notes on; id. t. c. p. 624.

Telephonus australis emini, nearly allied to *T. a. ussheri*; id. t. c. p. 625.

Pomatorhynchus australis congener, n. subsp., Nyasa Land. *P. a. frater*, n. subsp., Cameroons to Loango; REICHENOW, J. Ornith. 1902, p. 258.

Family PARIDÆ.

Phæoparus, n. subgen. (vice *Pœcile*, auctt.). Type, *P. palustris* Linn.; MADARÁSZ, Magyar. Madarai, p. 139 [1900].

Pœcile communis hellmayri, n. subsp., N. China (Pekin); BIANCHI, Annuaire Mus. St. Petersb. vii, p. 236.

Parus communis korejevi, n. subsp., Turkestan; ZARUDNY & HÄRMS, Ornith. Monber. x, p. 54.

Parus hudsonicus and allies; CHAPMAN, Bull. Amer. Mus. xvi, pp. 245 & 246.

Pœciloïdes, n. g., type *P. superciliosa* (Przewalski); BIANCHI, t. c. p. 241.

Lophophanes pœcilopsis, n. sp., W. Yun-nan; SHARPE, Bull. B. O. C. xiii, p. 11.

Parus ater insularis, n. subsp., Japan; HELLMAYR, Ornith. Jahrb. xiii, pp. 36 & 37.

Pardaliparus potaninæ, n. sp., S.W. Kansu; BIANCHI, t. c. p. 247.

Parus major, deformity of bill; MADARÁSZ, Ornith. Monber. x, p. 37: and its allies, *P. major excelsus*, *P. blanfordi*, *P. major aphrodite*; HARTERT, Nov. Zool. ix, p. 328: *P. cyanus* and *Parus cyanus tianschanicus* are distinct subspecies; W. ROTHSCHILD, Nov. Zool. ix, pp. 164 & 165: *P. cæruleus pallidus*, n. subsp., St. Petersburg; GROTE, Ornith. Monber. x, pp. 181 & 182.

Cyanistes cyaneus, figured; MADARÁSZ, Magyar. Madarai, Tab. iv [1900]: *C. ultramarinus insularis*, n. subsp., Canary Islands; BIANCHI, t. c. p. 252.

Parus afer damarensis, n. subsp., Damara Land; REICHENOW, Ornith. Monber. x, p. 77.

Ægithalus castaneus in Hungary; MADARÁSZ, Magyar. Madarai, p. 130 [1900].

Acredula sicula, notes on; CECILIA, Avicula vi, pp. 3–5: figured; WHITAKER, Ibis 1902, pp. 54–58, pl. ii: *A. dorsalis* Madarász = *A. tephronotus* × *caucasicus*; HELLMAYR, Ornith. Jahrb. xiii, p. 39.

Family SITTIDÆ.

Sitta europæa, its habits; SCHUSTER, Zool. Garten xliii, pp. 319–323: *S. himalayensis* and *S. formosa*, in Burma; THOMPSON & CRADDOCK, J. Bombay Soc. xiv, p. 600: *S. carolinensis nelsoni*, n. subsp., Huachuca Mts., Arizona; MEARNS, P. U. S. Mus. xxiv, pp. 923–926.

Calisitta, Reichenb. pro *Dendrophila* Swains. nec Hodgs.; RICHMOND, Auk xix, p. 92.

Sitta frontalis saturatior, n. subsp., Pahang, Malay Peninsula; HARTERT, Nov. Zool. ix, p. 573: *S. azurea* from Pahang; id. t. c. p. 573.

Family CERTHIIDÆ.

Certhia yunnanensis, n. sp., W. Yun-nan; SHARPE, Bull. B. O. C. xiii, p. 11.
Salpornis salvadorii in the Gold Coast Hinterland; ALEXANDER, Ibis 1902, pp. 290 & 291.
Tichodroma muraria in confinement; SCLATER, Bull. B. O. C. xii, p. 64.

Family ZOSTEROPIDÆ.

Zosterops smithi, n. sp., Somali Land; NEUMANN, Ornith. Monber. xiii, p. 139: *Z. kaffensis*, n. sp., Kaffa, Equat. Africa; NEUMANN, op. cit. x, p. 10: *Z. feæ*, n. sp., S. Thomas' Is., W. Africa; SALVADORI, Boll. Mus. Torino xvi, No. 414, p. 1: *Z. arabs*, figured; LORENZ & HELLMAYR, Denk. Ak. Wien lxxi, p. 111, Taf. 1, fig. 2: *Z. tenella* Hartl., notes on; NEUMANN, J. Ornith. 1902, p. 133: *Z. metcalfei* from Ysabel Island, notes on; ROTHSCHILD & HARTERT, Nov. Zool. ix, pp. 581 & 582.

Family DICÆIDÆ.

Dicæum olivaceum from Pahang, Malay Peninsula; HARTERT, Nov. Zool. ix, p. 575: *D. sollicitans*, note on; FINSCH, Notes Leyden Mus. xxiii, pp. 153–155.
Oreocharis arfaki, figured; DUBOIS, Synopsis Avium, pl. xii, fig. 2.
Pardalotus affinis, probably identical with *P. assimilis*; HALL, Ibis 1902, pp. 185 & 186.

Family NECTARINIIDÆ.

Nectarinia barakæ, n. sp., Ruwenzori Range; SHARPE, Bull. B. O C. xiii, p. 8 [=*N. purpureiventris* (Reichenow), id. t. c. p. 50]: *N. muelleri*, figured; LORENZ & HELLMAYR, Denk. Ak. Wien lxxi, p. 111, Taf. i, figg. 3 & 4.
Æthopyga nipalensis, nest and eggs described; OSMASTON, J. Bombay Soc. xiv, pp. 816 & 817.
Chalcomitra boothi, n. sp., N. Nyasa Land; REICHENOW, Ornith. Monber. x, p. 8.
Cinnyris doggetti, n. sp., Mau, Equatorial Africa; SHARPE, Ibis 1902, p. 116: *C. eboensis* from Togo Land; REICHENOW, J. Ornith. 1902, p. 41.

Family MELIPHAGIDÆ.

Myzomela lafargei from Ysabel Island; ROTHSCHILD & HARTERT, Nov. Zool. ix, p. 581: *M. eichhorni* from Kulambangra, figured; iid. t. c. pl. vii, figg. 1 & 2.
Melithreptus chloropsis, apparently distinct from *M. limulatus*; HALL, Ibis 1902, pp. 180 & 181.
Ptilotis keartlandi and *P. leilavalensis*, notes on; SCLATER, Bull. B. O. C. xii, pp. 50 & 51.

Family MNIOTILTIDÆ.

Mniotiltidæ of North and Middle America; see RIDGWAY, Bull. U. S. Mus. 50, part ii, pp. 425–785, pl. xviii, figg. 7 & 8, pl. xxii.
Helminthophila peregrina, nesting in British Columbia; NORRIS, Auk xix, pp. 88 & 89.

Parula pacifica, different from *P. pitiayumi*; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 10.

Compsothlypis pitiayumi speciosa, n. subsp., Chiriqui to Nicaragua; RIDGWAY, Auk xix, p. 69: *C. americana ramalinæ*, n. subsp., Mississippi Valley; RIDGWAY, B. North and Middle America ii, p. 486.

Dendroica nigrescens, notes on; BOWLES, Condor iv, pp. 82–85: *D. vigorsi abacoensis*, n. subsp., Abaco, Bahamas; RIDGWAY, Auk xix, p. 69: *D. atricapilla*, figured; PHILIPPI, Ann. Mus. Chile xv, pl. xxiii, fig. 1.

Geothlypis agilis, at Shelter Island, N. Y.; WORTHINGTON, Auk xix, p. 89: *G. incompta*, n. sp., Abaco Island, Bahamas; RIDGWAY, B. North and Middle America ii, p. 677: *G. nelsoni microrhyncha*, n. subsp., HIDALGO, Mexico, id. t. c. p. 685.

Basileuterus culicivorus flavescens, n. subsp., Jalisco, Mexico; RIDGWAY, B. North and Middle America ii, p. 755.

Wilsonia pusilla chryseola, n. subsp., Pacific Coast of N. America; RIDGWAY, t. c. p. 714.

Rhodinocichla transferred to the family *Mniotiltidæ*; RIDGWAY, t. c. p. 770.

Family MOTACILLIDÆ.

Motacilla alba, in Killala Bay on migration; WARREN, Irish Natural. xi, pp. 160 & 161: note on; BLATHWAYT, Zoologist 1902, pp. 464 & 465: *M. flava*, a regular migrant in the South-East of England; TICEHURST, Bull. B. O. C. xiii, p. 20: *M. beema*, in Sussex; BUTTERFIELD, Zoologist 1902, p. 232.

Budytes flavus borealis at Rossiten in May; THIENEMANN, J. Ornith. 1902, p. 136: *B. cinereicapillus*, in Croatia; MADARÁSZ, Magyar. Madarai, p. 448.

Anthus spipoletta, near Rye in Sussex; HOWARD SAUNDERS, Bull. B. O. C. xiii, p. 20; NICOLL, t. c. p. 20: *A. pennsylvanicus* a regular visitor to Greenland; HELMS, J. Ornith. 1902, p. 126: *A. novæzealandiæ reischeki*, n. subsp.?, Hauturu and Waikato, New Zealand; LORENZ, Ann. Hofmus. Wien xvii, p. 308: *A. novæzealandiæ chathamensis*, n. subsp., Chatham islands; id. t. c. p. 309: *A. novæzealandiæ steindachneri*, n. subsp., Antipodes islands; id. t. c. p. 309, pl. xii, fig. 4: *A. novæzealandiæ*, figured; id. t. c. pl. xii, fig. 5.

Rhabdochlamys dejeani, Oustalet and *Corydalla kianqsinensis* David and Oustalet = *Oreocorys sylvanus*; OUSTALET, Arch. Mus. Paris (4) iii, pp. 295 & 296.

Macronyx wintoni Sharpe = *M. ameliæ*; SHELLEY, B. Africa iii, p. 12: *M. fülleborni*, and *M. aurantiigula*, figured; REICHENOW, Vög. Afrikas ii, pl. i.

Family ALAUDIDÆ.

Otocoris. Review of the genus; OBERHOLSER, P. U. S. Mus. xxiv, pp. 801–883, pls. xliii–xlviii: *O. alpestris arcticola*, n. subsp., Yukon river to Utah and Montana, p. 816; *O. alpestris enthymia*, n. subsp., Saskatchewan to Colorado and Kansas, p. 817; *O. alpestris diaphora*, n. subsp., Tamaulipas to Oaxaca, Mexico, pp. 829–831; *O. alpestris actia*, n. subsp., Lower California, pp. 845–849; *O. alpestris ammophila*, n. subsp., S.E. California, pp. 849–851; *O. alpestris aphrasta*, n. subsp., S.E. Arizona to N.W. Mexico, pp. 860–863; *O. alpestris leucansiptila*, n. subsp., S W. Arizona, S.E. California, and Southern Nevada, pp. 864–868: *O. longirostris perissa*, n. subsp., Ladak, Central

Asia, pp. 869–871: *O. longirostris argalea*, n. subsp., S.W. Eastern Turkestan, p. 871: *O. penicillata oreodrama*, n. subsp., Tagdumbash Pamir, Central Asia, pp. 876 & 877: *O. penicillata iranica*, n. subsp., N. Persia to Baluchistan: *O. penicillata transcaspica*, Flöricke (Gef. Welt., 1898, p. 46) = *O. penicillata* (typ.); ZARUDNY & HÄRMS, Ornith. Monber. x, pp. 53 & 54.

Alauda sibirica, in Sussex; TICEHURST, Bull. B. O. C. xiii, p. 14.

Melanocorypha sibirica, in Kent; TICEHURST, op. cit. xii, p. 50: *M. yeltoniensis*, in Switzerland; BURG, Ornith. Monber. x, p. 38.

Megalophonus anderssoni Tristram = *Tephrocorys cinerea*; SHELLEY, B. Africa iii, p. 123: *T. blanfordi*, n. sp., Senafé, Abyssinia; id. t. c. p. 128, pl. 21, fig. 2.

Botha, n. g., Type *B. difficilis*, n. sp., Orange River Colony; id. t. c. pp. 104 & 105, pl. xxii, fig. 1.

Alauda arvensis, migrations of; CLARKE, Rep. Brit. Ass. 1901, pp. 365–372; WITHERBY, Knowledge xxv, pp. 52 & 53.

Aethocorys, n. gen., Type *A. personata* (Sharpe); SHARPE, Bull. B. O. C. xii, p. 62; is congeneric with *Alauda*; SHELLEY, B. Africa iii, p. 117.

Calandrella starki, n. sp., Transvaal; id. t. c. p. 135, pl. xxii, fig. 2: *C. sclateri*, n. sp., Great Namaqua Land; id. t. c. p. 136, pl. xxii, fig. 3.

C. acutirostris, from the Athi River, British East Africa; SHARPE, Bull. B. O. C. xii, p. 61.

Mirafra pallida, n. sp., Damara Land; SHARPE, Bull. B. O. C. xii, p. 62: *M. grisescens*, n. sp., Matabele Land; id. t. c. p. 62: *M. albicauda*, near Fashoda; GRANT, Ibis 1902, pp. 409 & 410: *M. zombæ*, Nyasa Land, and *M. degeni*, S. Abyssinia, nn. spp.; GRANT, Bull. B. O. C. xiii, pp. 27 & 28: *M. woodwardi*, notes on; SCLATER, op. cit. xii, p. 51: *M. gilletti* (1) and *M. nævia* (2), figured; SHELLEY, B. Africa iii, pl. xv: *M. pœcilosterna* (1), and *M. fischeri* (2), figured; id. t. c. pl. xvi: *M. tigrina* Oust. = *M. fischeri*; id. t. c. p. 43: *M. athi* (1) and *M. hypermetra* (2), figured; id. t. c. pl. xvii: *M. intercedens* (1) and *M. albicauda* (2), figured; id. t. c. pl. xviii: *M. buckleyi* (1) and *M. collaris* (2), figured; id. t. c. pl. xix: *M. bucolica* Hartl. = *Heliocorys modesta*; id. t. c. p. 113.

Pinarocorys, n. g., type *P. nigricans* (Sundev.); id. t. c. p. 71.

Heliocorys modesta giffardi, is not entitled to subspecific rank; id. t. c. p. 117.

Galerida cristata, on the races of N. E. Africa; C. ROTHSCHILD & WOLLASTON, Ibis 1902, pp. 6 & 7: *G. cristata*, subsp. n. [not described], S. Arabia; LORENZ & HELLMAYR, Denk. Ak. Wien lxxi, pp. 109 & 110.

G. thecklæ cyrenaica, n. subsp., Tripoli; WHITAKER, Bull. B. O. C. xiii, p. 17; id. Ibis 1902: *G. thecklæ ruficolor*, notes on and allied species; HARTERT, Nov. Zool. ix, p. 333: *G. cristata riggenbachi*, n. subsp., Mazagan, Marocco; id. t. c. pp. 333 & 334.

Lullula arborea pallida, n. subsp.; ZARUDNY, Ornith. Monber. x, p. 54.

Alauda arborea, figured; HERMAN, Aquila ix, tab. viii.

Ammomanes assabensis, n. sp., Assab; SALVADORI, Boll. Mus. Torino xvii, No. 425: *A. cinctura zarudnyi*, n. subsp., E. Persia; HARTERT, Bull. B. O. C. xii, p. 43: *A. akeleyi* Elliot = *A. phœnicuroides*; SHELLEY, B. Africa iii, p. 96: *A. samharensis*, n. sp., Samhar; id. t. c. p. 99, pl. xxi, fig. 1: *A. algeriensis* Sharpe, is synonymous with *A. lusitana* (Degl.); id. t. c. p. 100: *A. phœnicuroides*, in Tripoli; WHITAKER, Bull. B. O. C. xiii, p. 17; id. Ibis 1902, pp. 654 & 655.

Pyrrhulauda leucotis and *P. l. smithii*, notes on; REICHENOW, Ornith. Monber. x, p. 78: *P. l. madaraszi*, n. subsp., E. Africa; id. t. c. p. 78: *P. melanocephala*, *P. otoleuca*, and *P. frontalis*, notes on; C. ROTHSCHILD & WOLLASTON, Ibis 1902, p. 8: *P. nigriceps*, figured; SHELLEY, B. Africa iii, pl. xx.

Family FRINGILLIDÆ.

Fringillidæ of New Brunswick in winter; MOORE, Auk xix, pp. 199–202.
Geospiza, notes on the species; ROTHSCHILD & HARTERT, Nov. Zool. ix, pp. 386–402: notes on the genus in relation to the food; SNODGRASS, Auk xix, pp. 367–381, pls. xi–xiii: *G. fuliginosa*, nest and eggs; W. ROTHSCHILD, Bull. B. O. C. xii, p. 46.
Cocornis is a thin-billed *Geospiza*; ROTHSCHILD, op. cit. xiii, p. 6: *C. agassizi*, Towns. = *Pinaroloxias inornata* (Gould); RICHMOND, P. Biol. Soc. Washington xv, pp. 247 & 248.
Coccothraustes vulgaris, breeding in Breconshire; SWAINSON, Zoologist 1902, pp. 465 & 466.
Cardinalis cardinalis, resident at Ontario; KEAYS, Auk xix, pp. 205 & 206: *C. bermudianus* Bangs & Bradlee, and *C. cardinalis somersi* Verrill, not recognised; A. O. U., Checkl. Suppl. Auk xix, p. 337.
Carduelis carduelis tschusii, n. subsp., Sardinia; ARRIGONI DEGLI ODDI, Avicula vi, p. 104.
Catamenia alpica, n. sp., S. Marta, Colombia; BANGS, P. New England Zool. Club iii, p. 89.
Chrysomitris spinus, in Perthshire; MACPHERSON, Ann. Scott. Nat. Hist. 1902, p. 53: in the Edinburgh district; EVANS, t. c. p. 53: *C. totta*, figured; SHELLEY, B. Africa iii, pl. xxiv, fig. 1: *C. anthracina*, figured; PHILIPPI, An. Mus. Chile xv, pl. xvii, fig. 1.
Astragalinus tristis, seasonal and geographical variations; DWIGHT, Auk xix, pp. 149–164.
Cannabina cannabina nana, notes on; HARTERT, Nov. Zool. ix, p. 331.
Fringilla cannabina, notes on: BRAUN, Ornith. Monber. x, pp. 72–76.
Acanthis linaria rostrata, in Barra, Outer Hebrides; CLARKE, Ann. Scott. Nat. Hist. 1902, p. 118.
Cannabina holboelli, in Ireland; COBURN, Zoologist 1902, p. 278.
Linota rufescens, breeding in Yorkshire; BUTTERFIELD, Zoologist 1902, pp. 193 & 194.
Montifringilla brandti and its allies; W. ROTHSCHILD, Nov. Zool. ix, p. 167.
Petronia petronia hellmayri, n. subsp., Sardinia; ARRIGONI DEGLI ODDI, Avicula vi, p. 104.
Passer petronius exiguus, n. subsp., Caucasus; HELLMAYR, Ornith. Jahrb. xiii, p. 128.
Petronia flavigula, figured; SHELLEY, B. Africa iii, pl. xxviii, fig. 2.
Passer montanus, in Cardiganshire; SALTER, Zoologist 1902, p. 25: *P. domesticus*, deformity of bill: HANTZSCH, Ornith. Monber. x, pp. 5 & 6; MADARÁSZ, t. c. p. 37: note on; PERCIVAL, J. Board Agric. London ix, pp. 338–342: *P. domesticus buryi*, further remarks on; LORENZ & HELLMAYR, Denk. Ak. Wien lxxi, pp. 106–108: *P. rufodorsalis*, egg figured; C. ROTHSCHILD & WOLLASTON, Ibis 1902, p. 9, pl. i, fig. 2: *P. hispaniolensis transcaspicus*, n. subsp., Lenkoran; TSCHUSI, Ornith. Monber. x, p. 96: *P. hispaniolensis maltæ*, n. subsp., Malta; HARTERT, Nov. Zool. ix, pp. 332 & 333: *P. ammodendri korejewi*, n. subsp., E. Transcaspia; ZARUDNY & HÄRMS, Ornith. Monber. x, p. 53: *P. arcuatus damarensis*, n. subsp., Damara Land; REICHENOW, t. c. p. 77: *P. castanopterus*, figured; SHELLEY, B. Africa iii, pl. xxvii, fig. 1: *P. shelleyi*, figured; id. t. c. pl. xxvii, fig. 2: *P. thierryi* Reichenow, and *P. ugandæ* Reichenow = *P. diffusus*; id. t. c. p. 351: *P. gongonensis* (Oustalet) = *P. crassirostris*; id. t. c. p. 255: *P. euchlorus*, figured; id. t. c. pl. xxviii, fig. 1.
Poliospiza gularis, figured; SHELLEY, t. c. pl. xxvi, fig. 1: *P. reichardi*, figured; id. t. c. pl. xxvi, fig. 2: *P. flegeli* Hartert = *P. canicapilla*; id. t. c. p. 228: *P. striatipectus* Sharpe = *P. reichardi*; id. t. c. p. 229:

P. isabellina Gigl. and *P. pallidior* Lort Phillips = *P. tristriata*; id. t. c. p. 229.

Serinus simplex, n. sp., Ukinga, German East Africa; REICHENOW, Ornith. Monber. x, p. 184: *S. rothschildi*, n. sp., South Arabia; GRANT, Bull. B. O. C. xiii, p. 21: *S. madaraszi*, n. sp., N. Nyasa Land; REICHENOW, Ornith. Monber. x, p. 8: *S. capistratus*, figured; SHELLEY, B. Africa iii, pl. xxiv, fig. 2: *S. maculicollis* Sharpe and *S. xantholæma* Salvad. = *S. dorsostriatus*; id. t. c. p. 191: *S. hartlaubi*, figured; id. t. c. pl. xxv, fig. 1: *S. albifrons*, figured; id. t. c. pl. xxv, fig. 2: *S. marshalli*, n. sp., St Helena and Southern Africa; id. t. c. pp. 200–202: *S. affinis* Richmond = *S. striolatus*; id. t. c. p. 211.

Crithagra estherae, n. sp., Mts. of W. Java; FINSCH, Notes Leyden Mus. xxiii, pp. 151 & 152.

Sycalis aureiventris, figured; PHILIPPI, An. Mus. Chile xv, pl. xix, fig. 1: *S. flaveola*, nest and eggs described; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 27.

Chlorospiza plumbea, ♂ ♀ figured; PHILIPPI, An. Mus. Chile xv, pl. xxv, figg. 1 & 2.

Propasser ripponi, n. sp., W. Yun-nan; SHARPE, Bull. B. O. C. xiii, p. 11.

Loxia leucoptera, in captivity; HILL, Auk xix, pp. 13–15: *L. bifasciata*, in Nottinghamshire; WHITAKER, Zoologist 1901, p. 353.

Pyrrhula europæa, in Shetland; SAXBY, op. cit. 1902, p. 468: *P. waterstradti*, n. sp., Mt. Tahan, N. Pahang, Malay Peninsula; HARTERT, Bull. B. O. C. xii, pp. 69 & 70.

Pinicola enucleator leucura is the proper name for the Canadian Pine Grosbeak; RICHMOND, Auk xix, p. 85.

Emberiza cirlus, in Ireland; HOWARD, Zoologist 1902, pp. 353 & 354: in Carnarvonshire and Cardiganshire; CUMMINGS, t. c. p. 354: *E. pusilla*, near Teesmouth; GRANT, Bull. B. O. C. xiii, p. 14; MILBURN, Naturalist 1902, p. 353; BLAITHWAITE, Zoologist 1902, p. 466: *E. rustica*, in Sussex; TICEHURST, Bull. B. O. C. xiii, p. 15: *E. melanocephala*, in Switzerland; BURG, Ornith. Monber. x, p. 38: *E. melanocephala* and *E. luteola*, habits; BRAUN, t. c. pp. 19–22: *E. poliopleura*, figured; SHELLEY, B. Africa iii, pl. xxiii, fig. 1: *E. yunnanensis*, n. sp., W. Yun-nan; SHARPE, Bull. B. O. C. xiii, p. 12: *E. molessoni* Zarudn. = *E. erythrogenys* Brehm.; DRESSER, Ibis 1902, p. 352.

Fringillaria reidi, n. sp., Transvaal, Natal and Zululand; SHELLEY, B. Africa iii, pp. 158 & 159: *F. impetuani*, figured; id. t. c. pl. xxiii, fig. 2: *F. saturatior* Sharpe = *F. striolata*; id. t. c. p. 161: *F. insularis* Grant & Forbes = *F. tahapisi*; id. t. c. p. 164: *F. dthalæ*, n. sp., Southern Arabia; GRANT, Bull. B. O. C. xii, p. 80 [= *F. arabica*, n. sp., LORENZ & HELLMAYR, Ornith. Monber. x, p. 55, Jeshbum, S. Arabia; LORENZ & HELLMAYR, Ornith. Monber. x, p. 55: figured; iid. Denk. Ak. Wien lxxi, taf. i, fig. 1].

Calcarius lapponicus, in Massachusetts in mid-winter; TOWNSEND, Auk xix, p. 202: ALLEN, t. c. pp. 202 & 203.

Passerculus savanna labradorius, note on; HOWE, Auk xix, pp. 85 & 86: inseparable from *Ammodramus sandwichensis savanna*; A. O. U., Checkl. Suppl. t. c. p. 336.

Coturniculus savannarum caribæus, n. subsp., Curaçao; HARTERT, Nov. Zool. ix, p. 298: *C. savannarum floridanus*, n. subsp., Southern Florida; MEARNS, P. U. S. Mus. xxiv, pp. 915–917.

Ammodramus sandwichensis xanthophrys Grinnell = *A. sandwichensis alaudinus*; A. O. U., Checkl. Suppl. Auk xix, p. 337: *A. caudacutus diversus* Bishop, is inseparable from *A. caudacutus*; t. c. p. 337: *A. princeps*, in South Carolina; WAYNE, Auk xix, p. 203: *A. henslowi*, on Shelter Is.; WORTHINGTON, t. c. p. 204: notes on; SAUNDERS, t. c. pp. 267–271.

Melopiza cinerea phœa, n. subsp., Oregon; FISHER, Condor iv, pp. 36 & 37.
Peucæa æstivalis bachmani, with thirteen rectrices; WAYNE, Auk xix, p. 204.
Emberizoides macrurus, egg figured; IHERING, Revist. Mus. Paulista v, pl. xi, fig. 8.
Paroaria nigrogenys, nest and eggs described; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 30.

Family CÆREBIDÆ.

Cærebidæ of North and Middle America; see RIDGWAY, Bull. U. S. Mus. 50, Part II, pp. 374–425, pl. xviii, figg. 1–6.
Certhidea olivacea fusca, nest and eggs; W. ROTHSCHILD, Bull. B. O. C. xii, p. 46.
Certhiola, notes on species from the Galápagos; ROTHSCHILD & HARTERT, Nov. Zool. ix, pp. 384 & 385.
Cyanerpes cærulea cherriei, n. subsp., Orinoco River; BERLEPSCH & HARTERT, t. c. p. 16.

Family TANAGRIDÆ.

Tanagridæ of North and Middle America; see RIDGWAY, Bull. U. S. Mus. 50, Part II, pp. 1–169, pls. i–vi.
Chlorophonia frontalis psittacina, n. subsp., S. Marta, Colombia; BANGS, P. New England Zool. Club iii, p. 88.
Calliste mexicana media, n. subsp., Orinoco River; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 19.
Tanagra palmarum melanoptera, nest and eggs; iid. t. c. p. 20.
Phœnicothraupis rubica nelsoni, n. subsp., Yucatan; RIDGWAY, B. North and Middle America ii, p. 145.
Saltator orenocensis, figured; BERLEPSCH & HARTERT, Nov. Zool. ix, p. 23, pl. xii, fig. 3: nest and egg described; iid. t. c. p. 24.
Saltator and *Pitylus* referred to *Fringillidæ*; RIDGWAY, B. North and Middle America ii, p. 1.
Calyptophilus referred to *Mimidæ*; id. t. c. p. 1.

Family PLOCEIDÆ.

Vidua principalis, its eggs; SCLATER, Bull. B. O. C. xi, p. 71.
Penthetria psammocromia, figured; REICHENOW, Vog. Afrikas ii, pl. 3, fig. 1.
Urobrachya media, n. sp., W. Ankole, Equat. Africa; SHARPE, Ibis 1902, p. 118.
Pyromelana xanthochlamys, n. sp., Hoima, Equatorial Africa; SHARPE, Bull. B. O. C. xiii, p. 10.
Cryptospiza jacksoni, *C. ocularis*, nn. spp., Ruwenzori Range; id. t. c. p. 8: *C. shelleyi*, n. sp., Ruwenzori Range; id. t. c. p. 21.
Sporæginthus melpodus, breeding in captivity; ALDERSON, Avicult. Mag. viii, pp. 65–70.
Ægintha temporalis, notes on; PHILLIPPS, t. c. pp. 289–293.
Poephila gouldiæ, remarks on the changes of plumage in captivity; BUTLER, Ibis 1902, pp. 674–676.
Estrilda kandti, n. sp., Lake Kiwu, E. Africa; REICHENOW, Ornith. Monber. x, pp. 184 & 185: *E. poliopareia*, n. sp., Congo; id. t. c. p. 185.
Erythrura psittacea, figured; SETH-SMITH, Avicult. Mag. viii, pl. to p. 59.
Sycobrotus zaphiroi, n. sp., Harar, S. Abyssinia; GRANT, Bull. B. O. C. xiii, p. 22.

Sitagra aliena, n. sp., Ruwenzori Range; SHARPE, t. c. p. 21.
Symplectes tephronotus, figured; REICHENOW, Vög. Africas ii, pl. 3, fig. 3.
Ploceus schillingsi, n. sp., Rufu River, German East Africa; REICHENOW, Ornith. Monber. x, p. 158: *P. passerinus infortunatus*, n. subsp., Pahang, Malay Peninsula; HARTERT, Nov. Zool. ix, pp. 578 & 579; notes on *P. passerinus* and allies; id. t. c. pp. 578 & 579: *P. lübberti*, n. sp., Damara Land; REICHENOW, Ornith. Monber. x, p. 77: *P. megarhynchus* from Gorakhpur, N. W. P. India; HARPER, Ibis 1902, p. 169; *P. rufoniger*, figured; REICHENOW, Vög. Afrikas ii, pl. 3, fig. 2.
Amblyospiza æthiopica, n. sp., Omo River; NEUMANN, Ornith. Monber. x, pp. 9 & 10.
Textor niger, its penis; HARTERT, Bull. B. O. C. xii, pp. 77 & 78: SHARPE, t. c. p. 78.

Family ICTERIDÆ.

Icteridæ of North and Middle America; see RIDGWAY, Bull. U. S. Mus. 50, Part II, pp. 169–574, pls. vii–xvii.
Icterus xanthornus helioeides, n. subsp., Margarita Island: CLARK, Auk xix, p. 265: *I. jamacaii*, notes on the species in captivity; BUTLER, Avicult. Mag. viii, pp. 293–295.
Xanthornus icterus ridgwayi, n. subsp., Curaçao; HARTERT, Nov. Zool. ix, pp. 299 & 300.
Pendulinus dubusi, figured; DUBOIS, Synopsis Avium, pl. xii, fig. 1.
Aaptus, nomen emend. pro *Aphobus* Cab. nec Gistel; RICHMOND, P. Soc. Washington xv, p. 85.

Family DICRURIDÆ.

Dicrurus suluensis, n. sp., Sulu Archipelago, *D. dohertyi*, n. sp., Obi Major; HARTERT, Nov. Zool. ix, p. 441: Review of Moluccan species; id. t. c. pp. 441 & 442.
Dissemurus paradiseus and races, *D. paradiseus johni*, n. subsp., Hainan; id. t. c. pp. 579 & 580.

Family EULABETIDÆ.

Calornis grandis (Salvad.) and *C. maxima* Trist. = *C. fulvipennis* (Jacq. & Puehér.); ROTHSCHILD & HARTERT, Nov. Zool. ix, p. 584.
Lamprotornis æneocephalus Hengl. distinct from *L. brevicaudus* Sharpe [= *L. porphyropterus* (Rüpp.)]; GRANT, Ibis 1902, pp. 401 & 402.
Amydrus elgonensis and *A. nyasæ* = *A. walleri*; SHARPE, t. c. p. 121.
Pæoptera greyi = *Stilbopsar stuhlmanni*; id. t. c. p. 120.

Family STURNIDÆ.

Sturnus vulgaris, roosting on Cramond Island; CAMPBELL, Ann. Scott. Nat. Hist. 1902, pp. 2–9: migrations in Italy; ARRIGHI, Avicula vi, pp. 40–42: *S. intermedius*, on migration at the Eddystone Lighthouse; CLARKE, Ibis 1902, pp. 253 & 254: *S. menzbieri* and *S. poltoratzkii*, in Hungary; MADARÁSZ, Magyar. Madarai, p. 460.
Pastor roseus, migrations in Italy; ARRIGHI, Avicula vi, pp. 43 & 44.
Creatophora Lesson vice *Perissornis*, Oberholser; RICHMOND, P. U. S. Mus. xxiv, p. 705; id. Auk xix, p. 92.

Family PTILONORHYNCHIDÆ.

WEISKE, E. Ein Beitrag zur Naturgeschichte der Laubenvogel, Monatschr. Ver. Schutz. xxvii, pp. 41–45.

Ptilonorhynchus violaceus, its egg; MUNT, Bull. B. O. C. xii, pp. 81 & 82.
Chlamydodera nuchalis, egg described; NORTH, Victorian Natural. xix, p. 34: LE SOUËF, t. c. p. 67: *C. cerviniventris*, egg described; NORTH, Agric. Gaz. N. S. W. xii, p. 409 cum fig.

Family PARADISEIDÆ.

Paradisea apoda, living in the Zoological Gardens; SCLATER, Bull. B. O. C. xiii, p. 23.

Family CORVIDÆ.

Trypanocorax frugilegus, notes on; NEUBAUER, Ornith. Monber. x, pp. 93–95.
Corvus corax, nesting habits; NEALE, Rep. Cardiff Soc. xxxii, pp. 49–53 cum tab. [eggs]: breeding in Co. Antrim; WRIGHT, Zoologist 1902, p. 194: *C. corax clarionensis*, n. subsp., Clarion I.; ROTHSCHILD & HARTERT, Nov. Zool. ix, p. 381: *C. cornix* × *Corvus corone* in the Kurische Nehrung; THIENEMANN, Ornith. Monber. x, pp. 152–156: *C. corone*, note on; TSCHUSI, Ornith. Jahrb. xiii, p. 73: *C. pliocaenus* Portis [fossil], ulna figured; REGALIA, Palæontogr. ital. viii, tav. xxvii, fig. 1.
Nucifraga caryocatactes, in Herefordshire; FORREST, Zoologist 1902, p. 25: *N. hemispila*, habits; OSBORN, J. Bombay Soc. xiv, pp. 628 & 629; OSMASTON, t. c. pp. 818 & 819.
Garrulus glandarius, in London; BINGHAM, Zoologist 1902, p. 279: migration; CORBIN, Zoologist 1902, pp. 434 & 435; PICARD-CAMBRIDGE, t. c. pp. 466 & 467: *G. lidthi*, note on; SALVADORI, Ibis 1902, pp. 523 & 524: *G. glaszneri*, n. sp., Cyprus; MADARÁSZ, Ornith. Monber. x, p. 163.
Cyanocitta stelleri borealis, n. subsp., Homer, Alaska; CHAPMAN, Bull. Amer. Mus. xvi, pp. 240 & 241: *C. stelleri carbonacea*, notes on; FISHER, Condor iv, pp. 41–44.
Aphelocoma texana, n. sp., S. W. Texas; RIDGWAY, Auk xix, p. 70.
Picathartes oreas and *P. gymnocephalus*, figured; REICHENOW, Vög. Afrikas ii, pl. ii.
Eopodoces (type *E. biddulphi*), *Pseudopodoces* (type *E. humilis*), nn. subgg.; ZARUDNY & LOUDON, Ornith. Monber. x, p. 185.

IV. REPTILIA AND BATRACHIA.

BY

G. A. BOULENGER, F.R.S.

CONTENTS.

	Page
I. TITLES	1
II. FAUNÆ	13
III. REFERENCES ARRANGED SYSTEMATICALLY	
Reptilia and Batrachia	15
Reptilia	16
Squamata	16
Lacertilia	16
Rhiptoglossa	19
Pythonomorpha	19
Ophidia	19
Ornithosauria	22
Orthopoda	22
Dinosauria	23
Emydosauria	23
Chelonia	24
Ichthyosauria	25
Placodontia	25
Plesiosauria	25
Pelycosauria	26
Rhynchocephalia	26
Anomodontia	26
Pariosauria	26
Batrachia	27
Ecaudata	27
Caudata	30
Apoda	31
Stegocephalia	32

I. TITLES.*

ALCOCK, A. & ROGERS, L. On the toxic properties of the saliva of certain "non-poisonous" Colubrines. P. R. Soc. London lxx, pp. 446–454.

*AMALITZKI, W. On new Saurians from the Permian of the North Dune. [Russian text.] Tagebl. xi. Vers. Russ. Naturf. St Petersb. 1901, No. 9, p. 380.

ANNANDALE, N. Bipedal locomotion in Lizards. Nature lxvi, p. 577.

* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

BALLOWITZ, E. Urmundbilder im Protomstadium des Blastoporus bei der Ringelnatter. Arch. Anat. 1902, pp. 149–154, pl. x.

——. Ueber die Verbreitung der Schlingnatter (*Coronella austriaca* Laur.) im norddeutschen Flachlande, insbesondere in Vorpommern. Zool. Anz. xxv, pp. 212–217.

BARBIER, H. Notes d'Erpétologie. Bull. Soc. Elbeuf xx, pp. 47–60, pl. —.

BATAILLON, E. Nouveaux essais de parthénogénèse expérimentale chez les Amphibiens. C.R. Ac. Sci. cxxxiv, pp. 918–920.

BAUMANN, M. Note sur les premiers développements de l'appareil pulmonaire chez la Couleuvre. Bibliog. anat. x, pp. 304–311, figg.

BEASLEY, H. C. On two footprints from the Lower Keuper, and their relation to the *Chirotherium storetonense*. P. Liverp. geol. Soc. ix, pp. 238–242, pl. xv.

BECK, R. H. Field-Notes on the Tortoises of the Galapagos Islands. Nov. Zool. ix, pp. 375–380.

BÉGUIN, F. Contribution à l'étude histologique du tube digestif des Reptiles. Rev. Suisse Zool. x, pp. 251–397, pls. iv–ix.

BERG, J. Der Yucatan-Dornschwanz (*Cachryx defensor* Cope). Zool. Garten xliii, pp. 86–92, fig.

BIDIE, —. Notes on the Scottish Adder. Ann. Scott. Nat. Hist. 1902, pp. 217–220.

BOCHENEK, A. Neue Beiträge zum Bau der Hypophysis cerebri bei Amphibien. Bull. Ac. Cracovie 1902, pp. 397–403, figg.

BOJANUS, L. H. Anatome *Testudinis europeæ* (1819). Facsimile Edition ed. W. JUNK, Berlin, 1902.

BOULENGER, G. A. Amphibia. Encyclop. Brit. xxv, pp. 381–384, figg.

——. List of the cold-blooded Vertebrates hitherto recorded from the Uganda Protectorate. In Sir H. JOHNSTON, Uganda Protectorate (London, 1902, 8vo) i, pp. 445–449.

——. Reptiles and Batrachians. Victoria History of the Counties of England. Surrey i, pp. 200 & 201.

——. Reptiles and Batrachians. Op. cit. Northamptonshire i, p. 110.

——. Further notes on the African Batrachians *Trichobatrachus* and *Gampsosteonyx*. P. Z. S. 1901, ii, pp. 709 & 710, pl. xxxviii.

——. Description of a new Snake of the genus *Psammophis*, from Cape Colony. Op. cit. 1902, i, p. 126, pl. xii.

——. A List of the Fishes, Batrachians, and Reptiles collected by Mr J. ffolliott Darling in Mashonaland, with descriptions of new species. Op. cit. 1902, ii, pp. 13–18, pls. ii–iv.

——. On the Southern Snapping-Turtle (*Chelydra rossignonii* Bocourt). Ann. Nat. Hist. (7) ix, pp. 49–51.

——. Descriptions of new Batrachians and Reptiles from North-Western Ecuador. T. c. pp. 51–57.

——. Description of a new Lizard from Pitt Island, near Chatham Island, New Zealand. T. c. pp. 196 & 197.

——. Descriptions of new Fishes and Reptiles discovered by Dr F. Silvestri in South America. T. c. pp. 284–288.

[Boulenger, G. A.] A new name for the common Agama of the Transvaal. T. c. p. 339.

——. List of Fishes, Batrachians, and Reptiles collected by the late Mr P. O. Simons in the Provinces of Mendoza and Cordova, Argentina. T. c. pp. 336–339.

——. Descriptions of two new South American Apodal Batrachians. Op. cit. x, pp. 152 & 153.

——. Descriptions of new Batrachians and Reptiles from the Andes of Peru and Bolivia. T. c. pp. 394–402.

——. Description of a new Snake of the genus *Pseudechis* from Queensland. T. c. pp. 494 & 495.

Brachet, A. Recherches sur l'ontogénèse des Amphibiens urodèles et anoures (*Siredon pisciformis*, *Rana temporaria*). Arch. Biol. xix, pp. 1–243, pls. i–vii.

Brauer, A. Beiträge zur Kenntniss der Entwicklung und Anatomie der Gymnophionen. Zool. Jahrb. Anat. xvi, pp. 1–176, figg., pls. i–xx.

Broom, R. Remarks on certain differences in the skulls of Dicynodonts, apparently due to sex. P. Z. S. 1902, ii, pp. 86–88, fig.

Buchs, G. Ueber den Ursprung des Kopfskeletes bei *Necturus*. Morphol. Jahrb. xxix, pp. 582–613, pls. xxvi–xxviii.

Bühler, A. Rückbildung der Eifollikel bei Wirbelthieren. II. Amphibien. Morphol. Jahrb. xxxi, pp. 85–103, pls. iii & iv.

Butler, A. L. On recent additions to the Batrachian Fauna of the Malay Peninsula. P. Z. S. 1902, ii, pp. 188–190.

Broili, F. Ein Beitrag zur Kenntniss von *Diplocaulus* Cope. Vorläufige Mittheilung. Centrbl. Mineral. 1902, pp. 536–541, figg.

Brown, A. E. A new species of *Ophibolus* from Western Texas. P. Ac. Philad. 1901, pp. 612 & 613, pl. xxxiv.

——. A collection of Reptiles and Batrachians from Borneo and the Loo Choo Islands. Op. cit. 1902, pp. 175–186.

——. Range of the Fox Snake. Science (2) xvi, pp. 151 & 152.

Case, E. C. Palæontological Notes. Contrib. Walker Mus. i, pp. 45–50, pls. ix & x.

Ceccherelli, G. Sulle piastre motrici e sulle fibrilla ultraterminali nei muscoli della lingua di *Rana esculenta*. Monit. Zool. ital. xiii, pp. 246 & 247.

Crossman, A. F. Reptiles and Batrachians. Victoria History of the Counties of England. Hertfordshire i, pp. 191 & 192.

De Pauw, L. F. Notes sur les fouilles du charbonnage de Bernissart. Découverte, solidification et montage des Iguanodons. Brussels, 1902, 8vo, 25 pp., 6 pls.

——. Contribution à l'étude de l'*Iguanodon bernissartensis*. Essai de reconstitution de l'Iguanodon dans le milieu où il vivait. Mem. Soc. Hainaut (6) iv. [Separate copy.] 13 pp., 3 pls.

De Stefano, G. Studio sull' *Emys cuvieri* De Stefano, dell' Eocene superiore Parigino. Boll. Soc. zool. Ital. xi, pp. 37–68, figg.

——. Cheloniani fossili cenozoicè. Boll. Soc. geol. Ital. xxi, pp. 263–304, pls. ix–xi.

[De Stefano, G.] Un nuovo tipo di Chelonide del' Eocene inferiore francese. Riv. ital. Pal. viii, pp. 50–52, fig.

——. *Stylemys bottii*, n. f. T. c. pp. 72–76, pl. vii.

Dixon, R. M. The senses of Snakes. Verh. v. Int. Zool. Congr., pp. 990–992.

Dunn, Elizabeth H. On the number and on the relation between diameter and distribution of the nerve fibres innervating the leg of the Frog, *Rana virescens brachycephala* Cope. J. Comp. Neurol. xii, pp. 297–328, figg.

Eckel, E. C. On the color variations of the common Garter Snake. Amer. Natural. xxxvi, pp. 481–490.

—— & Paulmier, F. C. Catalogue of New York Reptiles and Batrachians. Bull. N. York Mus. No. 51, pp. 355–414, figg., pl. i.

Eigenmann, C. H. The eyes of *Rhineura floridana*. P. Washington Ac. iv, pp. 533–548, figg., pls. xxxii–xxxiv.

——. The eye of *Rhineura floridana*. P. Indiana Ac. 1901, pp. 106 & 107.

Elpatievski, V. On the correlation between *Contia modesta* and *Contia collaris*. [Russian text.] Annuaire Mus. St. Petersb. vii, pp. 223–234.

Evans, G. H. The King-Cobra, or Hamadryad, *Naia bungarus* (Boulenger), *Ophiophagus elaps* (Günther). J. Bombay Soc. xiv, pp. 409–418, pl. —.

Eycleshymer, A. C. The formation of the embryo of *Necturus*, with remarks on the theory of concrescence. Anat. Anz. xxi, pp. 341–353, figg.

Faussek, V. Beiträge zur Histologie der Kiemen bei Fischen und Amphibien. Arch. mikr. Anat. lx, pp. 157–174, pl. ix.

Ferguson, H. S. Travancore Snakes. J. Bombay Soc. xiv, pp. 386 & 387.

Fraas, E. Die Meer-Crocodilier (*Thalattosuchia*) der oberen Jura, unter specieller Berücksichtigung von *Dacosaurus* und *Geosaurus*. Palæontogr. xlix, pp. 1–72, figg., pls. i–viii. Also Mt. Nat.-Kab. Stuttgart, No. 20.

——. *Labyrinthodon* aus dem Buntsandstein von Teinach. Jahresh. Ver. Wurttemb. lvii, 1901, pp. 318–320, fig.

——. Die Meerkrokodile (*Thalattosuchia*, n.g.) eine neue Sauriergruppe der Juraformation. T. c. pp. 409–418, fig.

Gadow, H. Colour in Amphibia. P. R. Inst. Brit. xvi, pp. 587–594.

Gerhardt, U. Nachtrag zu der Abhandlung "Ueber die Keimblätterbildung bei *Tropidonotus natrix*." Anat. Anz. xx, pp. 570 & 571.

Gilmore, C. W. Discovery of Teeth in *Baptanodon*, an Ichthyosaurian from the Jurassic of Wyoming. Science (2) xvi, pp. 913 & 914.

Goeldi, E. A. Lacertilios. Lagartas do Brazil. Bol. Mus. Para. iii, pp. 499–560.

Gough, L. H. On the anomalous Snakes in the Collections of the Zoological Institute, Strassburg. Zool. Jahrb. Syst. xvii, pp. 457–468.

——. New Snakes in the Collections of the Zoological Institute of the University, Strassburg. Zool. Anz. xxv, pp. 645 & 646.

GREEN, E. E. Bipedal locomotion of a Ceylonese Lizard. Nature lxvi, p. 492.

GÜNTHER, A. C. L. G. Biologia Centrali-Americana. Reptilia and Batrachia. Pp. 301–325 [conclusion and alphabetical Index] and Title-page and Introduction [pp. i–xx].

——. *Testudo galapagoensis.* Nov. Zool. ix, pp. 184–192, pls. xvi–xxi.

HAGMANN, G. Die Eier von *Caiman niger.* Zweiter Beitrag zur Kenntniss der Lebens- und Fortpflanzungsweise der brasilianischen Reptilien. Zool. Jahrb. Syst. xvi, pp. 405–410, pls. xix & xx.

HARRISON, H. S. On the perilymphatic spaces of the Amphibian ear. Int. J. Anat. xix, pp. 221–261, pls. xi–xiii.

HATCHER, J. B. Structure of the fore limb and manus of *Brontosaurus.* Ann. Carnegie Mus. i, pp. 356–376, figg., pls. xix & xx.

——. The genera and species of the *Trachodontidæ* (*Hadrosauridæ, Claosauridæ*) Marsh. T. c. pp. 377–386.

——. A correction to Professor Osborn's note entitled "New Vertebrates of the Mid-Cretaceous." Science (2) xvi, pp. 831 & 832.

HAY, O. P. Bibliography and Catalogue of the Fossil Vertebrata of North America. Bull. U. S. Geol. Surv. No. 179, 868 pp.

——. Descriptions of two species of extinct Tortoises, one new. P. Ac. Philad. 1902, pp. 383–388, figg.

HELLMUTH, K. Morphologische Studien über Kloake und Phallus der Amnioten.—Die Schildkröten und Krokodile. Morphol. Jahrb. xxx, pp. 582–613, figg.

HENNE, R. Einige merkwürdige Kriechthiere der Sunda-Inseln. Zool. Anz. xxv, pp. 167–172.

HILTON, W. A. A structural feature connected with the mating of *Diemyctylus viridescens.* Amer. Natural. xxxvi, pp. 643–651, figg.

HINSBERG, V. Die Entwicklung der Nasenhöhle bei Amphibien. Teil III: Gymnophionen. Arch. mikr. Anat. lx, pp. 369-385, pl. xix.

HINTON, M. A. C. The Peat and Forest Bed at Westbury-on-Severn. IV. Palæontology. Vertebrata. P. Cotteswold Club xiv, pp. 42–45.

HOFFMANN, C. K. Zur Entwicklungsgeschichte des Sympathicus. II. Die Entwicklungsgeschichte des Sympathicus bei den Urodelen. Verh. Ak. Amsterdam (2) viii, No. 3, 101 pp., 4 pls.

HOFMAN, F. B. Das intracardiale Nervensystem des Frosches. Arch. Anat. 1902, pp. 54–114, pls. iii–vi.

HOLMGREN, E. Weiteres über das "Trophospongium" der Nervenzellen und der Drüsenzellen des Salamander-Pankreas. Arch. mikr. Anat. lx, pp. 669-680, figg., pl. xxxiv.

HORNUNG, V. Ein Fundort der blaugefleckten Blindschleiche (*Anguis fragilis* L.). Zool. Garten xliii, pp. 323–325.

HORTON, B. J. The Habits of the Grass-Snake (*Tropidonotus natrix*) in confinement. Zoologist (4) vi, p. 356.

HOWES, G. B. The Morphological Method and Progress. Nature lxvi, pp. 522–530.

HUENE, F. VON. Uebersicht über die Reptilien der Trias. Pal. Abh. (2) vi, pp. 1–84, figg., pls. i–ix.

IKEDA, S. Contributions to the Embryology of Amphibia.—The mode of blastopore closure and the position of the embryonic body. J. Coll. Japan xvii, art. 3, 90 pp., 4 pls.

JAEKEL, O. Ueber *Placochelys*, n. g., und ihre Bedeutung für die Stammesgeschichte der Schildkröten. N. Jahrb. Min. 1902, i, pp. 127–144, fig., pl. ii.

——. *Gephyrostegus bohemicus*, n. g. und n. sp. Zeitschr. Deutsch. geol. Ges. liv. Protok. pp. 127–132, figg.

——. A *Placochelys*, n. g. Math. Term. Ertes. Magyar Ak. xx, pp. 337–353, pls. i–iv.

JANSSENS, J. A. Die Spermatogenese bei den Tritonen nebst einigen Bemerkungen über die Analogie zwischen chemischer und physikalischer Thätigkeit in der Zelle. Anat. Anz. xxi, pp. 129–138, figg.

KAHN, R. H. Zur Lehre von der Athmung der Reptiiien. Arch. Physiol. 1902, pp. 29–52, figg.

KASPER, A. Ueber den Atlas und Epistropheus bei den pleurodiren Schildkröten. Arb. Inst. Wien xiv, pp. 137–172, figg.

KATHARINER, L. Weitere Versuche über dei Selbstdifferenzirung des Froscheies. Arch. Entwickmech. xiv, pp. 290–299, fig.

KEIBEL, F. Bemerkungen zu Roux's Aufsatz; "Das Nichtnötigsein der Schwerkraft für die Entwickelung des Froscheies." Anat. Anz. xxi, pp. 581–591.

KING, HELEN D. The follicle sacs of the Amphibian Ovary. Biol. Bull. iii, pp. 245–254.

——. The gastrulation of the egg of *Bufo lentiginosus*. Amer. Natural. xxxvi, pp. 521–548, figg.

——. Preliminary Note on the formation of the first polar spindle in the egg of the *Bufo lentiginosus*. Anat. Anz. xxi, pp. 414–417.

KINGSLEY, J. S. The cranial nerves of *Amphiuma*. Tufts Coll. Stud. No. 7, pp. 293–321, pls. i–iii.

——. The systematic position of the Cæcilians. T. c. pp. 323–342, fig.

LAGUESSE, E. Sur la structure du pancréas chez quelques Ophidiens et particulièrement sur les îlots endocrines. 2e Mémoire: Le pancréas du Naja (*Naia haie*). Arch. anat. micr. v, pp. 265–377, figg., pls. xi & xii.

LAIDLAW, F. F. List of a collection of Snakes, Crocodiles, and Chelonians from the Malay Peninsula, made by Members of the "Skeat Expedition," 1899–1900. P. Z. S. 1901, ii, pp. 575–583, pl. xxxv.

——. Amphibia and Reptilia. In J. S. GARDINER, Faun. Maldive and Laccad. Archip. i, pp. 119–122.

LAMB, G. Snake venoms: their physiological action and antidote. J. Bombay Soc. xiv, pp. 220–235.

LAMBE, L. M. New genera and species from the Belly River Series (Mid-Cretaceous). Contr. Canad. Pal. iii, pp. 25–81, pls. i–xxi.

——. On *Trionyx foveatus* Leidy, and *Trionyx vagans* Cope, from the Cretaceous Rocks of Alberta. Rep. Geol. Surv. Canada f. 1901, 5 pp., pls. i–iv.

LAMPE, E. Catalog der Reptilien und Amphibien-Sammlung (Schlangen; Frosch-, Schwanz- und Schleichenlurche) des Naturhistorischen Museums zu Wiesbaden. Mit Bemerkungen von W. A. LINDHOLM. Jahrb. nassau. Ver. lv, pp. 1–66.

LANGLOIS, J. P. La lutte contre la chaleur chez les animaux poikilothermes. C.R. Soc. Biol. liv, pp. 2–4.

LAUNOY, L. L'élaboration du vénogène et du venin dans la glande parotide de la *Vipera aspis*. C.R. Ac. Sci. cxxxv, pp. 539 & 540.

——. Sur la présence de formations ergatoplasmiques dans les glandes salivaires des Ophidiens. Bull. Mus. Paris 1901, pp. 365 & 366.

——. De l'action amylolytique des glandes salivaires chez les Ophidiens. Bull. Mus. Paris 1902, pp. 38–42.

——. Embryon de Vipère bipède et cyclocéphale. T. c. pp. 265 & 266. Also C.R. Soc. Biol. liv, pp. 449 & 450.

——. Action protéolytique des glandes salivaires chez les Ophidiens. T. c. pp. 364–370.

LEBRUN, H. La vésicule germinative et les globules polaires chez les Anoures. Cellule xix, pp. 315–402, pls. viii–xiii.

——. Maturation of the eggs of *Diemyctylus torosus*. Biol. Bull. iii, pp. 1 & 2.

LEHRS, P. Zur Kenntniss der Gattung *Lacerta* und einer verkannten Form: *Lacerta ionica*. Zool. Anz. xxv, pp. 225–237.

LEIGHTON, G. The Serpents of Scotland and their study. Ann. Scott. Nat. Hist. 1902, pp. 92–97.

——. The Adder-Swallowing theory. Field Nat. Quart. i, pp. 261–269, pl. —.

LINDHOLM, W. A. Beiträge zur Biologie einiger Reptilien des Europæischen Russlands. Zool. Garten xliii, pp. 20–26 & 41–56.

——. Biologische Beobachtungen an einigen Batrachiern des Europäischen Russlands. T. c. pp. 390–403.

LÖNNBERG, E. On some points of relation between the morphological structure of the intestine and the diet of Reptiles. Bih. Svenska Ak. xxviii, iv, No. 8, 51 pp., 2 pls.

——. On a Collection of Snakes from North-Western Argentine and Bolivia, containing new species. Ann. Nat. Hist. (7) x, pp. 457–462.

LOYEZ, MARIE. Les premiers stades du développement de la vésicule germinative chez les Reptiles (Sauriens et Chéloniens). Bull. Soc. Philom. (9) iv, pp. 63–76, figg.

LUBOSCH, W. Ueber die Nukleolarsubstanz des reifenden Tritoneneies nebst Betrachtungen über das Wesen der Eireifung. Jena. Zeitschr. (2) xxx, pp. 217–296, pls. xii–xvi.

LUCAS, A. H. S. & FROST, C. A census of Australian Lizards. Rep. Austral. Ass. viii, pp. 256–261.

LUCAS, F. A. The Dinosaurs or terrible Lizards. Rep. Smithson. Inst. f. 1901, pp. 641–647, 4 pls.

——. Paleontological Notes. Science (2) xvi, p. 435.

MARCEAU, E. Note sur la structure du coeur chez les Vertébrés inférieurs. C.R. Soc. Biol. liv, pp. 981–984.

MEEK, S. E. Notes on a collection of cold-blooded Vertebrates from Ontario. Field Mus. Zool. iii, pp. 131–140.

MÉHELY, L. VON. Hogy szólnak a békák? Potfuz. Term. Kozl. xxxiii, 1901, pp. 145–157, figg.

——. *Lacerta taurica* Pall., a Magyar Fauna új Gyíkja. Allattani Közlemányck i, pp. 58–62, figg.

MOCQUARD, F. Sur les Reptiles et Batraciens de l'Afrique orientale anglaise, du Gabon et de la Guinée française (région de Kouroussa). Bull. Mus. Paris 1902, pp. 404–417.

——. Sur une collection de Reptiles et de Batraciens recueillis par M. Alluaud dans le sud de Madagascar. Bull. Soc. Philom. (9) iv, pp. 5–23, pls. i & ii.

MONTGOMERY, T. H. Peculiarities of the terrestrial larva of the Urodelous Batrachian *Plethodon cinereus* Green. P. Ac. Philad. 1901, pp. 503–508, pl. xxx.

MORGAN, T. H. The relation between normal and abnormal development of the embryo of the Frog as determined by injury to the yolk-portion of the egg. Arch. Entwickmech. xv, pp. 238–313, figg., pls. viii–xii.

——. The dispensability of gravity in the development of the Toad's egg. Anat. Anz. xxi, pp. 313–316.

—— & DAVIS, S. E. The internal factors in the regeneration of the tail of the Tadpole. Arch. Entwickmech. xv, pp. 314–318, figg.

MORSE, M. The range of the Fox Snake. Science (2) xv, p. 1035.

MOSER, FANNY. Beitrag zur vergleichenden Entwicklungsgeschichte der Wirbeltierlunge bei Amphibien, Reptilien, Vögel, Säuger. Arch. mikr. Anat. lx, pp. 587–668, figg., pls. xxx–xxxiii.

MOSZKOWSKI, M. Ueber den Einfluss der Schwerkraft auf die Entstehung und Erhaltung der bilateralen Symmetrie des Froscheies. Arch. mikr. Anat. lx, pp. 17–65, figg.

——. Zur Frage des Urmundschlusses bei *Rana fusca*. T. c. pp. 407–413, figg.

——. Zur Analysis der Schwerkraftswirkung auf die Entwicklung des Froscheies. Op. cit. lxi, pp. 348–390, pl. xix.

NICOLL, M. J. Sand-Lizards at St Leonards-on-Sea. Zoologist (4) vi, pp. 113 & 114.

NIKOLSKI, A. M. *Gymnodactylus danilewskii* Str., et *Gymnodactylus colchicus*, n. sp. Annuaire Mus. St. Petersb. vii, pp. 1–7.

——. Sur une nouvelle espèce du genre *Ablepharus*. T. c. pp. 7–9.

NOPCSA, F. Ueber Rippen eines Deuterosauriden (*Deuterosaurus seeleyi*, nov. spec.?). Beitr. Pal. Oesterr.-Ung. xiv, pp. 185–193, pl. xvii.

——. Dinosaurierreste aus Siebenbürgen. III. (*Mochlodon* und *Onychosaurus*). Anz. Ak. Wiss. xxxix, pp. 42–44.

——. Notizen über cretacische Dinosaurier. T. c. pp. 44–46 and SB. Ak. Wien cxi, pp. 93–114, pl. —.

——. Ueber das Vorkommen der Dinosaurier bei Sventpéterfalva. Zeitschr. Deutsch. geol. Ges. liv, pp. 34–39.

NORRIS, H. N. The origin of the so-called "ventraler Kiemenrest" and of the *Corpus propericardiale* of the Frog. Anat. Anz. xxi, pp. 433–442, figg.

NORRIS, H. W. The morphology and function of the Amphibian ear. P. Iowa Ac. viii, pp. 76–78.

NUSBAUM, J. & MACHOWSKI, J. Die Bildung der concentrischen Körperchen und die phagocytotischen Vorgänge bei der Involution der Amphibienthymus nebst einige Bemerkungen über die Kiemenreste und Epithelkörper der Amphibien. Anat. Anz. xxi, pp. 110–127, figg.

OSAWA, G. Beiträge zur Anatomie des japanischen Riesensalamanders. Mittheil. Med. Fac. Univ. Tokio v, pp. 221–427, pls. xi–liv.

OSBORN, H. F. Distinctive characters of the Mid-Cretaceous Fauna. Contr. Canad. Pal. iii, pp. 1–21.

——. New Vertebrates of the Mid-Cretaceous. Science (2) xvi, pp. 673–676.

PARONA, C. Sulla Corologia italica delle varietà dell' *Hyla arborea*. Boll. Mus. Genova 1902, No. 117, 5 pp.

PELLEGRIN, J. Un cas de jeûne de 2 ans ½ chez un Python. Bull. Soc. zool. France xxvii, pp. 164–166.

PETERSEN, O. A. & GILMORE, C. W. *Elosaurus parvus*: a new genus and species of the Sauropoda. Ann. Carnegie Mus. i, pp. 490–499, figg., pl. xxv.

PHILIPPI, R. A. Suplemento a los Batraquios Chilenos descritos en la Historia Fisica i Politica de Chile de Don Claudio Gay. Santiago de Chile, 1902, 8vo, 161 pp.

PHISALIX, C. Relations de parenté entre nos deux espèces indigènes de Vipères (*Vipera aspis* et *Vipera berus*). Utilité des caractères physiologiques dans la classification. Bull. Mus. Paris 1902, pp. 102–106, figg.

——. Sur la présence du venin en nature dans le sang de Cobra. T. c. pp. 204–207.

—— & BERTRAND, G. Sur les principes actifs du venin de Crapaud commun (*Bufo vulgaris*). C.R. Ac. Sci. cxxxv, pp. 46–48. Also C.R. Soc. Biol. liv, pp. 932–934.

PICKLES, H. A List of the Mammals, Reptiles, Amphibians, and Fishes in the Parish of Halifax. Halifax Natural. vii, pp. 95 & 96.

POLICARD, A. Notes sur la spermatogénèse des Reptiles. Le Syncytium nourricier de *Lacerta muralis*. Bibliog. anat. xi, pp. 137–144, figg.

PRENANT, A. & SAINT-REMY, G. Sur l'évolution des formations branchiales chez les Couleuvres. C.R. Ac. Sci. cxxxiv, pp. 614–616.

—— & ——. Sur l'évolution des formations branchiales chez le Lézard et l'Orvet. Op. cit. cxxxv, pp. 62 & 63.

REDLICH, K. A. Wirbelthierreste aus der böhmischen Braunkohlenformation. Jahrb. geol. Reichsanst. lii, pp. 135–140, pl. vi.

REGAUD, C. & POLICARD, A. Les segments à cellules vibratiles du tube urinifère des Ophidiens. Bibliog. anat. xi, pp. 119–126, figg.

REPOSSI, E. Il Mixosauro degli strati triasici di Besano in Lombardia. Atti Mus. Milano xli, pp. 361, pls. viii & ix.

RIDEWOOD, W. G. Abnormal sacra in the Edible Frog (*Rana esculenta*) and in the Common Frog (*Rana temporaria*). P. Linn. Soc. London 1902, pp. 46 & 47, fig.

ROGER, O. Wirbelthierreste aus dem Obermiocän der bayerisch-schwäbischen Hochebene. IV. Theil. Ber. Ver. Augsburg xxxv, pp. 1–63, pls. i–iii.

ROLLINAT, R. Sur le caractère et l'intelligence de quelques Reptiles du Département de l'Indre. Mem. Soc. zool. France xiv, pp. 439–447, pl. x.

——. Observations sur quelques Reptiles du Département de l'Indre. Mœurs, reproduction et domestication de la Cistude d'Europe. Op. cit. xv, pp. 5–67.

ROTHSCHILD, W. Note regarding *Testudo elephantopus*. Nov. Zool. ix, p. 448.

——. Further notes regarding *Testudo elephantopus*. T. c. p. 618.

——. Description of a new species of gigantic Land-Tortoise from the Galapagos Islands. T. c. p. 619.

—— & HARTERT, E. Further Notes on the fauna of the Galapagos Islands. T. c. pp. 373 & 374, figg.

ROUX, W. Das Nichthöthigsein der Schwerkraft für die Entwickelung des Froscheies. Arch. Entwickmech. xiv, pp. 300–304.

——. Bemerkungen über die Achsenbestimmung des Froschembryos und die Gastrulation des Froscheies. T. c. pp. 600–623.

SALVI, G. Sur l'origine, les rapports et la signification des cavités prémandibulaires et des fossettes latérales de l'hypophyse chez les Sauriens. Bibliog. anat. x, pp. 131–137, figg.

SAUVAGE, H. E. Recherches sur les Vertébrés du Kimméridgien supérieur de Fumel (Lot-et-Garonne). Mem. Soc. geol. France ix, No. 25, 32 pp., 5 pls.

——. Les Poissons et les Reptiles du Jurassique supérieur du Boulonnais au Musée du Havre. Bull. Soc. geol. Normand. xxi, pp. 15–26.

SAVILLE-KENT, W. Reptiles and Amphibians. Living Animals of the World ii, pp. 545–608, col. pl. and photos.

——. Bipedal locomotion in Lizards. Nature lxvi, p. 630.

SCHACHT, P. Beiträge zur Kenntniss der auf den Seychellen lebenden Elefanten-Schildkröten. Wiss. Ergebn. 'Valdivia' iii, pp. 103–129, pls. xv–xxi.

SCHAEFER, F. Ueber die Schenkeldrüsen der Eidechsen. Arch. Naturg. lxviii, pp. 27–64, pls. iii & iv.

SCHAPER, A. Ueber kontraktile Fibrillen in den glatten Muskelfasern der Mesenteriums der Urodelen. Anat. Anz. xxii, pp. 65–82, figg., pls. iii & iv.

SCHIMKEWITSCH, W. Ueber den atavistischen Charakter der Linsenregeneration bei Amphibien. Anat. Anz. xxi, pp. 48–50, fig.

SCHNEE, —. Die Kriechtiere der Marshallinseln. Zool. Garten xliii, pp. 354–362.

SCHWEIZERBARTH, ELISE v. Ueber das Vorkommen der Mauereidechse an dem Kriegsberg in Stuttgart. Jahresh. Ver. Wurttemb. lviii, pp. 307 & 308.

SERVICE, R. The Adder in Solway. Ann. Scott. Nat. Hist. 1902, pp. 153–162.

SIEBENROCK, F. Zur Systematik der Schildkröten-Gattung *Podocnemis* Wagl. SB. Ak. Wien cxi, pp. 157–170, pl. —.

——. Zur Systematik der Schildkrötenfamilie *Trionychidæ* Bell, nebst der Beschreibung einer neuen *Cyclanorbis*-Art. T. c. pp. 807–846, figg.

——. Ueber zwei seltene Schildkröten der herpetologischen Sammlung des Wiener Museums. Anz. Ak. Wiss. 1902, pp. 11–13.

——. *Brookeia baileyi* E. Bartlett, und *Adelochelys crassa* Baur. Zool. Anz. xxv, pp. 671–673.

SPEMANN, H. Entwickelungsphysiologische Studien am Triton-Ei. II. Arch. Entwickmech. xv, pp. 448–534, figg.

STEINDACHNER, F. Ueber eine neue *Ptyodactylus*-Art. Anz. Ak. Wiss. xxxix, pp. 168 & 169.

STRASSER, H. Sur le développement du carpe chez les Anoures et l'apparition des extrémités des membres chez les Vertébrés en général. Arch. Sci. Nat. (4) xiv, pp. 544–548.

SQUINABOL, S. Resti di Coccodrillo fossile a Cornedo nel Vicentino. Atti Ist. Veneto lxi, pp. 183–187, pl. i.

STEJNEGER, L. The Reptiles of the Huachuca Mountains, Arizona. P. U. S. Mus. xxv, pp. 149–158.

——. A new Opisthoglyph Snake from Formosa. P. Biol. Soc. Washington xv, pp. 15–17.

——. *Gerrhonotus cœruleus* versus *Gerrhonotus burnettii*. T. c. p. 37.

——. *Ptychozoon kuhli*, a new name for *P. homalocephalum*. T. c. p. 37.

SUCHARD, E. Structure du cœur, du tronc artériel et des vaisseaux qui partent de ce tronc chez quelques Batraciens. Arch. anat. micr. v, pp. 457–484, figg., pls. xv & xvi.

TECQMENNE, C. Sur le développement du pancréas ventral chez *Lacerta muralis*. Anat. Anz. xxi, pp. 278–292, figg.

THEVENIN, A. Sur la présence de Mosasauriens dans le Turonien de France. Bull. Mus. Paris 1901, pp. 428 & 429, fig.

THOMAS, ROSE H. Bipedal locomotion of Lizards. Nature lxvi, p. 551.

THON, K. Ueber die Bionomie und Entwickelungsgeschichte des Laubfrosches (*Hyla arborea* L.). Verh. v. Int. Zool. Congr. pp. 660–672, pl. i.

TORNIER, G. Herpetologisch Neues aus Deutsch Ost-Africa. Zool. Jahrb. Syst. xv, pp. 578–590, figg.

——. Die Crocodile, Schildkröten und Eidechsen in Kamerun. T. c. pp. 663–677, pl. xxxv.

——. Herpetologisch Neues aus Ost-Africa. Zool. Anz. xxv, pp. 700–704.

——. Ueberzählige Bildungen und die Bedeutung der Pathologie für die Biontotechnik. Verh. v. Int. Zool. Congr. pp. 467–500, figg.

TOULA, F. Ueber eine fossile *Cistudo lutaria* Schneid. (*Emys orbicularis* Linné). Verh. Ver. Presburg xxii, pp. 13–15.

TRIBONDEAU, —. Recherches anatomiques et histologiques sur le rein des Ophidiens. Pr.-verb. Soc. Bordeaux lvii, pp. xc–cv, figg., and cxxxiii–cxlix, figg.

UNTERHÖSSEL, P. Morphologische Studien über Kloake und Phallus der Amnioten.—Die Eidechsen und Schlangen. Morphol. Jahrb. xxx, pp. 541–581, figg., pl. viii.

VIDAL, L. M. Sobre la presencia del tramo Kimeridgense en el Montsech y hallazgo de un Batracio en suo hiladus. Mem. Ac. Barcelona (3) iv, No. 18.

VOLZ, W. *Proneusticosaurus*, eine neue Sauropterygier-Gattung aus dem untersten Muschelkalk Oberschlesiens. Palæontogr. xlix, pp. 121–162, figg., pls. xv & xvi.

WALL, F. The distinguishing characteristics between poisonous and non-poisonous Snakes. J. Bombay Soc. xiv, pp. 93–102, pls. A–D.

——. Aids to the differentiation of Snakes. T. c. pp. 337–345.

WARREN, E. A note on a certain variation in the blood-system of *Rana temporaria*. Zool. Anz. xxv, pp. 221 & 222.

WEITLANER, F. Eine Untersuchung über den Haftfuss des Gecko. Verh. Ges. Wien lii, pp. 328–332.

WERNER, F. Prodromus einer Monographie der Chamæleonten. Zool. Jahrb. Syst. xv, pp. 295–460, pls. xv–xxvii.

——. Zur Kenntniss des Skeletes von *Rhampholeon spectrum*. Arb. Inst. Wien xiv, pp. 241–258, figg.

——. Eine neue Varietät des Alpenmolches aus Bosnien : *Molge alpestris*, var. *reiseri*. Verh. Ges. Wien lii, pp. 7–9.

——. Ueber die Faunengebiete Kleinasiens. T. c. pp. 145 & 146.

——. Ueber westafrikanische Reptilien. T. c. pp. 332–348.

——. Beiträge zur Kenntniss der Fauna einiger dalmatinischer Inseln. Reptilien. T. c. pp. 381–388.

——. Ueber eine bemerkenswerthe Viper aus Kärnten und einige interessante Reptilien aus den Osten der Balkanhalbinsel. T. c. pp. 716–718.

——. Beiträge zur Biologie der Reptilien und Batrachier. Biol. Centrbl. xxii, pp. 737–758.

——. Zoologische Reiseabenteur in Griechenland. Zool. Garten xliii, pp. 1–18.

——. Riesenschlangen in Gefangenschaft. T. c. pp. 328 & 329.

WIELAND, G. R. Notes on the Cretaceous Turtles, *Toxochelys* and *Archelon*, with a classification of the Marine Testudinata. Amer. J. Sci. (4) xiv, pp. 95–108, figg.

WILLISTON, S. W. Restoration of *Dolichorhynchops osborni*, a new Cretaceous Plesiosaur. Bull. Kansas Univ i, pp. 241–244, pl. xi.

——. Notes on some new or little-known extinct Reptiles. T. c. pp. 247–254, pls. xii & xiii.

——. On the skull of *Nyctodactylus*, an Upper Cretaceous Pterodactyl. J. Geol. x, pp. 520–531, pls. i & ii.

WOLTERSTORFF, W. Die Tritonen der Gattung *Euproctus* Gené, und ihr Gefangenleben, nebst einem Ueberblick der Urodelen der südwestlichen paläarktischen Region. Stuttgart, 1902, 8vo, 46 pp., 1 pl.

——. Die Geographische Verbreitung der altweltlichen Urodelen. Verh. v. Int. Zool. Congr. pp. 585–591.

WOODWARD, A. S. Reptiles. Encyclop. Brit. xxxii, pp. 215–220, figg.

——. On two skulls of the Ornithosaurian *Rhamphorhynchus*. Ann. Nat. Hist. (7) ix, pp. 1–5, pl. 1.

——. Notes on footprints from the Keuper of South Staffordshire. Geol. Mag. (iv) ix, pp. 215–217, figg.

ZIEGLER, H. E. Lehrbuch der vergleichenden Entwickelungsgeschichte der niederen Wirbeltiere, in systematischer Reihenfolge und mit Berücksichtigung der experimentellen Embryologie bearbeitet. Jena, 1902, 8vo, xii, 366 pp., figg., 1 pl.

ZITTEL, K. A. VON. Text-book of Paleontology. Translated and edited by C. R. EASTMAN. Vol. II. London and New York, 1902, 8vo, viii + 283 pp., figg.

II. FAUNÆ.

EUROPE.

Halifax. List of the Reptiles and Batrachians: H. PICKLES, Halifax Natural. vii, p. 95.

Northamptonshire. On the Reptiles and Batrachians: BOULENGER, Victoria History of Counties, Northamptonshire i, p. 110.

Hertfordshire. On the Reptiles and Batrachians: A. F. CROSSMAN, Victoria History of Counties, Hertfordshire i, pp. 191 & 192.

Surrey. On the Reptiles and Batrachians: BOULENGER, Victoria History of Counties, Surrey i, pp. 200 & 201.

Dalmatia. On the Reptiles of some islands of the Dalmatian Coast: WERNER, Verh. Ges. Wien lii, pp. 381–388.

Greece. Notes by WERNER, Zool. Garten xliii, pp. 1–18.

Constantinople. On the characteristic Reptiles: WERNER, Verh. Ges. Wien lii, p. 145.

ASIA.

Asia Minor. On the distribution of the Reptiles and Batrachians: WERNER, Verh. Ges. Wien lii, p. 145.

Travancore. Additions to the list of Snakes by H. S. FERGUSON, J. Bombay Soc. xiv, pp. 386 & 387.

Maldives and Laccadives. On the Reptiles and Batrachians: LAIDLAW, in J. S. GARDINER, Faun. Mald. & Laccad. Archip. i, pp. 119–122.

Loo Choo Islands. On a collection of Reptiles and Batrachians: A. E. BROWN, P. Ac. Philad. 1902, pp. 183–186.

Malay Peninsula. On a collection of Snakes, Crocodiles, and Chelonians: LAIDLAW, P. Z. S. 1901, ii, pp. 575–583, pl. xxxv. On recent additions to the Batrachian fauna: A. L. BUTLER, op. cit. 1902, ii, pp. 188–190.

Borneo. On a collection of Reptiles and Batrachians: A. E. BROWN, P. Ac. Philad. 1902, pp. 175–183.

Africa.

British East Africa. On a collection of Reptiles and Batrachians: Mocquard, Bull. Mus. Paris 1902, pp. 404–409.

Uganda Protectorate. List of the Reptiles and Batrachians by Boulenger, in Sir H. Johnston, Uganda Protectorate i, pp. 445–447.

German East Africa. Additions to the herpetological fauna by Tornier, Zool. Jahrb. Syst. xv, pp. 578–590, and Zool. Anz. xxv, pp. 700–704.

French Guinea. On a few Reptiles and Batrachians from Kurussa: Mocquard, Bull. Mus. Paris 1902, pp. 415–417.

Togoland. On collections of Reptiles: Werner, Verh. Ges. Wien lii, pp. 333–338.

Cameroon. On the Crocodiles, Tortoises, and Lizards: G. Tornier, Zool. Jahrb. Syst. xv, pp. 663–677, pl. xxxv.

Gaboon. On some Reptiles and Batrachians: Mocquard, Bull. Mus. Paris 1902, pp. 410–415.

Congo Free State. On a collection of Reptiles: Werner, Verh. Ges. Wien lii, pp. 342–348.

Mashonaland. On a collection of Reptiles and Batrachians: Boulenger, P. Z. S. 1902, ii, pp. 15–18, pls. iii & iv.

German South-West Africa. On a collection of Reptiles: Werner, Verh. Ges. Wien lii, pp. 338–342.

Madagascar. On a collection of Reptiles and Batrachians: Mocquard, Bull. Soc. Philom. (9) iv, pp. 5–23, pls. i & ii.

America.

Ontario. On a collection of Frogs and Snakes: S. E. Meek, Field Mus. Zool. iii, pp. 139 & 140.

New York State. Catalogue of the Reptiles and Batrachians by E. C. Eckel & F. C. Paulmier, Bull. N. York Mus. No. 51, pp. 355–414, figg., pl. i.

Arizona. On the Reptiles of the Huachuca Mountains: Stejneger, P. U. S. Mus. xxv, pp. 149–158.

Mexico and Central America. A. Günther concludes the account of the Reptiles and Batrachians. The Introduction contains remarks on the geographical distribution.

Brazil. On the Lacertilia: Goeldi, Bol. Mus. Para. iii, pp. 499–560.

N.-W. Ecuador. Descriptions of new Reptiles and Batrachians by Boulenger, Ann. Nat. Hist. (7) ix, pp. 51–57.

Andes of Peru and Bolivia. Descriptions of new Reptiles and Batrachians by Boulenger, Ann. Nat. Hist. (7) x, pp. 394–402.

N.-W. Argentina and Bolivia. On a collection of Snakes: Lönnberg, Ann. Nat. Hist. (7) x, pp. 457–462.

W. Argentina. On a collection of Reptiles and Batrachians from the Provinces Mendoza and Cordova: Boulenger, Ann. Nat. Hist. (7) ix, pp. 337–339.

Chili. Descriptions of very numerous new Batrachians by R. A. Philippi, 'Supplemento a los Batraquios Chilenos descritos en la Historia de Chile' (Santiago, 1902, 8vo). This latest work of the veteran Zoologist cannot, however, be taken seriously, and until the promised plates are issued it is a difficult matter to form any opinion on the exact systematic position of these supposed additions to our knowledge of the Batrachian fauna of Chili.

Australia and Polynesia.

Australia. List of the Lacertilia, by Lucas & Frost, Rep. Austral. Ass. viii, pp. 256–261.

Marshall Ids. On the Reptiles: Schnee, Zool. Garten xliii, pp. 354–362.

Fossil Faunæ.

Peat and Forest Bed at Westbury-on-Severn. On Reptile (*Tropidonotus natrix*) and Batrachian (*Bufo vulgaris*, *Rana temporaria*) remains: M. A. C. Hinton, P. Cotteswold Club xiv, pp. 44 & 45.

Upper Jurassic of Boulogne s. M., France. On the Reptilian remains preserved in the Havre Museum: H. E. Sauvage, Bull. Soc. geol. Normand. xxi, pp. 19–26.

Upper Kimmeridgian of Fumel, France. On the Reptilian remains: Sauvage, Mem. Soc. geol. France ix, No. 25, pp. 25–32, pls. iii–v.

Upper Miocene of the Bavarian-Souabian Plateau. On Reptilian, especially Chelonian, remains: O. Roger, Ber. Ver. Augsburg xxxv, pp. 28–62, pls. i–iii.

North America. Bibliography and list of the fossil Reptiles and Batrachians: O. P. Hay, Bull. U. S. Geol. Surv. No. 179.

Mid-Cretaceous of the Belly River Series, N.-W. North America. List of the Reptiles by H. F. Osborn, Contr. Canad. Pal. iii, pp. 16–21. Descriptions of the genera and species by L. M. Lambe, t. c. pp. 31–78, pls. i–xxi. Remarks by Osborn, Science (2) xvi, pp. 673–676, and by Hatcher, t. c. pp. 831 & 832.

Cretaceous of Kansas. Notes on Reptilian remains by S. W. Williston, Bull. Kansas Univ. i, pp. 241–254, pls. xi–xiii.

III. REFERENCES ARRANGED SYSTEMATICALLY.

REPTILIA and BATRACHIA.

G. B. Howes, Nature lxvi, pp. 524 & 525, comments on recent progress in the morphology of Reptiles and Batrachians.

Pp. 114–255 of Eastman's translation of Zittel's text-book of Paleontology, vol. ii, deal with the Reptiles and Batrachians.

W. Saville-Kent supplies the chapter on Reptiles and Batrachians in 'Living Animals of the World' ii, a popular work illustrated with photographs mostly from living specimens.

E. Marceau, C.R. Soc. Biol. liv, pp. 983 & 984, remarks on some points in the structure of the heart of Lizards, Snakes, and Frogs.

G. Tornier, Verh. v. Int. Zool. Congr. pp. 467–500, figg., remarks on various cases of supernumerary parts in Reptiles and Batrachians.

E Lampe, Jahrb. nassau. Ver. lv, pp. 1–66, concludes his Catalogue of the Reptiles and Batrachians in the Wiesbaden Museum.

F. Werner, Biol. Centrbl. xxii, pp. 737–758, remarks on the habits and size of various Reptiles and Batrachians.

H. Barbier, Bull. Soc. Elbeuf xx, pp. 47–60, has notes on the habits of various Reptiles and Batrachians of France.

On the embryology, cf. Ziegler, Lehrb. d. vergl. Entwickel. d. nieder. Wirbelth., Jena, 1902, 8vo.

REPTILIA.

A. S. Woodward, in the Article 'Reptiles', Encyclop. Britann. xxxii, pp. 215–220, figg., reviews the principal groups, with special reference to fossils.

F. von Huene, Pal. Abh. (2) vi, pp. 1–84, figg., pls. i–ix, reviews our knowledge of Triassic Reptiles.

F. Béguin, Rev. Suisse Zool. x, pp. 251–397, pls. iv–ix. has investigated the histological structure of the digestive tract of various types of Reptiles.

P. Unterhössel & K. Hellmuth, Morphol. Jahrb. xxx, pp. 541–613, figg., pl. viii, have investigated the morphology of the cloaca and penis in Reptiles.

Fanny Moser, Arch. mikr. Anat. lx, pp. 587–668, figg., pls. xxx–xxxiii, deals with the development of the lungs.

Marie Loyez, Bull. Soc. Philom. (9) iv, pp. 63–76, figg., writes on the first stages in the development of the ovum in Lacertilia and Chelonia.

R. Henne, Zool. Anz. xxv, pp. 167–172, remarks on the habits of the Reptiles of the Malay Archipelago.

R. H. Kahn, Arch. Physiol. 1902, pp. 29–52, figg., has made experiments on the respiration of Reptiles.

J. P. Langlois, C.R. Soc. Biol. liv, pp. 2–4, remarks on the effects of extreme heat on Reptiles.

SQUAMATA.

A. Prenant & G. Saint-Remy, C.R. Ac. Sci. cxxxiv, pp. 614–616, and cxxxv, pp. 62 & 63, write on the evolution of the branchial derivatives in Colubrid Snakes and in Lizards.

LACERTILIA.

F. Schaefer, Arch. Naturg. lxviii, pp. 27–64, pls. iii & iv, has investigated the structure and distribution of the femoral pores in the Lacertilia, and reviews our previous knowledge of these structures.

E. Lönnberg, Bih. Svenska Ak. xxviii, iv, No. 8, has examined the digestive tract in a great number of Lacertilia of various families, with special relation to their diet.

C. Tecqmenne, Anat. Anz. xxi, pp. 278–292, figg., writes on the development of the ventral pancreas in *Lacerta muralis.*

G. Salvi, Bibliog. anat. x, pp. 131–137, figg., writes on the origin, the relations, and the signification of the premandibular cavities and the lateral pits of the hypophysis in various Lacertilia.

A. Policard, Bibliog. anat. xi, pp. 137–144, figg., writes on spermatogenesis in *Lacerta muralis.*

F. Weitlander, Verh. Ges. Wien lii, pp. 328–332, has observations on the adhesive function of the digits of Geckos.

On bipedal locomotion in Lizards: E. E. Green, Nature lxvi, p. 492; Rose H. Thomas, t. c. p. 551; N. Annandale, t. c. p. 577; W. Saville-Kent, t. c. p. 630.

Geckonidæ.

Stenodactylus elegans, var. *mauritanica*, Guich. On a specimen from Cameroon, Tornier, Zool. Jahrb. Syst. xv, p. 665.

Gymnodactylus danilewskii, Str., redescribed by NIKOLSKI, Annuaire Mus. St. Petersb. vii, p. 1; *G. colchicus*, sp. n., id. ibid. p. 3, Artwin and Ardauntsch, C. Asia.

Phyllodactylus palmatus, sp. n., MOCQUARD, Bull. Mus. Paris 1902, p. 410, Gaboon.

Diplodactylus, Gray = *Phyllodactylus*, Gray, MOCQUARD, Bull. Soc. Philom. (9) iv, p. 7; *D. robustus*, Blgr. = *Ph. pictus*, Ptrs., id. t. c. p. 6; *D. wolterstorffi*, Torn., and *inexpectatus*, Stejn. Note by TORNIER, Zool. Jahrb. Syst. xv, p. 580.

Ptyodactylus socotranus, sp. n., STEINDACHNER, Anz. Ak. Wiss. xxxix, p. 168, Socotra.

Hemidactylus muriceus, Ptrs. (*intestinalis*, Werner), *brooki*, Gray (*guineensis*, Ptrs.), and *richardsoni*, Gray. Notes by TORNIER, Zool. Jahrb. Syst. xv, pp. 666–670; *H. steindachneri*, sp. n., id. ibid. p. 668, pl. xxxv, fig. 2, Cameroon; *H. tornieri*, n. n. for *H. werneri*, Tornier, MOCQUARD, Bull. Mus. Paris 1902, p. 405.

Gehyra intermedia, sp. n., A. E. BROWN, P. Ac. Philad. 1902, p. 183, Loo Choo Ids.

Lygodactylus thomensis, Ptrs., redescribed by TORNIER, Zool. Jahrb. Syst. xv, p. 671: *L. conraui*, sp. n., id. ibid. p. 670, pl. xxxv, fig. 3, Cameroon.

Ptychozoon kuhli, n. n. for *P. homalocephalum*, Crev. nec Suckow, STEJNEGER, P. Biol. Soc. Washington xv, p. 37.

Geckolepis typica, Grand., var. n. *anomala*, MOCQUARD, Bull. Soc. Philom. (9) iv, p. 8, pl. i, fig. 2, Madagascar.

Tarentola mauritanica, L. Photograph of living specimens, H. BARBIER, Bull. Soc. Elbeuf xx, p. 56.

Pachydactylus affinis, Blgr. Note by BOULENGER, P. Z. S. 1902, ii, p. 16.

Phelsuma mutabilis, Grand. (*androyense*, Mocq.), redescribed by MOCQUARD, t. c. p. 10; *P. dubium*, Bttgr. Note by TORNIER, Zool. Jahrb. Syst. xv, p. 581.

Sphærodactylus scapularis, sp. n., BOULENGER, Ann. Nat. Hist. (7) ix, p. 54, N. W. Ecuador.

AGAMIDÆ.

Otocryptis bivittata, Wiegm. On its bipedal locomotion, E. E. GREEN, Nature lxvi, p. 492.

Calotes versicolor, L. On its bipedal locomotion, ANNANDALE, Nature lxvi, p. 577.

Agama micropholis, Matsch. = *A. atra*, Daud., TORNIER, Zool. Jahrb. Syst. xv, p. 673; *A. mehelyi*, sp. n., id. ibid. p. 672, Cameroon; *A. distanti*, sp. n., BOULENGER, Ann. Nat. Hist. (7) ix, p. 339, Transvaal.

IGUANIDÆ.

Anolis princeps, sp. n., BOULENGER, Ann. Nat. Hist. (7) ix, p. 54, N. W. Ecuador.

Liolæmus tropidonotus, p. 397, E. Peru, and *simonsii*, p. 398, Andes of Bolivia, spp. nn., BOULENGER, op. cit. x.

Tropidurus melanopleurus, sp. n., BOULENGER, t. c. p. 399, Andes of Bolivia.

Amblyrhynchus cristatus, Bell. Photograph of living specimens, ROTHSCHILD & HARTERT, Nov. Zool. ix, p. 374.

Cachryx defensor, Cope. Note on living specimens, J. BERG, Zool. Garten xliii, p. 86, fig.

ZONURIDÆ.

Platysaurus guttatus, Smith. Note by BOULENGER, P. Z. S. 1902, ii, p. 16.

ANGUIDÆ.

Gerrhonotus burnettii, Gray = *G. cœruleus*, Wiegm., STEJNEGER, P. Biol. Soc. Washington xv, p. 37.

Anguis fragilis, L. Notes on the habits, LINDHOLM, Zool. Garten xliii, p. 41 ; on blue-spotted specimens, HORNUNG, t. c. p. 323.

VARANIDÆ.

Varanus heteropholis, Blgr. Note by A. E. BROWN, P. Ac. Philad. 1902, p. 177.

TEIIDÆ.

Cnemidophorus vittatus, sp. n., BOULENGER, Ann. Nat. Hist. (7) x, p. 400, Andes of Bolivia.

Oreosaurus ocellifer, sp. n., BOULENGER, t. c. p. 400, E. Peru.

Proctoporus hypostictus, sp. n., BOULENGER, op. cit. ix, p. 55, N. W. Ecuador.

Gymnophthalmus rubricauda, sp. n., BOULENGER, t. c. p. 337, Cordova, Argentina.

AMPHISBÆNIDÆ.

C. H. EIGENMANN, P. Washington Ac. iv, pp. 533–548, figg., pls. xxxii–xxxiv, studies the structure of the eye of *Rhineura floridana*.
Abstract, P. Indiana Ac. 1901, pp. 106 & 107.

Amphisbæna silvestrii, sp. n., BOULENGER, Ann. Nat. Hist. (7) ix, p. 287, Matto Grosso.

LACERTIDÆ.

Lacerta, L. On the characters of the European species, P. LEHRS, Zool. Anz. xxv, p. 225 ; *L. viridis*, Laur. On the habits, R. ROLLINAT, Mem. Soc. zool. France xiv, p. 440. On its movements approaching bipedal locomotion, ROSE H. THOMAS, Nature lxvi, p. 551 ; *L. agilis*, L. Recorded from St Leonards-on-Sea by M. J. NICOLL, Zoologist (4) vi, p. 113 ; *L. agilis*, var. *exigua*, Eichw. Notes on living specimens, LINDHOLM, Zool. Garten xliii, p. 21 ; *L. muralis* Laur. On its habits, ROLLINAT, t. c. p. 441. On a specimen from the Kingsberg in Stuttgart, ELISE v. SCHWEIZERBARTH, Jahresh. Ver. Wurttemb. lviii, p. 307 ; *L. muralis*, Laur., vars. *pelagosæ*, Bedr. and *mellisellensis*, Braun. Notes by WERNER, Verh. Ges. Wien lii, pp. 384 & 386 ; *L. littoralis*, Werner, var. n. *livadiaca*, WERNER, Verh. Ges. Wien lii, p. 383, N. Greece ; *L. serpa*, Raf., var. n. *adriatica*, WERNER, t. c. p. 386, Pelagosa piccola, Adriatic ; *L. taurica*, Pall. On its occurrence in Hungary, L. v. MÉHELY, Allatt. Kozlem. i, p. 58, figg. ; *L. ionica*, sp. n., LEHRS, t. c. p. 232, Ionian Islands ; *L. vaneresellі*, sp. n., TORNIER, Zool. Anz. xxv, p. 701, German E. Africa.

Ichnotropis longipes, sp. n., BOULENGER, P. Z. S. 1902, ii, p. 17, pl. iii, fig. 2, Mashonaland.

Holaspis guentheri, Gray. Note by TORNIER, Zool. Jahrb. Syst. xv, p. 582.

GERRHOSAURIDÆ.

Gerrhosaurus major, A. Dum. Note by TORNIER, Zool. Jahrb. Syst. xv, p. 582.

Zonosaurus longicaudatus, Mocq. = *Z. boettgeri*, Stdr., MOCQUARD, Bull. Soc. Philom. (9) iv, p. 25.

SCINCIDÆ.

Mabuia chanleri, Stejn. Note by TORNIER, Zool. Jahrb. Syst. xv, p. 583; *M. brauni*, sp. n., id. ibid. p. 585, Mt. Kinga, German E. Africa.

Lygosoma reichenowi, Ptrs. (*vigentiserierum*, Sjöst.). Note by TORNIER, Zool. Jahrb. Syst. xv, p. 675; *L. sundevallii*, Smith. Note by WERNER, Verh. Ges. Wien lii, p. 336; *L. togoense*, sp. n., id. ibid. p. 337, Togoland, W. Africa; *L. dendyi*, sp. n., BOULENGER, Ann. Nat. Hist. (7) ix, p. 196, Pitt Island, New Zealand.

Ablepharus kucenkoi, sp. n., NIKOLSKI, Annuaire Mus. St. Petersb. vii, p. 7, L. Issyk-kul.

Scelotes eggeli, sp. n., TORNIER, Zool. Anz. xxv, p. 700, Usambara, German E. Africa.

Herpetoseps, Blgr. = *Herpetosaura*, Ptrs., TORNIER, t. c. p. 704.

Grandidieria lineata, Mocq. Note by MOCQUARD, Bull. Soc. Philom. (9) iv, p. 13.

RHIPTOGLOSSA.

A revision of the species by F. WERNER, Zool. Jahrb. Syst. xv, pp. 295–460, with many of the less-known figured on pls. xv–xxvii. The genera *Chamæleon*, *Rhampholeon*, and *Brookesia* are raised to family-rank.

Chamæleon fischeri, Reich. and *werneri*, Torn. Notes by TORNIER, Zool. Jahrb. Syst. xv, pp. 587 & 588: *C. tornieri*, sp. n., WERNER, t. c. p. 417, pl. xxiv, Mozambique.

Rhampholeon spectrum, Buchh. & Peters. On the skeleton, WERNER, Arb. Inst. Wien xiv, p. 241, figg.

PYTHONOMORPHA.

S. W. WILLISTON, Bull. Kansas Univ. i, pp. 247–254, pls. xii & xiii, has notes on various Mosasaurian remains from the Cretaceous of Kansas.

On Mosasaurian teeth from the Turonian of Limeray, France, THEVENIN, Bull. Mus. Paris 1901, p. 428, fig.

OPHIDIA.

F. WALL, J. Bombay Soc. xiv, pp. 93–102, pls. A–D, and pp. 337–345, has articles on the distinguishing characters of Indian Snakes.

L. H. GOUGH, Zool. Jahrb. Syst. xvii, pp. 457–468, records cases of anomalous scaling and variation in Snakes preserved in the collection of the Zoological Institute, Strassburg.

E. LAGUESSE, Arch. anat. micr. v, pp. 265–377, figg., pls. xi & xii, has a memoir on the pancreas of *Naia haie*.

TRIBONDEAU, Pr.-verb. Soc. Bordeaux lvii, pp. xc–cv, figg., writes on the anatomy and histology of the kidneys of Snakes.

M. BAUMANN, Bibliog. anat. x, pp. 304–311, figg., has investigated the development of the lung in *Tropidonotus natrix*.

C. REGAUD & A. POLICARD, Bibliog. anat. xi, pp. 119–126, figg., have a paper on the histology of the urinary duct of Snakes.

E. BALLOWITZ, Arch. Anat. 1902, pp. 149–154, pl. x, writes on the early development of *Tropidonotus natrix*.

U. GERHARDT, Anat. Anz. xx, p. 570, has an additional note to his paper on the gastrulation of *Tropidonotus natrix*, published 1901.

L. LAUNOY, Bull. Mus. Paris 1901, pp. 365 & 366, and 1902, pp. 38 & 364, has investigated some points in the histological structure of the salivary glands of Snakes and of their physiology.

L. LAUNOY, C.R. Ac. Sci. cxxxv, pp. 539 & 540, writes on the structure of the cells of the poison gland of *Vipera aspis*.

A. ALCOCK & L. ROGERS, P. R. Soc. London lxx, pp. 446–454, have made experiments on the toxic properties of the saliva of Aglyphous and Opisthoglyphous Colubrids.

C. PHISALIX, Bull. Mus. Paris 1902, p. 105, suggests the following physiological classification of Snakes :—

I. Causing death through alteration of the blood, HEMOTOXIPHORES (*Solenoglyphes*, *Aglyphes*). II. Causing death through asphyxia, PSEUMOTOXIPHORES (*Proteroglyphes*, *Opisthoglyphes*).

The same author, t. c. pp. 204–207, also remarks on the presence of poison in the blood of *Naia haie*.

G. LAMB, J. Bombay Soc. xiv, pp. 220–235, writes on Snake-poison.

R. M. DIXON, Verh. v. Int. Zool. Congr., pp. 990–992, remarks on the senses of Snakes.

GLAUCONIIDÆ.

Glauconia unguirostris, sp. n., BOULENGER, Ann. Nat. Hist. (7) ix, p. 338, Cordova, Argentina.

BOIDÆ.

On the habits of various species in confinement, F. WERNER, Zool. Garten xliii, p. 328.

Python reticulatus, Schn. On a specimen having fasted 2½ years in the Paris Menagerie, PELLEGRIN, Bull. Soc. zool. France xxvii, p. 164.

COLUBRIDÆ.

Aglyphæ.

Tropidonotus natrix, L. and *viperinus*, Latr. On their habits in captivity, R. ROLLINAT, Mem. Soc. zool. France xiv, p. 444: B. J. HORTON, Zoologist (4) vi, p. 356 ; *T. natrix*, L. Notes on the habits, LINDHOLM, Zool. Garten xliii, p. 44. On its occurrence in Scotland, LEIGHTON, Ann. Scott. Nat. Hist. 1902, p. 94 ; *T. ordinatus*, L. On the colour varieties, ECKEL, Amer. Natural. xxxvi, p. 481 ; *T. inas*, sp. n., LAIDLAW, P. Z. S. 1901, ii, p. 576, pl. xxxv, figg. 3 & 4, Gunong Inas, Malay Peninsula.

Idiophis vaillanti, Mocq., described and figured by MOCQUARD, Bull. Soc. Philom. (9) iv, p. 14, pl. i, fig. 3.

Gonionotophis klingi, Matschie. Note by WERNER, Verh. Ges. Wien lii, p. 338.

Boodon lineatus, D. & B., var. n. *plutonis*, WERNER, t. c. p. 334, Togoland, W. Africa.

Lycophidium werneri, sp. n., MOCQUARD, Bull. Mus. Paris 1902, p. 412, Gaboon.

Zamenis gemonensis, Laur., var. *caspius*, Iwan, recorded from Hungary, Bosnia, and Dalmatia by WERNER, Verh. Ges. Wien lii, p. 384.
Leptophis rostralis, sp. n., LÖNNBERG, Ann. Nat. Hist. (7) x, p. 458, San Miguel, N. W. Argentina.
Tropidophidion, g. n., near *Gastropyxis*, WERNER, Verh. Ges. Wien lii, p. 334; *T. steini*, sp. n., id. ibid. p. 335, Togoland, W. Africa.
Coluber longissimus, Laur. On its habits, R. ROLLINAT, Mem. Soc. zool. France xiv, p. 443; *C. vulpinus*, B. & G. On its distribution, M. MORSE, Science (2) xv, p. 1035: A. E. BROWN, op. cit. xvi, p. 151.
Rhadinæa subocularis, sp. n., BOULENGER, Ann. Nat. Hist. (7) ix, p. 56, N. W. Ecuador.
Coronella austriaca, Laur. On its habits, R. ROLLINAT, Mem. Soc. zool. France xiv, p. 445, pl. x: LINDHOLM, Zool. Garten xliii, p. 46. On its distribution in North Germany, BALLOWITZ, Zool. Anz. xxv, p. 212; *C. semiornata*, Ptrs. and *coronata*, Schleg. Notes by MOCQUARD, Bull. Mus. Paris 1902, pp. 405 & 415.
Lampropeltis holbrookii, n. n. for *Coronella sayi*, Holbr. *nec* Schleg. STEJNEGER, P. U. S. Mus. xxv, p. 152.
Ophibolus alternus, sp. n., A. E. BROWN, P. Ac. Philad. 1901, p. 612, pl. xxxiv, Davis Mts., Texas.
Prosymna sundevalli, Smith. Note by WERNER, Verh. Ges. Wien lii, p. 339.
Pseudoprosymna, subg. n. for *Prosymna bergeri*, sp. n., LINDHOLM, Jahrb. nassau. Ver. lv, p. 57, Richmond, German S. W. Africa.
Contia modesta, Mart. and *C. collaris*, Mén. Notes (in Russian) by ELPATICVSKI, Annuaire Mus. St. Petersb. vii, p. 223.
Calamaria döderleini, sp. n., GOUGH, Zool. Anz. xxv, p. 645, Sumatra.

Opisthoglyphæ.

Geodipsas vanerocegæ, sp. n., TORNIER, Zool. Anz. xxv, p. 703, Usambara, German E. Africa.
Langaha alluaudi, Mocq., described and figured by MOCQUARD, Bull. Soc. Philom. (9) iv, p. 16, pl. i, fig. 4.
Leptodira duchesnii, Blgr., recorded from the Gaboon by MOCQUARD, Bull. Mus. Paris 1902, p. 410; *L. probeguini*, sp. n., id. ibid. p. 415, Kurussa, French Guinea.
Boiga kraepelini, sp. n., STEJNEGER, P. Soc. Washington xv, p. 15, Formosa.
Philodryas subcarinatus, sp. n., BOULENGER, Ann. Nat. Hist. (7) ix, p. 287, Paraguayan Chaco; *P. erlandi*, sp. n., LÖNNBERG, op. cit. x, p. 460, Bolivian Chaco.
Psammophis sibilans, L. Notes by WERNER, Verh. Ges. Wien lii, pp. 335, 338, & 340; subsp. n. *trinasalis*, id. ibid. p. 340, German S.W. Africa; *P. brevirostris temporalis*, subsp. n., id. ibid. p. 335, Togoland, W. Africa; *P. leightoni*, sp. n., BOULENGER, P. Z. S. 1902, i, p. 126, pl. xii, Cape Colony.
Homalocranium marcapatæ, sp. n., BOULENGER, Ann. Nat. Hist. (7) x, p. 401, E. Peru.
Tantilla wilcoxi, sp. n., STEJNEGER, P. U. S. Mus. xxv, p. 156, Arizona.
Cynodontophis, g. n., near *Elapotinus* and *Miodon*, WERNER, Verh. Ges. Wien lii, p. 345; *C. æmulans*, sp. n., id. ibid. p. 346, Congo.
Aparallactus concolor, Fisch. Note by MOCQUARD, Bull. Mus. Paris 1902, p. 406; *A. dolloi* and *congicus*, spp. nn., WERNER, t. c. p. 346, Congo; *A. hagmanni*, sp. n., GOUGH, Zool. Anz. xxv, p. 646, Victoria, W. Africa.

Proteroglyphæ.

Distira annandalei, sp. n., LAIDLAW, P. Z. S. 1901, ii, p. 579, pl. xxxv, figg. 1 & 2, Patani, Malay Peninsula.

Pseudechis colletti, sp. n., BOULENGER, Ann. Nat. Hist. (7) x, p. 494, Queensland.

Naia brugarus, Schleg. On its characters and habits, G. H. EVANS, J. Bombay Soc. xiv, p. 409, pl. — ; *N. multifasciata*, sp. n., WERNER, Verh. Ges. Wien lii, p. 347, Upper Maringa, Congo.

Boulengerina annulata, Ptrs. Note by WERNER, Verh. Ges. Wien lii, p. 347.

Aspidelaps lubricus, L., and *scutatus*, Smith. Notes by WERNER, t. c. p. 341.

Elaps calamus, sp. n., BOULENGER, Ann. Nat. Hist. (7) ix, p. 57, N.W. Ecuador ; *E. simonsii*, sp. n., id. t. c. p. 338, Cordova, Argentina ; *E. regularis*, sp. n., id. op. cit. x, p. 402, Andes of Bolivia.

AMBLYCEPHALIDÆ.

Leptognathus gracilis, sp. n., BOULENGER, Ann. Nat. Hist. (7) ix, p. 57, N.W. Ecuador.

VIPERIDÆ.

Vipera, Laur. On a remarkable specimen from Carinthia intermediate between *V. berus*, L. and *V. ammodytes*, L., WERNER, Verh. Ges. Wien lii, p. 716 ; C. PHISALIX, Bull. Mus. Paris 1902, p. 102, figg., remarks on the cephalic lepidosis of *Vipera berus* and *V. aspis* and holds the head-shields of the former to be a more primitive character, as shown by the ontogeny ; *V. berus*, L. On its distribution, habits, and variations in Scotland, LEIGHTON, Ann. Scott. Nat. Hist. 1902, p. 95 ; SERVICE, t. c. p. 153 ; BIDIE, t. c. p. 217 ; G. LEIGHTON, Field Nat. Quart. i, p. 261, pl. —, remarks on the Adder-swallowing theory and on the capacity of the Snake's gullet ; on a monstrous embryo, L. LAUNOY, Bull. Mus. Paris 1902, p. 265, and C.R. Soc. Biol. liv, p. 449 [the protruding male genital organs are taken for rudimentary limbs, hence the embryo is described as biped !—REC.] ; *V. renardi*, Christoph. Notes by LINDHOLM, Zool. Garten xliii, p. 49 ; *V. aspis*, L. On its habits in captivity, R. ROLLINAT, Mem. Soc. zool. France xiv, p. 446.

Atheris nitschei, sp. n., TORNIER, Zool. Jahrb. Syst. xv, p. 589, fig., Mpororo, German E. Africa.

ORNITHOSAURIA.

Rhamphorhynchus gemmingi, H. v. Mey. On the skull, A. S. WOODWARD, Ann. Nat. Hist. (7) ix, p. 1, pl. i, figg. 1 & 2 ; *R. longiceps*, sp. n., id. ibid. p. 3, pl. i, fig. 3, Lower Kimmeridgian, Eichstädt, Bavaria.

S. W. WILLISTON, J. Geol. x, pp. 520–531, pls. i & ii, describes and figures the skull of *Nyctodactylus*.

ORTHOPODA.

F. A. LUCAS, Rep. Smithson. Inst. f. 1901, pp. 641–647, 4 pls., remarks on the principal types of Orthopods and Dinosaurs, with restorations of the external appearance.

J. B. HATCHER, Ann. Carnegie Mus. i, pp. 377–386, remarks on the genera and species of the *Trachodontidæ*.

Trachodon (*Pteropelyx*) *selwyni*, p. 69, *marginatus*, p. 71, and *altidens*, p. 76, spp. nn., LAMBE, Contr. Canad. Pal. iii, pls. iii–x, Belly River Series, Alberta.

Iguanodon, Mant. On their discovery in Belgium, and restorations, DE PAUW, Notes sur les fouilles...de Bernissart (Brussels, 1902), and Mem. Soc. Hainaut (6) iv.

Ornithomimus altus, sp. n., LAMBE, Contr. Canad. Pal. iii, p. 50, figg., pls. xiii–xv, Belly River Series (Mid-Cretaceous), Alberta, Brit. N. America.

Hoplitosaurus, g. n. for *Stegosaurus marshi*, Lucas, F. A. LUCAS, Science (2) xvi, p. 435.

Palæoscincus asper, sp. n., LAMBE, Contr. Canad. Pal. iii, p. 54, pl. xvii, fig. 5, Belly River Series (Mid-Cretaceous), Alberta, Brit. N. America.

Stereocephalus, g. n. (*Stegosaurid.*) for *S. tutus*, sp. n., LAMBE, t. c. p. 55, pls. xi, xii, xxi, Belly River Series (Mid-Cretaceous), Alberta, Brit. N. America.

Struthiosaurus, Bunzel. On its systematic position: NOPCSA, SB. Ak. Wien cxi, p. 93.

Monoclonius dawsoni, p. 57, *canadensis*, p. 63, and *belli*, p. 66, spp. nn., LAMBE, t. c. pls. xvi–xx, Belly River Series (Mid-Cretaceous), Alberta.

Stegoceras, g. n. for *S. validus*, sp. n., LAMBE, t. c. p. 68, pl. xxi, figg. 1–5, Belly River Series (Mid-Cretaceous), Alberta.

Onychosaurus, g. n., apparently related to *Polacanthus*, for *O. hungaricus*, sp. n., NOPCSA, Anz. Ak. Wiss. xxxix, p. 42, Cretaceous, Transylvania. [Withdrawn by the author, Zeitschr. Deutsch. geol. Ges. liv, p. 36.]

DINOSAURIA.

F. NOPCSA, Anz. Ak. Wiss. xxxix, pp. 42–46, and SB. Ak. Wien cxi, p. 108, pl. —, remarks on Hungarian and Patagonian Dinosaurian remains and, Zeitschr. Deutsch. geol. Ges. liv, p. 34, on the occurrence of Dinosaurian remains at Sventpeterfalva, Transylvania.

J. B. HATCHER, Ann. Carnegie Mus. i, pp. 356–376, figg., pls. xix & xx, writes on the fore-limb of *Brontosaurus*.

Megalosaurus hungaricus, sp. n., NOPCSA, SB. Ak. Wien cxi, p. 103, Chalk of Transylvania.

Elosaurus, g. n., *Morosaurid.*, PETERSEN & GILMORE, Ann. Carnegie Mus. i, p. 491; *E. parvus*, sp. n., id. ibid., figg., pl. xxv, Jurassic, Sheep Creek, Albany Co., Wyoming.

Dacentrurus, n. n. for *Omosaurus*, Ow. nec Leidy, F. A. LUCAS, Science (2) xvi, p. 435.

EMYDOSAURIA.

CROCODILIA.

Mecistops, Gray. On the generic characters, TORNIER, Zool. Jahrb. Syst. xv, p. 579.

Crocodilus vicetinus, Lioy (foss.). On a young specimen referred with some doubt to this species, SQUINABOL, Atti Ist. Veneto lxi, p. 183, pl. i; *C. anchitherii*, sp. n. (foss.), O. ROGER, Ber. Ver. Augsburg xxxv, p. 59, Upper Miocene of Bavaria and Souabia.

Caiman niger, Spix. On its nest and eggs, G. HAGMANN, Zool. Jahrb. Syst. xvi, p. 405, pls. xix & xx.

Diplocynodon, Pomel (foss.). On remains provisionally referred to *D. ebertsi*, Ludw., and *D. darwini*, Ludw., REDLICH, Jahrb. geol. Reichsanst. lii, p. 135, pl. vi.

THALATTOSUCHIA.

FRAAS's article on the *Thalattosuchia* quoted in the last Record, is published in Jahresh. Ver. Wurttemb. lvii, 1901, pp. 409–418, fig., and the monograph in Palæontogr. xlix, pp. 1–72, figg., pls. i–viii.

Dacosaurus maximus, Plien. (foss.). On remains from the Upper Kimmeridgian of Fumel, France, SAUVAGE, Mem. Soc. geol. France ix, No. 25, p. 25, pls. iii–v.

Machimosaurus hugii, H. v. Mey. (foss.). On the vertebræ, SAUVAGE, t. c., p. 27, pl. v, figg. 3–5.

CHELONIA.

W. JUNK has edited a facsimile-issue of BOJANUS's great work on the anatomy of *Emys orbicularis*.

G. R. WIELAND, Amer. J. Sci. (4) xiv, pp. 95–108, figg., writes on the structure and classification of the Marine Turtles, living and fossil.

A. KASPER, Arb. Inst. Wien xiv, pp. 137–172, figg., discusses the characters of the atlas and epistropheus in Pleurodiran Chelonians.

Trionychidæ. Notes on the plastron, SIEBENROCK, SB. Ak. Wien cxi, p. 807, figg.

G. DE STEFANO, Riv. ital. Pal. viii, p. 50, fig., describes and figures a mandible of a *Trionyx* from the Lower Eocene of Reims, France, as indicating a new genus of toothed Chelonians,—*Odontochelone*.

Trionyx foveatus, Leidy, and *T. vagans*, Cope (foss.). On remains from the Cretaceous of Alberta, L. M. LAMBE, Rep. Geol. Surv. Canada f. 1901, p. 1, pls. i–iv, and Contr. Canad. Pal. iii, p. 33, pl. i.

Cyclanorbis oligotylus, sp. n., SIEBENROCK, t. c. p. 810, Nubia.

Adocus variolosus, Cope (foss.). On the plastron, LAMBE, Contr. Canad. Pal. iii, p. 39, figg., pl. ii, figg. 1–3.

Platemys radiolata, Mik. (*werneri*, Schnee). Note by SIEBENROCK, Anz. Ak. Wiss. 1902, p. 11.

Podocnemis, Wagl. Revision of the species by SIEBENROCK, SB. Ak. Wien cxi, p. 157, with figures of the heads, pl. —.

Testudo, L. On the gigantic Tortoises of the Seychelles, P. SCHACHT, Wiss. Ergebn. 'Valdivia' iii, p. 103, pls. xv–xxi. On the habits and distribution of the Galapagos Tortoises, ROTHSCHILD & HARTERT, Nov. Zool. ix, p. 373, and R. H. BECK, t. c. p. 375 ; *T. elephantopus*, Harl. Notes by ROTHSCHILD, t. c. pp. 448–618 ; *T. galapagoensis*, Baur, described and figured by GÜNTHER, Nov. Zool. ix, p. 184, pls. xvi–xxi ; *T. wallacei*, sp. n., ROTHSCHILD, t. c. p. 619, Chatham Isld. (?), Galapagos ; *T. gigantea*, Bravard ? and *canetotiana*, Lartet (foss.). Notes by DE STEFANO, Boll. Soc. geol. Ital. xxi, pp. 294 & 298, pl. xi, fig. 2 ; *T. antiqua*, Bronn (foss.). Notes by O. ROGER, Ber. Ver. Augsburg xxxv, p. 33, pl. iii, figg. 1–4 ; *T. atacosæ*, sp. n. (foss.), HAY, P. Ac. Philad. 1902, p. 383, figg., Miocene, Texas.

Acinixys, g. n., for *Testudo planicauda*, Grand., SIEBENROCK, Anz. Ak. Wiss. 1920, p. 12.

Homopus darlingi, sp. n., BOULENGER, P. Z. S. 1902, ii, p. 15, pl. iv, Mashonaland.

Ptychogaster reinachi, sp. n. (foss.), O. ROGER, Ber. Ver. Augsburg xxxv, p. 42, pl. i, fig. 9, Upper Miocene of Sätzling, Bavaria.

Nicoria nasuta, sp. n., BOULENGER, Ann. Nat. Hist. (7) ix, p. 53, N. W. Ecuador.

Cistudo eocænica, sp. n. (foss.), DE STEFANO, Boll. Soc. geol. Ital. xxi, p. 284, pl. xi, fig. 1, Eocene of Pepicux, Herault, France.

Terrapene eurypygia, Cope (foss.), redescribed by HAY, P. Ac. Philad. 1902, p. 385, figg.

Emys orbicularis, L. On its habits, R. ROLLINAT, Mem. Soc. zool. France xiv, p. 439, and xv, p. 5, LINDHOLM, Zool. Garten xliii, p. 54. On a fossil specimen found in Vienna city, TOULA, Verh. Ver. Presburg xxii, p. 13; *E. cuvieri*, sp. n. (foss.), DE STEFANO, Boll. Soc. zool. Ital. xi, p. 37, figg., Upper Eocene, Paris.

Clemmys precaspica, sp. n. (foss.), DE STEFANO, Boll. Soc. geol. Ital. xxi, p. 278, pl. x, figg. 1 & 2, Pliocene of Mansourah, Algeria; *C. guntiana*, sp. n. (foss.), O. ROGER, Ber. Ver. Augsburg xxxv, p. 44, pl. ii, figg. 1–3 and pl. iii, figg. 5–9, Miocene of Günzburg.

Adelochelys crassa, Baur. Note on the type specimen, SIEBENROCK, Zool. Anz. xxxv, p. 671.

Ocadia sansaniensis, Lartet (foss.), noticed and figured by DE STEFANO, Boll. Soc. geol. Ital. xxi, p. 269, pl. ix, fig. 2.

Chrysemys sculptata, sp. n. (foss.), DE STEFANO, Boll. Soc. geol. Ital. xxi, p. 268, pl. ix, fig. 1, Eocene of Sheppey, England.

Stylemys bottii, sp. n. (foss.), DE STEFANO, Riv. ital. Pal. viii, p. 72, pl. vii, Miocene of France.

Chelydra, Schw. Synopsis of the species, recent and fossil, BOULENGER, Ann. Nat. Hist. (7) ix, p. 51; *C. rossignoni*, Bocourt, note by BOULENGER, t. c. p. 49.

Neurankylus, g. n. (*Chelydrid.*) for *N. eximius*, sp. n. (foss.), LAMBE, Contr. Canad. Pal. iii, p. 42, fig., Belly River Series (Mid-Cretaceous), Alberta, Brit. N. America.

Baëna hatcheri, Hay (foss.). Notes by LAMBE, t. c. p. 43, figg.; *B. antiqua*, sp. n. (foss.), id. ibid. p. 44, fig., Belly River Series (Mid-Cretaceous), Alberta, Brit. N. America.

Chelyzoon, g. n. for Cryptodiran cervical vertebræ from the Muschelkalk of Bavaria and Wurttemberg; *C. latum* and *blezingeri*, spp. nn. (foss.), F. v. HUENE, Pal. Abh. (2) vi, p. 50.

Toxochelys latiremis, Cope (foss.). On the fore limb, WIELAND, Amer. J. Sci. (4) xiv, p. 95, fig.

Archelon ischyros, Wieland (foss.). On the fore limb, id. t. c. p. 99, fig.

ICHTHYOSAURIA.

C. W. GILMORE, Science (2) xvi, p. 913, has discovered teeth in *Baptanodon.*

Mixosaurus cornalianus, Bassani, described and figured by E. REPOSSI, Atti Mus. Milano xli, p. 361, pls. viii & ix.

PLACODONTIA.

O. JAEKEL, N. Jahrb. Min. 1902, i, p. 134, remarks on the systematic position of the *Placodontia* and their relationship to the Chelonians.

Placochelys, g. n., for a Placodontian apparently related to *Psephoderma*, H. v. Mey., JAEKEL, t. c. p. 127, and Math. term. Ertes. Magyar Ak. xx, p. 337; *P. placodonta*, sp. n., id. ibid. p. 127, pl. ii, and p. 337, pls. i–iv, Trias of Balaton, Hungary.

PLESIOSAURIA.

W. VOLZ, Palæontogr. xlix, p. 158, figg., remarks on the distinctive characters of the pelvis in the various groups of Plesiosaurians.

S. W. WILLISTON, Bull. Kansas Univ. i, p. 241, gives a list of the American Plesiosaurs hitherto described.

Dolichorhynchops osborni, g. & sp. nn., WILLISTON, t. c. p. 243, pl. xi, Chalk of W. Kansas.

Proneusticosaurus, g. n., near *Neusticosaurus*, W. VOLZ, t. c. p. 123; *P. silesiacus*, sp. n., id. ibid., p. 124, figg., pl. xv, Lower Muschelkalk of Gogolin, Silesia; *P. madelungi*, sp. n., id. ibid. p. 147, figg., pl. xvi, Lower Muschelkalk of Sacrau, Silesia.

Doliovertebra fritschi, g. & sp. nn., for vertebræ from the Muschelkalk of Freyburg a. Unstr., F. v. HUENE, Pal. Abh. (2) vi, p. 47, figg.

PELYCOSAURIA.

E. C. CASE, Contrib. Walker Mus. i, pp. 45–50, pls. ix & x, remarks on *Lysorhophus tricarinatus*, Cope, and on the pectoral arch of the Pelycosauria.

Ctenosaurus koeneni, g. & sp. nn. for vertebræ from the Trias of Reinhausen near Göttingen, F. v. HUENE, Pal. Abh. (2) vi, p. 37, figg.

Procerosaurus cruralis, g. & sp. nn., for a femur from the Muschelkalk of Oelmühle near Crailsheim, Wurttemburg, id. t. c. p. 64, pl. ix, fig. 1.

Pectenosaurus strungi, g. & sp. nn., for vertebræ from the Muschelkalk of Bayreuth, id. t. c. p. 65, pl. vi, fig. 5.

RHYNCHOCEPHALIA.

On footprints ascribed to *Rhynchosaurus*, from the Keuper of South Staffordshire, A. S. WOODWARD, Geol. Mag. (iv) ix, p. 215, figg.

On Reptilian (?) footprints from the Lower Keuper of England, H. C. BEASLEY, P. Liverp. geol. Soc. ix, p. 238, pl. xv.

ANOMODONTIA.

Dicynodon latifrons, Broom. On sexual differences in the shape of the skull, BROOM, P. Z. S. 1902, ii, p. 86, fig.

Gordonia annæ, sp. n., AMALITZKI, Tagebl. xi, Vers. Russ. Naturf. St. Petersb. 1901, No. 9, p. 380, Permian of Sokolki, Russia.

Deuterosaurus seeleyi, sp. n. (?), NOPCSA, Beitr. Pal. Oesterr.-Ung. xiv, p. 185, pl. xvii, Trias of Cradock, S. Africa.

Inostranzewia alexandri, n. g. & sp. (*Theriodont.*), AMALITZKI, t. c. p. 380, Permian of Sokolki, Russia.

PARIOSAURIA.

Pariasaurus karpinskii, sp. n., AMALITZKI, Tagebl. xi, Vers. Russ. Naturf. St. Petersb. 1901, No. 9, p. 380, Permian of Sokolki, Russia.

Trochanterium gaudryi, g. & sp. nn., for the proximal end of a femur from the Muschelkalk of Bischmisheim near Saarbrücke, F. v. HUENE, Pal. Abh. (2) vi, p. 20, fig. & pl. vi, fig. 2.

Eurycervix postumus, g. & sp. nn., for cervical ribs from the Muschelkalk of Oelmühle near Crailsheim, F. v. HUENE, t. c. p. 21, pl. ix, fig. 2.

Crurosaurus problematicus, g. & sp. nn., for a femur from the Muschelkalk of Freyburg a. Unstr., F. v. HUENE, t. c. p. 23, fig.

Sclerosaurus armatus, H. v. Mey. New observations by F. v. HUENE, t. c. p. 23, pls. i–iii, & iv, fig. 5.

Anomosaurus, g. n., for vertebræ of doubtful affinities, from the Muschelkalk of Saxony, F. v. HUENE, t. c. p. 33, pl. iv, figg. 3 & 4, vi, fig. 4, & vii, fig. 6.

BATRACHIA.

In the Article "Amphibia" of the Supplement to the 9th edition of the Encyclopædia Britannica, the RECORDER gives an outline of the general classification of this class and alludes to the principal additions to our knowledge during the past thirty years.

E. SUCHARD, Arch. anat. micr. v, pp. 457–484, figg., pls. xv & xvi, writes on the structure of the heart and arterial trunk in various Batrachians.

V. FAUSSEK, Arch. mikr. Anat. lx, pp. 157–174, pl. ix, has a contribution to the histology of the gills.

H. W. NORRIS, P. Iowa Ac. viii, pp. 76–78, remarks on the morphology and function of the ear in Batrachians.

H. S. HARRISON, Int. J. Anat. xix, pp. 221–261, pls. xi–xiii, writes on the perilymphatic spaces of the ear in Batrachians.

A. BOCHENEK, Bull. Ac. Cracovie 1902, pp. 397–403, figg., has studied the structure of the *hypophysis cerebri* in Batrachians.

A. BRACHET, Arch. Biol. xix, pp. 1–243, pls. i–vii, has a memoir on the ontogenesis of Batrachians (*Rana temporaria* and Axolotl).

J. NUSBAUM & J. MACHOWSKI have a preliminary note, Anat. Anz. xxi, pp. 110–127, figg., on various points in the development of the thymus gland in Batrachians.

H. N. NORRIS, t. c. pp. 433–442 figg., remarks on the origin of the so-called "ventraler Kiemenrest" and of the *corpus propericardiale* of the Frog.

H. LEBRUN, Cellule xix, pp. 315–402, pls. viii–xiii, has a further memoir on the nuclear development in the Batrachian eggs.

A. BÜHLER, Morphol. Jahrb. xxxi, pp. 85–103, pls. iii & iv, has a paper on the resorption of the egg-follicle in Batrachians.

W. SCHIMKEWITSCH, Anat. Anz. xxi, pp. 48–50, figg., remarks on the atavistic character of the regeneration of the lens in Batrachians.

H. GADOW, P. R. Inst. Brit. xvi, pp. 587–594, remarks on colour and colour-changes in Batrachia.

ECAUDATA.

F. B. HOFMAN, Arch. Anat. 1902, pp. 54–114, pls. iii–vi, writes on the intracardial nervous system of the Frog.

ELIZABETH H. DUNN, J. Comp. Neurol. xii, pp. 297–328, figg. writes on the nerve fibres of the leg of *Rana virescens*.

G. CECCHERELLI, Monit. Zool. ital. xiii, pp. 246 & 247, remarks on the structure of the muscles of the tongue in *Rana esculenta*.

L. VON MÉHELY has a paper in Hungarian on the voice and vocal apparatus of Tailless Batrachians. Potfuz. Termes. Kozl. xxxiii, 1901, pp. 145–157, figg.

W. G. RIDEWOOD, P. Linn. Soc. London 1902, p. 46, fig., describes and figures abnormal sacra in *Rana esculenta* and *R. temporaria*.

H. STRASSER, Arch. Sci. Nat. (4) xiv, p. 544, remarks on the development of the carpus in Tailless Batrachians.

E. WARREN, Zool. Anz. xxv, pp. 221 & 222, remarks on an abnormality in the blood-system of certain specimens of *Rana temporaria*.

HELEN D. KING, Biol. Bull. iii, pp. 245–254, writes on the follicle sacs of the ovary in Tailless Batrachians.

S. IKEDA, J. Coll. Japan xviii, art. 3, writes on the development of the egg in the Japanese species of *Rana*, *Rhacophorus*, and *Bufo*.

K. Thon, Verh. v. Int. Zool. Congr., pp. 660–672, pl. i, writes on the development of the egg of *Hyla arborea*.

M. Moszkowski, Arch. mikr. Anat. lx, pp. 407–413, figg., and lxi, pp. 348–390, pl. xix, has remarks on the first stages in the development of the egg of *Rana temporaria*.

Helen D. King, Anat. Anz. xxi, pp. 414–417, and Amer. Natural. xxxvi, pp. 521–548, figg., has made investigations on gastrulation in *Bufo lentiginosus*.

L. Kathariner, Arch. Entwickmech. xiv, pp. 290–299, fig., and W. Roux, t. c. pp. 300–304, 600–623, write on the mechanical factors in the early development of the Frog ovum.

T. H. Morgan, Arch. Entwickmech. xv, pp. 238–313, figg., pls. viii–xii, writes on the relation between normal and abnormal development of the embryo of the Frog as determined by injury to the yolk-portion of the egg.

T. H. Morgan, Anat. Anz. xxi, pp. 313–316, writes on the dispensibility of gravity in the development of the eggs of *Bufo*. Also Keibel, t. c. pp. 581–591.

M. Moszkowski, Arch. mikr. Anat. lx, pp. 17–65, figg., has a paper dealing with the relations of the orientation with the bilateral symmetry in frog-eggs.

E. Bataillon, C.R. Ac. Sci. cxxxiv, pp. 918–920, has made further experiments on parthenogenesis in frog-eggs.

T. H. Morgan & S. E. Davis, Arch. Entwickmech. xv, pp. 314–318, figg., write on the internal factors in the regeneration of the tail of Frog-tadpoles.

On the poison of the common toad, Phisalix & Bertrand, C.R. Ac. Sci. cxxxv, pp. 46–48, and C.R. Soc. Biol. liv, pp. 932–934.

Notes on the habits of some Russian Batrachians, W. A. Lindholm, Zool. Garten xliii, pp. 390–403.

Ranidæ.

Rana arvalis, Nilss. Notes on Russian specimens, Lindholm, Zool. Garten xliii, p. 392; *R. trinodis*, Bttgr. Note by Mocquard, Bull. Mus. Paris 1902, p. 416; *R. darlingi*, sp. n., Boulenger, P. Z. S. 1902, ii, p. 15, pl. iii, fig. 1, Mashonaland.

Trichobatrachus robustus, Blgr. Male figured, with notes, by Boulenger, P. Z. S. 1901, ii, p. 709, pl. xxxviii, fig. 1.

Gampsosteonyx batesii, Blgr. Remarks on the skeleton by Boulenger, t. c. p. 710, pl. xxxviii, fig. 2.

Limnodytes madagascariensis, A. Dum., referred to *Mantidactylus*, Blgr., by Mocquard, Bull. Soc. Philom. (9) iv, p. 17.

Mantidactylus albofrenatus, F. Müll. (*Rhacophorus melanopleurus*, Mocq.). Note by Mocquard, t. c. p. 18.

Rhacophorus viridis, Hallow., redescribed by A. E. Brown, P. Ac. Philad. 1902, p. 185; *R. brachychir*, Boettg. Note by Mocquard, Bull. Soc. Philom. (9) iv, p. 19; *R. miniatus* and *anceps*, spp. nn., id. t. c. pp. 19 & 20, pl. ii, fig. 1, Madagascar.

Rappia salinæ, Blanc. Note by Mocquard, Bull. Mus. Paris 1902, p. 406; *R. ferniquei* and *symetrica*, spp. nn., id. ibid. pp. 407 & 408, Brit. E. Africa.

Megalixalus boettgeri, sp. n., Mocquard, t. c. p. 21, pl. ii, fig. 2, Madagascar.

Hylambates ocellatus and *haugi*, spp. nn., Mocquard, t. c. p. 413, Gaboon.

Prostherapis bolivianus, sp. n., Boulenger, Ann. Nat. Hist. (7) x, p. 397, Andes of Bolivia.

Engystomatidæ.

Atelopus tricolor, sp. n., Boulenger, Ann. Nat. Hist. (7) x, p. 397, E. Peru.

Phryniscus monticola, p. 13, Andes of Chili, *formosus*, p. 15, Chili, *carbonarius*, p. 16, Chili, *pictus*, p. 18, Aculeo, *alacer*, p. 20, Andes of Chili, *sexmaculatus*, p. 22, Andes, Santiago, *asper*, p. 23, Andes of Chili, and *connectens*, p. 24, Montevideo, spp. nn., Philippi, Supl. Batr. Chilen. [Some of these species appear to be founded on young *Bufo spinulosus*, Wgm.—Rec.]

Microhyla undulata, sp. n., A. E. Brown, P. Ac. Philad. 1902, p. 186, Loo Choo Ids.

Heminectes, g. n. (*Engystomatidæ* ?), Philippi, Supl. Batr. Chilen. p. 8; *H. rufus*, sp. n., id. ibid. p. 10, Vichuquen, Chili.

Dyscophidæ.

Dyscophus alluaudi, Mocq., described and figured by Mocquard, Bull. Soc. Philom. (9) iv, p. 22, pl. ii, fig. 3; *D. beloensis*, sp. n., id. ibid. p. 23, Madagascar.

Mantipus hildebrandti, Ptrs. Note by Mocquard, t. c. p. 23.

Platyhyla verrucosa, sp. n., Mocquard, t. c. p. 24, pl. ii, fig. 5, Madagascar.

Cystignathidæ.

Telmatobius lævis and *montanus*, spp. nn., Philippi, Supl. Batr. Chilen. pp. 43 & 47, Andes of Chili.

Calyptocephalus ater, p. 151, *rufus*, p. 152, and *coxi*, p. 153, spp. nn., Philippi, op. cit., Chili.

Hylodes subsigillatus, sp. n., Boulenger, Ann. Nat. Hist. (7) ix, p. 52, N.W. Ecuador; *H. cruralis*, sp. n., id. op. cit. x, p. 396, Andes of Bolivia; *H. chonotica*, p. 54, I. Chonos, *melanogastra*, p. 56, Chiloe, *brevipes*, p. 58, Chiloe, *macromeros*, p. 59, Chili, *orientalis*, p. 61, Montevideo, *fitzingeri*, p. 62, Valdivia, *stenocephala*, p. 63, Concepcion, *cardioglossa*, p. 64, Chiloe, *granulatus*, p. 66, Chiloe, and *gracilis*, p. 67, Prov. Valdivia, spp. nn., Philippi, op. cit.

Ceratophrys araucanus, sp. n., Philippi, op. cit. p. 68, Andes of Chili.

Hylorhina andina and *longipes*, spp. nn., Philippi, op. cit. pp. 75 & 77, Prov. Valdivia, Chili.

Liuperus calcaratus, sp. n., Philippi, op. cit. p. 51, Montevideo.

Borborocoetes valdivianus, p. 80, Prov. Valdivia, *andinus*, p. 82, Prov. Cantin, *verrucosus*, p. 83, Prov. Cantin, *nigrita*, p. 88, Valdivia, *insularis*, p. 89, Mocha Id., and *tympanicus*, p. 106, Chili, spp. nn., Philippi, op. cit.

Cystignathus coeruleogriseus, p. 97, Valdivia, *granulatus*, p. 98, Andes of Santiago, *cinerascens*, p. 100, Prov. Valdivia, *zebra*, p. 101, Prov. Santiago, *vittatus*, p. 103, Araucania, *pallidus*, p. 104, Valdivia, *oxycephalus*, p. 105, Montevideo, *boedeckeri*, p. 109, Concepcion, *oxyglossus*, p. 110, Chiloe, *fernandezi*, p. 112, Chiloe, *oreophilus*, p. 117, Andes of Cantin, and *andinus*, p. 119, Andes of Chili, spp. nn., Philippi, op. cit.

Leptodactylus ventrimaculatus, sp. n., Boulenger, Ann. Nat. Hist. (7) ix, p. 53, N.W. Ecuador.

Alsodes bivittatus, sp. n., Philippi, op. cit. p. 122, Prov. Valdivia, Chile.

Paludicola, Wagl. *Hyperoodon asper*, sp. n., Philippi, op. cit. p. 1, Montevideo.

Pleurodema belli, p. 124, Prov. Valdivia, *pseudophryne*, p. 126, Chonos Id., *andina*, p. 127, Andes of Chili, *fusca*, p. 129, Valdivia, *coquimbensis*, p. 129, Coquimbo, *glandulosa*, p. 134, Concepcion, *andicola*, p. 135, Andes of Cantin, *plebeya*, p. 136, Coquimbo, *longipes*, p. 137, Valdivia, *carbonaria*, p. 138, Prov. Valdivia, *aspera*, p. 139, Prov. Aconcagua, *phryniscoides*, p. 140, Chili, *montevidensis*, p. 142, Montevideo, and *verrucosa*, p. 143, Prov. Valdivia, spp. nn., PHILIPPI, op. cit.

Ancudia, g. n., PHILIPPI, op. cit. p. 48; *A. concolor*, sp. n., id. ibid. p. 49, Chiloe, Chili.

BUFONIDÆ.

Bufo viridis, Laur. Notes on Russian specimen, LINDHOLM, Zool. Garten xliii, p. 394; *B. latifrons*, Blgr. = *B. regularis*, Reuss, MOCQUARD, Bull. Mus. Paris 1902, p. 417; *B. ockendeni*, sp. n., BOULENGER, Ann. Nat. Hist. (7) x, p. 396, Andes of Bolivia and Peru; *B. papillosus*, p. 30, Cantin, Andes of Patagonia, *venustus*, p. 32, Andes of Chili, *albigularis*, p. 32, Cantin, Andes of Patagonia, *chiragra*, p. 34, Cantin, and *trivittatus*, p. 38, Andes of Chili, spp. nn., PHILIPPI, Supl. Batr. Chilen.

Aruncus, g. n. (*Bufonidæ* ?), PHILIPPI, op. cit. p. 4; *A. valdivianus*, sp. n., id. ibid. p. 5, Valdivia, Chili.

Stenodactylus, g. n. (*Bufonidæ* ?), PHILIPPI, op. cit. p. 40; *S. ventralis*, sp. n., id. ibid. p. 39, Valdivia and Cantin, Andes of Chili and Patagonia.

HYLIDÆ.

Hyla arborea, L. On the Italian varieties, PARONA, Boll. Mus. Univ. Genova 1902, No. 117. *H. armata* and *callipleura*, spp. nn., BOULENGER, Ann. Nat. Hist. (7) x, p. 394, Andes of Bolivia.

Agalychnis calcarifer, sp. n., BOULENGER, op. cit. ix, p. 52, N.W. Ecuador.

Phyllomedusa boliviana, sp. n., BOULENGER, op. cit. x, p. 395, Andes of Bolivia.

PELOBATIDÆ.

Pelobates fuscus, Laur. Notes on Russian specimens, LINDHOLM, Zool. Garten xliii, p. 397.

Palæobatrachus gaudryi, sp. n. (foss.), L. M. VIDAL, Mem. Ac. Barcelona (3) iv, No. 18, p. 5, Kimmeridgian (?) of Montsech, N.E. Spain.

DACTYLETHRIDÆ.

Xenopus muelleri, Ptrs. Note by MOCQUARD, Bull. Mus. Paris 1902, p. 409.

CAUDATA.

W. WOLTERSTOFF, Die Tritonen der Gattung *Euproctus* (Stuttgart 1902), pp. 41–45, has prepared a synopsis of the Tailed Batrachians of S.W. Europe and N.W. Africa, and, Verh. v. Int. Zool. Congr. pp. 585–591, discusses the geographical distribution of the Tailed Batrachians in the Old World.

G. Osawa, Mitth. Med. Fac. Univ. Tokio v, pp. 221–427, pls. xi–liv, gives an account of the anatomy of *Cryptobranchus maximus*, with a full bibliography of the subject.

J. S. Kingsley, Tufts Coll. Stud. No. 7, pp. 293–321, pls. i–iii, writes on the cranial nerves of *Amphiuma*.

E. Holmgren, Arch. mikr. Anat. lx, pp. 669–680, figg., pl. xxxiv, has further observations on the nerve-cells and gland-cell of the pancreas in *Salamandra maculosa*.

C. K. Hoffmann, Verh. Ak. Amsterdam (2) viii, No. 3, 101 pp., 4 pls., has studied the development of the sympathetic nerve in Tailed Batrachians.

A. Schaper, Anat. Anz. xxii, pp. 65–82, figg., pls. iii & iv, writes on the contractile fibrils in the smooth muscles of the mesentery in tailed Batrachians.

G. Buchs, Morphol. Jahrb. xxix, pp. 582–613, pls. xxvi–xxviii, writes on the early development of the skull in *Necturus*.

A. C. Eycleshymer, Anat. Anz. xxi, pp. 341–353, figg., has made observations on the formation of the embryo of *Necturus*.

W. Lubosch, Jena. Zeitschr. (2) xxx, pp. 217–296, pls. xii–xvi, has a paper on the maturation of the egg of Newts.

H. Lebrun, Biol. Bull. iii, pp. 1 & 2, has a note on the maturation of the eggs of *Molge torosa*.

H. Spemann, Arch. Entwickmech. xv, pp. 448–534, figg., has a second paper on embryologico-physiological studies on the egg of *Molge*.

J. A. Janssens, Anat. Anz. xxi, pp. 129–138, figg., remarks on spermatogenesis in Newts.

Molge viridescens, Raf. On the pits on the side of the head and their possible function, Hilton, Amer. Natural. xxxvi, pp. 643–651, figg.

M. alpestris, Laur., var. n. *reiseri*, Werner, Verh. Ges. Wien lii, p. 7, Bosnia.

Euproctus, Gené. On their habits in captivity, Wolterstorff, Die Tritonen der Gattung *Euproctus*, p. 19.

Plethodon cinereus, Green. On the development, Montgomery, P. Ac. Philad. 1901, p. 503, pl. xxx.

Spelerpes variegatus, Gray, and *bocourti*, Brocchi, figured by Günther, Biol. Centr.-Amer., Rept., pl. lxxv, and pl. lxxvi, fig. 1.

APODA.

J. S. Kingsley, Tufts Coll. Stud., No. 7, pp. 323–342, figg., discusses the systematic position of the Cæcilians.

V. Hinsberg, Arch. mikr. Anat. lx, pp. 369–385, pl. xix, has investigated the development of the nasal cavity in the Cæcilians.

A. Brauer, Zool. Jahrb. Anat. xvi, pp. 1–176, figg., pls. i–xx, deals with the development of the excretory organs, especially in *Hypogeophis*.

Cæcilia nigricans, sp. n., Boulenger, Ann. Nat. Hist. (7) ix, p. 51, N.W. Ecuador; *C. thompsoni*, sp. n., id. op. cit. x, p. 152, Andes of Colombia.

Rhinatrema peruvianum, sp. n., Boulenger, op. cit. x, p. 153, E. Peru.

Dermophis gracilior, sp. n., Günther, Biol. Centr.-Amer., Rept. p. 306, pl. lxxvi, fig. 2, Panama.

STEGOCEPHALIA.

Gephyrostegus bohemicus, g. & sp. nn., intermediate between Stegocephala and Reptiles. JAEKEL, Zeitschr. Deutsch. geol. Ges. liv, Protok. p. 127, figg., Lower Permian or Upper Carboniferous of Nürschau, Bohemia.

Diplocaulus, Cope, type of a new family, *Diplocaulidæ*, referred to the Lepospondyli of Zittel, BROILI, Centrbl. Mineral. 1902, p. 536, figg.

Labyrinthodon. On a piece of jaw from the Trias of Teinach, Wurttemberg, E. FRAAS, Jahresh. Ver. Wurttemb. lvii, 1901, p. 318, figg.

Scapherpeton tectum, Cope. On vertebræ, LAMBE, Contr. Canad. Pal. iii, p. 31, pl. iii, figg. 4–8.

V. PISCES.

BY

G. A. Boulenger, F.R.S.

CONTENTS.

	Page
I. Titles	1
II. General Subject	17
III. Faunæ	17
IV. Palæontology	20
V. References arranged systematically	
Teleostomi	21
Teleostei	21
Plectognathi	22
Pediculati	22
Tæniosomi	22
Opisthomi	23
Acanthopterygii	23
Anacanthini	32
Percesoces	32
Catosteomi	34
Haplomi	34
Apodes	35
Systematic (*continued*).	
Ostariophysi	36
Malacopterygii	39
Incertæ Sedis	41
Ganoidei	41
Holostei	41
Chondrostei	42
Crossopterygii	42
Dipneusti	42
Ostracophori	43
Chondropterygii	43
Holocephali	43
Plagiostomi	43
Acanthodii	46
Ichthyotomi	46
Incertæ Sedis	46
Cyclostomi	46
Leptocardii	47

I. TITLES.*

Aflalo, F. G., Bickerdyke, J., Maxwell, Sir H., & Pycraft, W. P. Fishes. Living Animals of the World ii, pp. 609–669, col. pl. and photos.

Albert, F. La introduccion de los Salmones. Mem. Soc. Chili xii, pp. 1–54, figg.

Alcock, A. A Naturalist in Indian Seas. Or, four years with the Royal Indian Marine Survey Ship "Investigator." London, 1902, 8vo, xxiv & 328 pp., figg.

* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

ALLEN, E. J. & TODD, R. A. The Fauna of the Exe Estuary. J. Mar. Biol. Ass. (2) vi, pp. 295–335.

ARNOLD, J. Ueber die Fischnahrung in den Binnengewässern. Verh. v. Int. Zool. Congr., pp. 553–566, figg.

*BADE, E. Die Mitteleuropäischen Süsswasserfische. Vol. ii. Berlin, 1902, 8vo, 176 pp., 32 pls.

BARRETT-HAMILTON, G. E. H. Investigations upon the life-history of Salmon, and their bearing on the phenomena of nuptial and sexual ornamentation and development in the Animal Kingdom generally. Ann. Nat. Hist. (7) ix, pp. 106–120.

BARTON, J. K. Notes on the digestive tract of Salmon and Sea Trout kelts from River Tweed, January to May 1901. Rep. Fish. Board Scotland xx, Pt ii, pp. 101–110, 9 pls.

——. The Digestive tract in Kelts. J. Anat. Physiol. norm. path. (2) xvi, pp. 142–146, pls. viii & ix.

BEAN, B. A. A rare "Whale Shark." Science (2) xv, p. 353.

BEAN, T. H. The Fishes of Long Island, with notes upon their distribution, common names, habits, and rate of growth. Ann. Rep. Forest, Fish, and Game Comm. State of New York, 1901 (1902), 478 pp.

BEARD, J. The Germ-cells of *Pristiurus*. Anat. Anz. xxi, pp. 50–61.

——. The Germ-cells. Part I, *Raia batis*. Zool. Jahrb. Anat. xvi, pp. 615–702, pls. xliii & xliv.

——. The origin and histogenesis of the Thymus in *Raia batis*. Op. cit. xvii, pp. 403–480, figg., pls. v–x.

BERLINER, K. Die Entwicklung des Geruchsorganes der Selachier. Arch. mikr. Anat. lx, pp. 386–406, figg., pl. xx.

BIRD, M. C. H. A Question of Coloration. Zoologist (4) vi, pp. 150 & 151.

BJELOOUSSOW, N. On respiratory movements in Fishes. [Russian text.] Tradui Kharkov Univ. xxxv, 1901, pp. 1–38.

BOEKE, J. On the infundibular region of the brain of *Amphioxus lanceolatus*. P. Ak. Amsterdam iv, pp. 695–698, figg.

——. On the structure of the light-percepting cells in the spinal cord, on the neurofibrillæ in the ganglion cells, and on the innervation of the striped muscles in *Amphioxus lanceolatus*. Op. cit. v, pp. 350–358, pl. —.

——. Ueber das Homologon des Infundibularorganes bei *Amphioxus lanceolatus*. Anat. Anz. xxi, pp. 411–414, figg.

BORSIERI, CLEMENTINA. Sulla specie europee del genere *Atherina*. Zool. Anz. xxv, pp. 597–600.

BOTTAZZI, F. Contribution à la connaissance de la coagulation du sang de quelques animaux marins et des moyens pour l'empêcher. Arch. ital. Biol. xxxvii, pp. 49–63.

BOULENGER, G. A. *Pisces*. In Report on the Collections of Natural History made in the Antarctic Regions during the Voyage of the "Southern Cross." London, 1902, 8vo, pp. 174–189, pls. xi–xviii.

——. Additions à la Faune ichthyologique du Bassin du Congo. Ann. Mus. Congo Zool. ii, pp. 19–57, pls. vii–xvi.

[Boulenger, G. A.] List of the cold-blooded Vertebrates hitherto recorded from the Uganda Protectorate. In Sir H. Johnston, Uganda Protectorate (London, 1902, 8vo), i, pp. 445–449.

——. Fishes. Victoria History of the Counties of England: Hertfordshire, i, pp. 189 & 190.

——. Fishes. Op. cit. Surrey, i, pp. 198 & 199.

——. Fishes. Op. cit. Northamptonshire, i, pp. 108 & 109.

——. Descriptions of two new Fishes discovered by Dr W. J. Ansorge in Southern Nigeria. P. Z. S. 1901, ii, pp. 623 & 624, pl. xxxvii.

——. On some characters distinguishing the young of various species of *Polypterus*. Op. cit. 1902, i, pp. 121–125, pls. x & xi.

——. Contributions to the Ichthyology of the Congo. I. On some new Fishes from the French Congo. T. c. pp. 234–237, pls. xxii–xxiv.

——. Contributions to the Ichthyology of the Congo. II. On a collection of Fishes from the Lindi River. T. c. pp. 265–271, pls. xxviii–xxx.

——. A list of the Fishes, Batrachians, and Reptiles collected by Mr J. ffolliott Darling in Mashonaland, with descriptions of new species. Op. cit. 1902, ii, pp. 13–18, pls. ii–iv.

——. On the Fishes collected by Mr S. L. Hinde in the Kenya District, East Africa, with descriptions of four new species. T. c. pp. 221–224, pls. xvi & xvii.

——. Descriptions of two new Fishes of the genus *Loricaria* from north-western Ecuador. Ann. Nat. Hist. (7) ix, pp. 69–71.

——. Descriptions of two new Cyprinid Fishes from Morocco. T. c. pp. 123 & 124.

——. Description of a new Characinid Fish discovered by Dr W. J. Ansorge in Southern Nigeria. T. c. pp. 144 & 145, pl. iii.

——. Notes on the Classification of Teleostean Fishes. II. On the *Berycidæ*. T. c. pp. 197–204.

——. Descriptions of new Fishes and Reptiles discovered by Dr F. Silvestri in South America. T. c. pp. 284–288.

——. Description of a new *Barbus* from Natal. T. c. pp. 288 & 289.

——. Description of a new Deep-sea Gadid Fish from South Africa. T. c. pp. 335 & 336, fig.

——. List of the Fishes, Batrachians and Reptiles collected by the late Mr P. O. Simons in the Provinces of Mendoza and Cordova, Argentina. T. c. pp. 336–339.

——. Description of a new South-African Galeid Selachian. Op. cit. x, pp. 51 & 52, pl. iv.

——. Further remarks on the Carboniferous Ganoid, *Benedenius deneensis*, Traquair. T. c. pp. 52 & 53.

——. Diagnoses of new Cichlid Fishes discovered by Mr J. E. S. Moore in Lake Nyassa. T. c. pp. 69–71.

——. Notes on the Classification of Teleostean Fishes. III. On the systematic position of the genus *Lampris*, and on the limits and contents of the Suborder *Catosteomi*. T. c. pp. 147–152, fig.

[Boulenger, G. A.] Description of a new Cyprinodontid Fish from Eastern Peru. T. c. pp. 153 & 154.

——. List of the Fishes collected by Mr W. L. S. Loat at Gondokoro. T. c. pp. 260–264.

——. Notes on the Classification of Teleostean Fishes. iv. On the Systematic position of the *Pleuronectidæ*. T. c. pp. 295–304, fig.

——. On the genus *Ateleopus* of Schlegel. T. c. pp. 402 & 403, fig.

——. Descriptions of new Fishes from the collection made by Mr E. Degen in Abyssinia. T. c. pp. 421–439.

——. The explanation of a remarkable case of geographical distribution among Fishes. Nature lxvi, p. 84.

——. On some deep-sea Fishes collected by Mr F. W. Townsend in the Sea of Oman. J. Bombay Soc. xiv, pp. 372–374, pl. —.

Brauer, A. Ueber einige von der Valdivia-Expedition gesammelte Tiefseefische und ihre Augen. SB. Ges. Marburg 1901, pp. 115–130, figg.

——. Ueber den Bau der Augen einiger Tiefseefische. Verh. Deutsch. zool. Ges. xii, pp. 42–57, figg.

——. Diagnosen von neuen Tiefseefischen welche von der Valdivia-Expedition gesammelt sind. Zool. Anz. xxv, pp. 277–298.

Briot, A. Sur l'action du venin de la Vive (*Trachinus draco*). C.R. Soc. Biol. liv, pp. 1169–1171, 1197 & 1198.

Brusina, N. S. Naše jesetre. Rad Jugoslav. Ak. cxlix, pp. 1–69, pl. i.

Budgett, J. S. On the structure of the larval *Polypterus*. Tr. Zool. Soc. London xvi, pp. 315–340, pls. xxxiii–xxxv.

——. On the Anatomy of the larval *Polypterus*. Rep. Brit. Ass. 1901, p. 693.

Bühler, A. Rückbildung der Eifollikel bei Wirbelthieren. i. Fische. Morphol. Jahrb. xxx, pp. 377–452, figg., pls. vi & vii.

Bund, J. W. W. The Migration of the Salmon as affected by the changed condition of the River Severn. Verh. v. Int. Zool. Congr., pp. 986–989.

Byrne, L. W. On *Lepidogaster stictopteryx*. P. Z. S. 1902, i, p. 102.

——. Notes on the Young of *Blennius galerita* L. J. Mar. Biol. Ass. (2) vi, pp. 383–386.

——. On the number and arrangement of the Bony plates of the young John Dory. Biometrika ii, pp. 115–120, pl. i.

Calderwood, W. L. A contribution to the life-history of the Salmon, as observed by means of marking adult fish. Rep. Fish. Board Scotland xx, Pt ii, pp. 55–100.

Catois, E. H. Recherches sur l'histologie et l'anatomie microscopique de l'encéphale chez les Poissons. Bull. Sci. France Belgique xxxvi, pp. 1–166, pls. i–x.

Cavalié, M. Sur les terminaisons nerveuses motrices et sensitives dans les muscles striés, chez la Torpille (*Torpedo marmorata*). C.R. Soc. Biol. liv, pp. 1279 & 1280.

Coggi, A. Sviluppo degli organi di senso laterale, delle ampolle di Lorenzini e loro nervi rispettivi in *Torpedo*. Archivio Zoologico i, pp. 59–107, pls. iii & iv.

COLE, F. J. The Morphology of the Pleuronectidæ. Nature lxv, p. 585.

COLLETT, R. Meddelelser om Norges Fiske in Aarene 1884–1901 (3die Hoved-Supplement til "Norges Fiske"), I. Forh. Selsk. Christian. 1902, No. 1, 121 pp.

CONTE, A. & VANEY, C. Sur la distribution géographique de quelques formes marines et leur adaptation aux eaux douces. C.R. Soc. Biol. liv, pp. 47 & 48.

COUTIÈRE, H. M. Sur la non-existence d'un appareil à venin chez la Murène Hélène. C.R. Soc. Biol. liv, pp. 787 & 788.

COUVREUR, E. Sur le mécanisme respiratoire de la Torpille. C.R. Soc. Biol. liv, pp. 1252 & 1253.

CUNNINGHAM, J. T. The Morphology of Pleuronectidæ. Nature lxv, p. 511.

——. Habits of the Gar-fish and Mackerel. T. c. p. 586.

DAHL, K. Ørret og unglaks samt lovgivningens forhold til dem. Christiania : 1902, 8vo, 52 pp., 3 pls.

DE ALESSANDRI, G. Note d' Ittiologia fossile. Atti Mus. Milano xli, pp. 443–462, pl. xii.

DEAN, B. Historical evidence as to the origin of the paired limbs of Vertebrates. Amer. Natural. xxxvi, pp. 767–776, fig.

——. Biometric evidence in the problem of the paired limbs of the Vertebrates. T. c. pp. 837–847, figg.

——. The preservation of muscle-fibres in Sharks of the Cleveland Shale. Amer. Geol. xxx, pp. 273–278, pl. ix.

DELFIN, F. T. Catalogo de los Peces de Chile. Revist. chilena iv, 1900. [Quoted from separate copy.]

DENDY, A. On a pair of ciliated grooves in the brain of the Ammocoete, apparently serving to promote the circulation of the fluid in the brain-cavity. P. R. Soc. London lxix, pp. 485–494, figg., and Zool. Anz. xxv, pp. 511–519, figg.

—— & OLLIVER, MARGARET F. On the New Zealand Lamprey. Tr. N. Zealand Inst. xxxiv, pp. 147–149.

DESCÖ, B. VON. Ueber die künstlichen und natürlichen Ursachen der Veränderungen der Fischfauna und der Verminderung der Fische im Hernádflusse Ober-Ungarns. Verh. v. Int. Zool. Congr., pp. 567–578.

DESTINEZ, P. *Ctenacanthus tenuistriatus* Ag., dans le Calcaire carbonifère de Visé. Bull. Soc. geol. Belgique xxix, pp. 108–110.

DOHRN, A. Studien zur Urgeschichte des Wirbelthierkörpers. 22. Weitere Beiträge zur Beurtheilung der Occipitalregion und der Ganglienleiste der Selachier. Mt. Stat. Neapel xv, pp. 555–654, pls. xxiv–xxx.

DUGÈS, A. *Gambusia infans* Woolman. Mem. Soc. Ant. Alzate xvii, pp. 121–123, pl. v.

EASTMAN, C. R. Some Carboniferous Cestraciont and Acanthodian Sharks. Bull. Mus. Harvard xxxix, pp. 55–99, figg., pls. i–vii.

——. Notice of interesting new forms of Carboniferous Fish remains. Amer. Natural. xxxvi, pp. 849–854.

——. The Carboniferous Fish-fauna of Mazon Creek, Illinois. J. Geol. x, pp. 535–541, figg.

[EASTMAN, C. R.] On *Campyloprion*, a new form of *Edestus*-like dentition. Geol. Mag. (iv) ix, pp. 148–152, figg., pl. viii.

——. On the genus *Peripristis* St John. T. c. pp. 388–391, figg.

EDGEWORTH, F. H. The development of the head muscles in *Scyllium canicula*. J. Anat. Physiol. norm. path. (2) xvii, pp. 73–86, pls. iv–x.

EIGENMANN, C. H. Description of a new Oceanic Fish found off Southern New England. Bull. U. S. Fish Comm. xxi, pp. 35 & 36, fig.

——. The egg and development of the Conger Eel. T. c. pp. 37–44, figg.

——. Investigations into the history of the young Squeteague. T. c. pp. 46–51, figg.

——. The Solution of the Eel Question. Tr. Amer. Micr. Soc. xxiv, pp. 5–18, pls. i–iv.

——. The History of the Eye of *Amblyopsis*. P. Indiana Ac. 1901, pp. 101–105.

—— & KENNEDY, C. H. The Leptocephalus of the American Eel. Bull. U. S. Fish Comm. xxi, pp. 81–92, figg.

EVERMANN, B. W. Description of a new species of Shad (*Alosa ohiensis*), with notes on other food-fishes of the Ohio River. Rep. U. S. Fish. Comm. f. 1901, pp. 273–288, figg.

——. List of species of Fishes known to occur in the Great Lakes and their connecting waters. Bull. U. S. Fish Comm. xxi, pp. 95 & 96.

—— & GOLDSBOROUGH, E. L. Notes on the Fishes and Mollusks of Lake Chautauqua, New York. Rep. U. S. Fish. Comm. f. 1901, pp. 169–175.

—— & ——. A report on Fishes collected in Mexico and Central America, with notes and descriptions of five new species. Bull. U. S. Fish Comm. xxi, pp. 137–159, figg.

—— & KENDALL, W. C. Notes on the Fishes of Lake Ontario. Rep. U. S. Fish. Comm. f. 1901, pp. 209–216.

—— & ——. An annotated list of the Fishes known to occur in Lake Champlain and its tributary waters. T. c. pp. 217–225.

—— & ——. An annotated list of the Fishes known to occur in the St Lawrence River. T. c. pp. 227–240.

—— & MARSH, M. C. The Fishes of Porto Rico. Bull. U. S. Fish Comm. xx, pp. 51–350, figg., pls. i–xlix.

FATIO, V. A propos du *Coregonus macrophthalmus* de Nüsslin. Arch. Sci. Nat. (4) xiv, pp. 433–441.

FAUSSEK, V. Beiträge zur Histologie der Kiemen bei Fischen und Amphibien. Arch. mikr. Anat. lx, pp. 157–174, pl. ix.

FOWLER, H. W. *Myctophum phengodes* in the North Atlantic. P. Ac. Philad. 1901, pp. 620 & 621.

FRITSCH, A. & BAYER, F. Nové Ryby Českého útvarn Křédového. Ceska Ak. Praze, 4to, ii, 18 pp., 3 pls.

FRITSCH, G. Färbung und Zeichnung bei elektrischen Fischen. Verh. v. Int. Zool. Congr., pp. 643–647.

FULTON, J. W. Report on the trawling experiments of the "Garland," and on the Fishery statistics relating thereto. Rep. Fish. Board Scotland xx, Pt iii, pp. 17–72.

——. Rate of growth of Sea Fishes. T. c. pp. 326–439, pls. xiv–xxi.

[FULTON, J. W.] Ichthyological Notes. T. c. pp. 539–541.

*GALASSO, F. Anatomia macroscopica e microscopica della mucosa palatina di *Muræna helena*, con speciale riguardo alla questione dell' apparecchio velenifero. Catanzaro, 1901, 8vo, 34 pp., 3 pls.

GASKELL, W. H. The origin of Vertebrates, deduced from the study of *Ammocœtes*. Part x. On the origin of the auditory organ; the meaning of the VIIIth Cranial nerve; together with a consideration of the origin of the cranial nerves as a whole, in accordance with the principles laid down in Part I. J. Anat. Physiol. norm. path. (2) xvi, pp. 164–208, figg.

GIACOMINI, E. Contributo alla conoscenza delle capsule surrenali nei Ciclostomi. Sulle capsule surrenali dei Petromizonti. Monit. Zool. ital. xiii, pp. 143–162, pls. ii & iii.

——. Sulla esistenza della sostanza midollare nelle capsule surrenali dei Teleostei. T. c. pp. 183–189.

GILCHRIST, J. D. F. Catalogue of Fishes recorded from South Africa. Cape Town, 1902, 8vo, 179 pp.

——. South African Fishes. Marine Invest. S. Afr. ii, pp. 101–113, pls. vi–x.

——. History of the local names of Cape Fish. Tr. S. African Soc. xi, pp. 207–232.

GILL, T. The Whale-Shark (*Rhinodon typicus*) as an American Fish. Science (2) xv, pp. 824–826.

GOODRICH, E. S. On the excretory organs of *Amphioxus*. P. R. Soc. London lxix, pp. 350 & 351.

——. On the Structure of the excretory organs of *Amphioxus*. Quart. J. Micr. Sci. xlv, pp. 493–501, fig., pl. xxvii.

GORDON, W. J. Our Country's Fishes and how to know them. London, 1902, 8vo, 152 pp., figg., 32 pls.

GREEN, E. H. & TOWER, R. W. The organic constituents of the scales of Fish. Bull. U. S. Fish Comm. xxi, pp. 97–102.

GREENE, C. W. Contributions to the physiology of the California Hag-fish, *Polistotrema stouti*. II. The absence of regulative nerves for the systemic heat. Amer. J. Physiol. vi, pp. 318–324.

GREYNFELTT, E. Vascularisation des corps surrénaux chez les *Scyllium*. C.R. Ac. Sci. cxxxiv, pp. 362–364.

——. Distribution des corps suprarénaux des Plagiostomes. Op. cit. cxxxv, pp. 330–332.

GÜNTHER, A. Ichthyology. Encyclop. Britann. xxix, pp. 394–400, figg.

——. Third Notice of new species of Fishes from Morocco. Nov. Zool. ix, pp. 446–448, pls. xxii & xxiii.

*GURLEY, R. R. The habits of Fishes. Amer. J. Psychology xiii, pp. 408–425.

HAGMANN, G. Weiterer Beitrag zu *Acanthicus hystrix* aus dem unteren Amazonas. Zool. Anz. xxv, pp. 414–421, figg.

HAMILTON, A. Notice of an Electric Ray new to the Fauna of New Zealand, belonging to the genus *Astrape*. Tr. N. Zealand Inst. xxxiv, pp. 224–226, pls. x–xii.

HARVIE-BROWN, J. A. Notes on Salmonidæ. Ann. Scott. Nat. Hist. 1902, pp. 14–21.

HAY, O. P. Bibliography and Catalogue of the Fossil Vertebrata of North America. Bull. U. S. Geol. Surv., No. 179, 868 pp.

——. The Chronological Distribution of the Elasmobranchs. Tr. Amer. phil. Soc. (2) xx, 1901, pp. 63–75.

——. Description of a new species of *Cladodus* (*C. formosus*) from the Devonian of Colorado. Amer. Geol. xxx, pp. 373 & 374, fig.

HECTOR, J. Notes on New Zealand Fishes. Tr. N. Zealand Inst. xxxiv, pp. 239–241, pls. xiv & xv.

——. Remarks on New Zealand Fishes, and on a collection of drawings of native Fish by the late F. E. Clarke. T. c. pp. 563 & 564.

HELBING, H. Beiträge zur Anatomie und Systematik der Lämargiden. Anat. Anz. xxi, pp. 658–668.

HERDMAN, W. A. & DAWSON, R. A. Fishes and Fisheries of the Irish Sea. London, 1902, 4to, 98 pp.

HILGENDORF, F. Neue Chromiden-Art aus Deutsch Südwestafrika. SB. Ges. naturf. Berlin 1902, pp. 141–143.

HOWES, G. B. The morphological Method and Progress. Nature lxvi, pp. 522–530.

HUOT, A. Recherches sur les Poissons Lophobranches. Ann. Sci. Nat. (8) xiv, pp. 197–288, pls. xxi–xxvi.

HUTTON, C. F. W. On the occurrence of *Alepisaurus ferox* on the coast of New Zealand. Tr. N. Zealand Inst. xxxiv, p. 197.

——. On a marine *Galaxias* from the Auckland Islands. T. c. pp. 198 & 199.

JAEKEL, O. Ueber *Coccosteus* und die Beurtheilung der Placodermen. SB. Ges. naturf. Berlin 1902, pp. 103–115, pl. —.

——. Die Zusammenstellung des Schultergürtels. Verh. v. Int. Zool. Congr., pp. 610–612, figg.

JAQUETT, M. Étude du squelette céphalique d'une "Carpe dauphin." Bull. Soc. Bucarest x, pp. 544–557, pls. i & ii.

——. Recherches sur l'anatomie et l'histologie du *Silurus glanis*. Système digestif. T. c. pp. 558–568, pl. iii.

JENKINS, J. T. Altersbestimmung durch Otolithen bei den Clupeiden. Wiss. Meeresuntersuch. (2) vi, Kiel, pp. 81–121, figg., 1 pl.

JENSEN, A. S. Ichthyologiske Studier. Vid. Medd. f. 1901, pp. 191–215.

JOHNSTON, J. B. The homology of the Selachian ampullæ. A note on Allis' recent paper on *Mustelus lævis*. Anat. Anz. xxi, pp. 308–313.

JORDAN, D. S. The Salmon and Trout of Japan. Annot. zool. Japon. iv, pp. 69–75.

——. The colors of Fishes. Amer. Natural. xxxvi, pp. 803–808.

——. The History of Ichthyology. Science (2) xvi, pp. 241–258.

——. A point in Nomenclature. T. c. p. 870.

[JORDAN, D. S.] & EVERMANN, B. W. American Food and Game Fishes. A popular account of all the species found in America North of the Equator, with keys for ready identification, life histories, and methods of capture. London, 1902, 8vo, l + 573 pp., figg., col. plates and photographs. Also published in New York, 1902.

—— & ——. Preliminary report on an investigation of the Fishes and Fisheries of the Hawaiian Islands. Rep. U. S. Fish. Comm. f. 1901, pp. 353–380.

—— & ——. Notes on a collection of Fishes from the Island of Formosa. P. U. S. Mus. xxv, pp. 315–368, figg.

—— & FOWLER, H. W. A review of the Oplegnathoid Fishes of Japan. P. U. S. Mus. xxv, pp. 75–78.

—— & ——. A review of the Trigger-fishes, File-fishes, and Trunk-fishes of Japan. T. c. pp. 251–286, figg.

—— & ——. A review of the Cling-fishes (*Gobiesocidæ*) of the waters of Japan. T. c. pp. 413–415, fig,

—— & ——. A review of the *Chætodontidæ* and related families of Fishes found in the waters of Japan. T. c. pp. 513–563, figg.

—— & ——. Notes on little-known Japanese Fishes, with description of a new species of *Aboma*. T. c. pp. 573–576, fig.

—— & ——. A review of the Ophidioid Fishes of Japan. T. c. pp. 743–766, figg.

—— & ——. A review of the Berycoid Fishes of Japan. Op. cit. xxvi, pp. 1–21, figg.

—— & SINDO, M. A review of the Japanese species of Surf-fishes or Embiotocidæ. P. U. S. Mus. xxiv, pp. 353–359, figg.

—— & ——. A review of the Pediculate Fishes or Anglers of Japan. T. c. pp. 361–381, figg.

—— & SNYDER, J. O. A review of the Discobolous Fishes of Japan. P. U. S. Mus. xxiv, pp. 343–351, figg.

—— & ——. A review of the Trachinoid Fishes and their supposed allies found in the waters of Japan. T. c. pp. 461–497, figg.

—— & ——. A review of the Salmonoid Fishes of Japan. T. c. pp. 567–593, figg.

—— & ——. A review of the Labroid Fishes and related forms found in the waters of Japan. T. c. pp. 595–662, figg.

—— & ——. Descriptions of two new species of Squaloid Sharks from Japan. Op. cit. xxv, pp. 79–81, figg.

—— & ——. A review of the Blennoid Fishes of Japan. T. c. pp. 441–504, figg.

—— & ——. On certain species of Fishes confused with *Bryostemma polyactocephalum*. T. c. pp. 613–618, figg.

—— & STARKS, E. C. A review of the Hemibranchiate Fishes of Japan. P. U. S. Mus. xxvi, pp. 57–73, figg.

KATURIĆ, N. M. *Lampris luna* Linn. Rad Jugoslav. Ak. cxlix, pp. 89–92.

KENDALL, W. C. Notes on the Silversides of the genus *Menidia* of the East Coast of the United States, with descriptions of two new Subspecies. Rep. U. S. Fish. Comm. f. 1901, pp. 241–267, figg.

KERR, J. G. On the male genito-urinary organs of the *Lepidosiren* and *Protopterus*. P. Z. S. 1901, ii, pp. 484–498, figg., pls. xxvii & xxviii.

——. The Development of *Lepidosiren paradoxa*. Part III. Development of the skin and its derivatives. Quart. J. Micr. Sci. xlvi, pp. 417–459, figg., pls. xxv–xxix.

——. The Genito-urinary Organs of Dipnoan Fishes. P. Cambridge Soc. xi, pp. 329–333.

——. The Origin of the Paired limbs of Vertebrates. Rep. Brit. Ass. 1901, pp. 693–695.

KERSHAW, J. A. Notes on a rare Victorian Shark. Victorian Natural. xix, pp. 62–66, 2 pls.

KOLOMBATOVIĆ, G. Contribuzioni alla fauna dei Vertebrati della Dalmatia. Glasnik Naravosl. druzt. xiii, pp. 22–37, pl. —.

KOLSTER, R. Studien über das Centrale Nervensystem. II. Zur Kenntniss der Nervenzellen von *Petromyzon fluviatilis*. Acta Soc. Sci. Fenn. xxix, No. 2, 93 pp., 6 pls.

KOLTZOFF, N. K. Entwickelungsgeschichte des Kopfes von *Petromyzon planeri*. Bull. Soc. Moscou 1901, pp. 259–589.

*——. The development of the head of *Petromyzon*. [Russian text.] Inaug.-Dissert. Moscow 1901, 8vo, 395 pp.

KOPSCH, F. Ueber die künstliche Befruchtung der Eier von *Cristiceps argentatus*. SB. Ges. naturf. Berlin 1902, pp. 33–36.

KYLE, H. M. On the action of the Spurge (*Euphorbia hiberna* L.) on Salmonoid Fishes. P. R. Soc. London lxx, pp. 48–66.

LAGUESSE, E. Sur la structure du pancréas chez le *Galeus canis*. Bibliog. anat. x, pp. 260–272, figg.

LAMB, A. B. The development of the eye muscles in *Acanthias*. Tufts Coll. Stud. No. 7, pp. 275–292, figg.

LAMBE, L. M. New Genera and species from the Belly River Series (Mid-Cretaceous). Contr. Canad. Pal. iii, pp. 25–81, pls. i–xxi.

LEGROS, R. Contribution à l'étude de l'appareil vasculaire de l'Amphioxus. Circulation des parois du corps. Mt. Stat. Neapel xv, pp. 487–554, pls. xx–xxiii.

LERICHE, M. Les Poissons paléocènes de la Belgique. Mem. Mus. Belgique ii, pp. 1–48, pls. i–iii.

——. Sur quelques éléments nouveaux pour la faune ichthyologique du Montien inférieur du Bassin de Paris. Ann. Soc. geol. Nord xxx, 1901, pp. 153–161, pl. v.

——. Sur deux Pycnodontidés des terrains secondaires du Boulonnais. T. c. pp. 161–165.

——. Contribution à l'Étude des Siluridés fossiles. T. c. pp. 165–175.

——. Revision de la faune ichthyologique des terrains crétacés du Nord de la France. Op. cit. xxxi, pp. 87–154, pls. ii–v.

LEYDIG, F. Bemerkungen zu den "Leuchtorganen" der Selachier. Anat. Anz. xxii, pp. 297–301.

LÖNNBERG, E. Bronn's Klassen und Ordnungen des Thier-Reichs. VI. 1. Pisces (Fische). Lief. 2 & 3, pp. 49–160, pls. i–vi, Leipzig, 8vo.

——. Undersökningar rörande Skeldervikens och Angränsande Kattegat-Områdes Djurlif. Meddel. Landtbruksstyrelsen 1902, No. 2, 81 pp.

LUTHER, A. Ueber *Bliccopsis erythrophthalmoides* Jäckel. Medd. Soc. Faun. Fenn. xxvii, 1901, pp. 12–15, fig.

MARCEAU, E. Note sur la structure du cœur chez les Vertébrés inférieurs. C.R. Soc. Biol. liv, pp. 981–984.

MARIANI, E. Si alcune Ittiodorutili della Creta Lombarda. Atti Mus. Milano xli, pp. 437–441, fig.

MAZZA, F. La *Lebias calaritana* Bon. Segmentazione dell' uova e stadi successivi di sviluppo. Atti Soc. Ligustica xiii, pp. 181–224, pls. ix–xi.

MCINTOSH, W. C. Notes from the Gatty Marine Laboratory, St Andrews. No. XXII. Ann. Nat. Hist. (7) ix, pp. 291–308.

MEDIČ, M. Druga kolo ihtioloških bilježaka. Rad Jugoslav. Ak. cxlvii, 1901, pp. 138–191, pls. i–vi.

MEEK, S. E. A contribution to the Ichthyology of Mexico. Field Mus. Zool. iii, pp. 63–128, pls. xiv–xxxi.

——. Notes on a collection of cold-blooded Vertebrates from Ontario. T. c. pp. 131–140.

MENCL, E. Einige Bemerkungen zur Histologie des elektrischen Lappens bei *Torpedo marmorata*. Arch. mikr. Anat. lx, pp. 181–189, figg., pl. x.

——. Contribution to the histology of the electric centrum of *Torpedo marmorata*. [Bohemian text.] SB. Bohmisch. Ges. 1901, No. xx, 15 pp., 1 pl.

MENMUIR, W. H. The Teeth of Fishes contrasted with those of other orders. Tr. Edinb. Field Soc. iv, pp. 272–277.

MOCQUARD, F. Quelques essais de pisciculture en eau douce. Bull. Soc. Centr. Aquicult. et Pêche 1902, 19 pp. [Separate copy.]

MOENKHAUS, W. J. An aberrant *Etheostoma*. P. Indiana Ac. 1901, pp. 115 & 116.

MOORE, J. E. S. The Tanganyika Problem. An account of the researches undertaken concerning the existence of marine animals in Central Africa. London, 1902, 8vo, xxiii + 371 pp., figg.

MORGAN, T. H. Further experiments on the regeneration of the tail of Fishes. Arch. Entwickmech. xiv, pp. 539–561, figg.

MOROFF, T. Ueber die Entwicklung der Kiemen bei Knochenfischen. Arch. mikr. Anat. lx, pp. 428–459, pls. xxi & xxii.

NIKOLSKI, A. M. On a new species of Fish from the Altai Region, *Oreoleuciscus ignatowi*, n. sp. [Russian text.] Annuaire Mus. St. Petersb. vii, pp. 188–190.

NORDQVIST, O. Inre befruktning hos *Cottus scorpius* och *C. quadricornis*. Medd. Soc. Faun. Fenn. xxvi, 1900, pp. 31–34.

ODÓN DE BUEN, D. El *Chauliodus sloani*. Bol. Soc. espan. ii, pp. 104 & 105.

ORLANDI, S. Sopra un caso di ermaphroditismo nel *Mugil chelo* Cuv. Atti Soc. Ligustica xiii, pp. 3–6, fig.

PATTEN, W. On the origin of Vertebrates. With special reference to the structure of the Ostracoderms. Verh. v. Int. Zool. Congr. pp. 180–192, figg.

——. On the structure and classification of the *Trematuspidæ*. Amer. Natural. xxxvi, pp. 379–393, figg.

PACL, D. M. On the pelvic fins in the postlarval and young stages of *Onus mustela* (the Five-bearded Rockling). Ann. Nat. Hist. (7) x, pp. 132–137, pl. v.

PEARCEY, F. C. Notes on the marine deposits of the Firth of Forth, and their relation to its animal life. Tr. Soc. Glasgow (2) vi, pp. 217–251.

PELLEGRIN, J. Sur une Raie cornue gigantesque pêchée à Oran. Bull. Mus. Paris 1901, pp. 327 & 328.

——. Poissons nouveaux ou rares du Congo français. T. c. pp. 328–332.

——. Cichlidés du Brésil rapportés par M. Jobert. Op. cit. 1902, pp. 181–184.

——. Cichlidé nouveau de la Guyane française. T. c. pp. 417 & 418.

——. Cichlidé nouveau du Congo français. T. c. pp. 419 & 420.

——. Présentation de quelques cas de déviations rachidiennes chez les Poissons. Bull. Soc. zool. France xxvii, pp. 215–219, figg.

PETERSEN, C. G. J. The Biology of the Cod in the Danish Seas. Rep. Dan. Biol. Stat. xi, pp. 3–24.

——. On other Codfishes in our seas. T. c. pp. 25–28.

PHILIPPI, R. A. Descripcion de cinco nuevas especies chilenas del ordre de los Plagióstomos. An. Univ. Chile cix. [Sep. copy, 15 pp., 1 pl.]

PICKLES, H. A List of the Mammals, Reptiles, Amphibians, and Fishes in the Parish of Halifax. Halifax Natural. vii, pp. 95 & 96.

PIPER, H. Die Entwickelung von Magen, Duodenum, Schwimmblase, Leber, Pancreas und Milz bei *Amia calva*. Arch. Anat., Suppl. 1902, pp. 1–78, pls. i–iv.

——. Die Entwickelung von Leber, Pankreas, Schwimmblase und Milz bei *Amia calva*. Verh. Anat. Ges. 1902, pp. 18–25.

PLATE, L. Studien über Cyclostomen. I. Systematische Revision der Petromyzonten der südlichen Halbkugel. Zool. Jahrb. Suppl. v, pp. 651–673, pl. xix.

——. Ueber Cyclostomen der südlichen Halbkugel. Verh. v. Int. Zool. Congr. pp. 551 & 552.

POCHE, F. Ueber das Vorkommen von *Anoplopterus platychir* (Gthr.) in Westafrika. Zool. Anz. xxv, pp. 121 & 122.

——. Richtigstellung eines Gattungsnamens unter den Siluriden. T. c. p. 211.

POLICARD, A. Constitution lympho-myéloïde du stroma conjonctif du testicule des jeunes Rajidés. C.R. Ac. Sci. cxxxiv, pp. 297–299.

POPTA, C. M. L. Un Pantodon de la Rivière Kassai. Notes Leyden Mus. xxiii, pp. 111 & 112.

PRIEM, F. Sur les Poissons de l'Éocène inférieur des environs de Reims. Bull. Soc. geol. France (4) i, pp. 477–504, pls. x & xi.

——. Sur les Pycnodontes tertiaires du département de l'Aude. Op. cit. ii, pp. 44–49, fig.

PRYMAK, T. Beiträge zur Kenntniss des feineren Baues und der Involution der Thymusdrüse bei den Teleostiern. Anat. Anz. xxi, pp. 164–177, figg.

REESE, A. M. Structure and development of the thyroid gland in *Petromyzon*. P. Ac. Philad. 1902, pp. 85–112, pls. iv–vii.

REGAN, C. T. A Revision of the Fishes of the Family *Stromateidæ*. Ann. Nat. Hist. (7) x, pp. 115–131, 194–207.

——. On the systematic position of *Luvarus imperialis* Rafinesque. T. c. pp. 278–281.

REIBISCH, J. Ueber den Einfluss der Temperatur auf die Entwickelung von Fisch-Eiern. Wiss. Meeresuntersuch. (2) vi, Kiel, pp. 213–231, pl. vi.

RETZIUS, G. Ueber einen Spiralfaserapparat am Kopfe der Spermien der Selachier. Biol. Untersuch. (2) x, pp. 61–64, pl. xviii.

RODIER, E. Sur la coagulation du sang des Poissons. Trav. Stat. Zool. Arcachon 1900–1901, pp. 129–132.

ROHON, J. V. Beiträge zur Anatomie und Histologie der Psammosteiden. SB. Bohmisch. Ges. 1901, No. xvi, 31 pp., figg., 2 pls.

ROMANO, A. Per la istogenesi dei centri nervosi elettrici. Ricerche e considerazioni preliminari. Anat. Anz. xx, pp. 513–535.

ROULE, L. Sur les Poissons du genre Chondrostome dans les eaux douces de la France. C.R. Ac. Sci. cxxxv, pp. 980–982.

——. Les Poissons du littoral de la Corse; comparaison de cette faune avec celles des autres localités du bassin occidental de la Méditerranée. C.R. Ass. Franc. xxx, pp. 683 & 684.

——. La faune des Poissons actuellement connus qui habitent les côtes de la Corse. Mem. Soc. zool. France xv, pp. 169–194.

——. *Atherina riqueti*, nov. sp., nouvelle espèce d'Athérine vivant dans les eaux douces. Zool. Anz. xxv, pp. 262–267, fig.

RUGE, E. Die Entwicklungsgeschichte des Skelettes der vorderen Extremität von *Spinax niger*. Morphol. Jahrb. xxx, pp. 1–27, figg., pl. i.

SABRAZÈS, J. & MURATET, L. Le sang de l'Hippocampe. La phagocytose chez ce Poisson. Trav. Stat. Zool. Arcachon 1900–1901, pp. 74–80, figg.

SAGE, D., TOWNSEND, C. H., SMITH, H. M. & HARRIS, W. C. Salmon and Trout. New York, 1902, 8vo, x + 417 pp., figg.

SAINT-PAUL, G. DE. Sur la faune ichthyologique du bassin de l'Adour. C.R. Ac. Sci. cxxxiv, pp. 851–853.

SALINAS, E. Supra alcuni Miliobatidi fossili della Sicilia. Giorn. Soc. Palermo xxiii, pp. 62–78, 2 pls.

SAUNDERS, J. Notes on the Fish of the Upper Lea. Tr. Hertfordsh. Soc. xi, pp. 119 & 120.

SAUVAGE, H. E. Recherches sur les Vertébrés du Kimméridgien supérieur de Fumel (Lot-et-Garonne). Mem. Soc. geol. France ix, No. 25, 32 pp., 5 pls.

——. Les Poissons et les Reptiles du Jurassique supérieur du Boulonnais au Musée du Havre. Bull. Soc. geol. Normand. xxi, pp. 15–26.

SCHARFF, R. The long-finned Tunny (*Thynnus germo* Lacep.), an addition to the Irish Fauna. Irish Natural. xi, p. 105.

SCHIEMENS, P. Bericht über die Fischerei-Expedition des Deutschen Seefischerei-Vereins in die Ostsee, 1901. Abh. deutsch. Seefisch.-Ver. vii, pp. 163–284.

SCHMITT, F. Ueber die Gastrulation der Doppelbildungen der Forelle, mit besonderer Berücksichtigung der Concrescenztheorie. Verh. Deutsch. zool. Ges. xii, pp. 64–83, figg.

——. Ueber die Gastrulation der Doppelbildungen der Forelle, mit besonderer Berücksichtigung der Konkrescenztheorie. SB. Ges. Wurzburg 1902, pp. 30 & 31.

SCHREINER, K. E. Einige Ergebnisse über den Bau und die Entwicklung der Occipitalregion von *Amia* und *Lepidosteus*. Zeitschr. wiss. Zool. lxxii, pp. 467–524, figg., pls. xxviii & xxix.

SCHUBERT, R. J. Die Fischotolithen des österr.-ungar. Tertiäre. I. Die Sciaeniden. Jahrb. geol. Reichsanst. li, pp. 301–315, figg., pl. x.

SEGRE, ROSETTA. Ricerche intorno alla variazione della *Tinca vulgaris*. Boll. Mus. Torino xvii, No. 429, 42 pp.

SEWERTZOFF, A. N. Zur Entwickelungsgeschichte des *Ceratodus forsteri*. Anat. Anz. xxi, pp. 593–608, figg.

SIM, G. Occurrence of *Centrophorus ringens* in British Waters. Ann. Scott. Nat. Hist. 1902, p. 13.

——. Is *Raia radula* of Couch, Thomson, and Yarrell a good species? T. c. pp. 220–224, pls. iv & v.

SMITH, H. M. Description of a new species of Blenny from Japan. Bull. U. S. Fish Comm. xxi, pp. 93 & 94, fig.

——. Notes on five food-fishes of Lake Buhi, Luzon, Philippine Islands. T. c. pp. 167–171, figg.

——. The smallest known Vertebrate. Science (2) xv, pp. 30 & 31.

SOLGER, B. Ueber die "intracellulären Fäden" der Ganglienzellen des elektrischen Lappens von *Torpedo*. Morphol. Jahrb. xxxi, pp. 104–115, pl. v.

SOUTHWELL, T. On a hermaphrodite example of the Herring (*Clupea harengus*). Ann. Nat. Hist. (7) ix, pp. 195 & 196.

——. The Saw-fish (*Pristis antiquorum*) in British Waters. Zoologist (4) vi, p. 114.

STARKS, E. C. The relationship and Osteology of the Caproid Fishes or Antigoniidæ. P. U. S. Mus. xxv, pp. 565–572, figg.

STEINDACHNER, F. Fische aus dem Stillen Ocean. Ergebnisse einer Reise nach dem Pacific (Schauinsland, 1896–97). Denk. Ak. Wien lxx, pp. 483–521, 6 pls.

——. Wissenschaftliche Ergebnisse der südarabischen Expedition in den Jahren 1898 bis 1899. Fische von Südarabien und Socotra. Anz. Ak. Wiss. xxxix, pp. 316–318.

——. Ueber zwei neue Fischarten aus dem Rothen Meere. T. c. pp. 336–338.

STEPHAN, P. Sur quelques points relatifs à l'évolution de la vésicule germinative des Téléostiens. Arch. anat. micr. v, pp. 22–37, pl. ii.

——. A propos de l'hermaphrodisme de certains Poissons. C.R. Ass. Franc. xxx, pp. 554–570, figg.

——. Sur le développement de la cellule de Sertoli chez les Sélaciens. C.R. Soc. Biol. liv, pp. 773–775.

——. L'évolution de la cellule de Sertoli des Sélaciens après la spermatogénèse. T. c. pp. 775 & 776.

[Stephan, P.] Sur quelques adaptations fonctionnelles des cellules génitales des Poissons osseux. Bibliog. anat. x, pp. 121–127.

Studnička, F. K. Ueber das Epithel der Mundhöhle von *Chimæra monstrosa*, mit besonderer Berücksichtigung der Lymphbahnen desselben. Bibliog. anat. xi, pp. 217–233, figg.

Supino, F. Ricerche sul cranio dei Teleostei. II. *Macrourus*. III. *Ruvettus*. IV. *Pomatomus*, *Hoplostethus*. Ric. Labor. anat. Roma ix, pls. v, vi, xii.

Swinnerton, H. H. A contribution to the morphology of the Teleostean head skeleton, based upon a study of the developing skull of the Three-spined Stickleback (*Gasterosteus aculeatus*). Quart. J. Micr. Sci. xlv, pp. 503–593, figg., pls. xxviii–xxxi.

Thilo, O. Die Umbildungen am Knochengerüste der Schollen. Zool. Anz. xxv, pp. 305–320, figg.

——. Die Vorfahren der Schollen. Biol. Centrbl. xxii, pp. 717–728, figg.

Thomson, J. S. The periodic growth of scales in Gadidæ and Pleuronectidæ as an Index of age. J. Mar. Biol. Ass. (2) vi, pp. 373–375, pl. v.

Tower, R. W. The gas in the swim-bladder of Fishes. Bull. U. S. Fish Comm. xxi, pp. 125–130.

Traquair, R. H. Additional note on *Drepanaspis gemündenensis* Schlüter. Geol. Mag. (iv) ix, pp. 289–291, figg.

——. On a Scottish specimen of the Blackfish (*Centrolophus niger* Gmelin). Ann. Scott. Nat. Hist. 1902, pp. 10–13, pl. i.

——. *Gyracanthus falciformis*, n. sp. Mem. geol. Surv. U. K. f. 1901, p. 181.

Turner-Turner, J. The Giant Fish of Florida. London, 1902, 8vo, 206 pp., photogr. pls.

*Tuttolomondo, A. Fauna ittiologica del compartimento maritimo di Catania. Girgenti, 1901, 8vo, 164 pp.

Vaillant, L. Sur la présence du tissu osseux chez certains Poissons des terrains paléozoïques de Canyon City (Colorado). C.R. Ac. Sci. cxxxiv, pp. 1321 & 1322.

——. Sur le genre nouveau *Gyrinocheilus*, de la famille des Cyprinidæ. Op. cit. cxxxv, pp. 702–704.

——. Sur la faune ichthyologique des eaux douces de Bornéo. T. c. pp. 977–980.

——. Résultats zoologiques de l'expédition scientifique Néerlandaise au Bornéo central. Notes Leyden Mus. xxiv, pp. 1–166, figg., pls. i & ii.

—— & Pellegrin, J. Cichlidés nouveaux de l'Amérique Centrale. Bull. Mus. Paris 1902, pp. 84–88.

Vialleton, L. Les lymphatiques du tube digestif de la Torpille (*Torpedo marmorata* Risso). Arch. anat. micr. v, pp. 379–456, pls. xiii & xiv.

Vieira, L. Catalogo dos Peixes de Portugal em collecção no Museu de Zoologia da Universidade de Coimbra. Conclusão. Ann. Sci. nat. Porto vii, 1901, pp. 139–159.

Waite, E. R. Studies in Australian Sharks. No. 2. Rec. Austral. Mus. iv, pp. 175–178, fig.

——. Notes on Fishes from Western Australia. No. 2. T. c. pp. 179–194, fig., pls. xxvii–xxxi.

[WAITE, E. R.] New Records or recurrences of rare Fishes from Eastern Australia. T. c. pp. 263–273, pls. xli–xliii.

——. Skeleton of *Luvarus imperialis* Rafinesque. T. c. pp. 292–297, figg., pls. xlv & xlvi.

WARREN, E. On the teeth of *Petromyzon* and *Myxine*. Quart. J. Micr. Sci. xlv, pp. 631–636, pl. xxxiv.

WEBER, M. Siboga Expeditie.—Introduction et description de l'Expédition. Leiden, 1902, 4to, 159 pp., figg.

WELLBURN, E. D. On the Fish Fauna of the Pendleside limestones. P. Yorksh. geol. Soc. (2) xiv, pp. 465–473.

——. On the genus *Coelacanthus* as found in the Yorkshire Coal Measures, with a restoration of the Fish. T. c. pp. 474–482, fig.

WILLEY, A. Amphioxus. Encyc. Brit. xxv, pp. 384–387, figg.

WILLIAMS, S. R. Changes accompanying the migration of the eye and observations on the tractus opticus and tectum opticum in *Pseudopleuronectes americanus*. Bull. Mus. Harvard xl, pp. 1–57, pls. i–v.

WILLIAMSON, H. C. A comparison between the Cod (*Gadus callarias* Linn.), the Saithe (*G. virens* Linn.), and the Lythe (*G. pollachius* Linn.), in respect to certain external and osteological characters. Rep. Fish. Board Scotland xx, pt. iii, pp. 228–287, pls. iv–xi.

WITTICH, E. Neue Fische aus den mitteloligocänen Meeressanden des Mainzer Beckens. Notizbl. Ver. geol. Landesanst. Darmstadt (4) xxi, pp. 19–29, pl. iii.

WOODWARD, A. S. The Fossil Fishes of the English Chalk. I. Palæontogr. Soc. 1902, pp. 1–56, figg., pls. i–xiii.

——. Notes on some Upper Devonian Fish-Remains discovered by Prof. A. G. Nathorst in East Greenland. Bih. Svenska Ak. xxvi, iv, No. 10, 1901, 10 pp., 1 pl.

——. On *Atherstonia australis* and *Ctenolates avus*, two new species of fossil Fishes from New South Wales. Rec. Geol. Survey N. S. Wales vii, pt. 2, pp. 89–91, pl. xxiv.

——. Preliminary Note on a Carboniferous Fish Fauna from Victoria, Australia. Geol. Mag. (iv) ix, pp. 471–473.

——. On a cornu of *Cephalaspis carteri* from the Lower Devonian of Looe. Tr. geol. Soc. Cornwall xii, pp. 431–433.

YABE, H. Notes on some Sharks' teeth from the Mesozoic formation of Japan. J. Geol. Soc. Tokyo ix, pp. 1–6, figg.

ZIEGLER, H. E. Lehrbuch der vergleichenden Entwickelungsgeschichte der niederen Wirbeltiere, in systematischer Reihenfolge und mit Berücksichtigung der experimentellen Embryologie bearbeitet. Jena, 1902, 8vo, xii + 366 pp., figg., 1 pl.

ZIETZ, A. H. C. List of the edible Fish of the Lower Murray. Tr. R. Soc. S. Austral. xxvi, pp. 265–267.

ZITTEL, K. A. VON. Text-book of Paleontology. Translated and edited by C. R. EASTMAN. Vol. II. London and New York, 1902, 8vo, viii + 283 pp., figg.

ZOGRAF, N. VON. Einiges über die systematische Stellung und die Lebensweise des *Comephorus baikalensis* Pall. Verh. v. Int. Zool. Congr. pp. 592–595.

II. GENERAL SUBJECT.

E. Lönnberg, in fascicles 2 & 3 of his Fish-work in Bronn's Thierreich, concludes the introduction and deals with the structure of the *Leptocardii.*

A. Günther deals with the progress in our knowledge of Fishes during the past twenty years. Encyclopædia Britannica xxix, pp. 394–400, figg.

D. S. Jordan, Science (2) xvi, p. 241, gives an outline of the history of Ichthyology.

The chapters on Fishes in Living Animals of the World ii, are supplied by F. G. Aflalo, J. Bickerdyke, Sir H. Maxwell, and W. P. Pycraft.

G. B. Howes, Nature lxvi, pp. 525 & 526, comments on recent progress in the morphology, and proposes some new terms for the various fins of Fishes.

J. G. Kerr remarks on the origin of the paired limbs of Vertebrates. Rep. Brit. Ass. 1901, pp. 693–695.

B. Dean, Amer. Natural. xxxvi, pp. 767–776, 837–847, figg., reviews the evidence as to the origin of paired fins.

O. Jaekel, Verh. v. Int. Zool. Congr. pp. 610–612, figg., remarks on the shoulder-girdle of Fishes.

V. Faussek, Arch. mikr. Anat. lx, pp. 157–174, pl. ix, has a contribution to the histology of the gills.

E. H. Catois, Bull. Sci. France Belgique xxxvi, pp. 1–166, pls. i–x, has a memoir on the histology of the encephalon in Fishes.

W. H. Menmuir, Tr. Edinb. Field Soc. iv, pp. 272–277, compares the teeth of Fishes with those of other Vertebrates.

E. H. Green & R. W. Tower, Bull. U. S. Fish Comm. xxi, pp. 97–102, write on the organic constituents of the scales of Fishes.

On the embryology, cf. Ziegler, Lehrb. d. vergl. Entwickel. d. nieder. Wirbelth., Jena, 1902, 8vo.

A. Bühler, Morphol. Jahrb. xxx, pp. 377–452, figg., pls. vi & vii, has a paper on the resorption of the egg-follicle in Fishes.

R. W. Tower, Bull. U. S. Fish Comm. xxi, pp. 125–130, writes on the gas in the swim-bladder of Fishes.

D. S. Jordan, Amer. Natural. xxxvi, pp. 803–808, writes on the colours of Fishes.

G. Fritsch, Verh. v. Int. Zool. Congr. pp. 643-647, remarks on the colours and markings of electric Fishes.

A. Conte & C. Vaney, C.R. Soc. Biol. liv, pp. 47 & 48 make some remarks on marine species adapting themselves to fresh water.

N. Bjeloussov, Trudui Kharkov Univ. xxxv, 1901, pp. 1–38, has a paper in Russian on the respiratory movements of Fishes.

E. Rodier, Trav. Stat. Zool. Arcachon 1900–1901, pp. 129–132, writes on the coagulation of the blood in Fishes. Also Bottazzi, Arch. ital. Biol. xxxvii, pp. 60–63.

A. Brauer, Zool. Anz. xxv, pp. 277–298, gives diagnoses of new deep-sea fishes from the Valdivia Expedition.

III. FAUNÆ.

Arctic Seas.

Remarks on the Fish-fauna: Jensen, Vid. Medd. f. 1901, pp. 191-215.

Europe.

Norway. R. Collett, Forh. Selsk. Christian. 1902, No 1, brings out the first part of a third supplement to his work "Norges Fiske."

Sweden. On Fishes from the Cattegat coast: LÖNNBERG, Medd. Landtbruksstyrels. 1902, No. 2, pp. 9–23.

Baltic. Biological notes on the fishes: SCHIEMENS, Abh. deutsch. Seefisch.-Ver. vii, pp. 163–284.

British Isles. Popular illustrated hand-book on the Fishes: W. J. GORDON, 'Our Country's Fishes,' &c. London, 1902, 8vo, 152 pp., figg., 32 pls.

Scotland. On occurrences, migrations, habits, &c. on the coast of Scotland: F. W. FULTON, Rep. Fish. Board Scotland xx, pt. iii, pp. 17–72, 326–439, 539–541.

Firth of Forth. Lists of Fishes: PEARCEY, Tr. Soc. Glasgow (2) vi, pp. 227–242.

Halifax. List of the Fishes, by H. PICKLES, Halifax Natural. vii, pp. 95 & 96.

River Lea. On the Fishes: J. SAUNDERS, Tr. Hertfordsh. Soc. xi, pp. 119 & 120.

Northamptonshire. List of the Fishes by BOULENGER, Victoria History of Counties, Northamptonshire i, pp. 108–109.

Hertfordshire. List of the Fishes by BOULENGER, Victoria History of Counties, Hertfordshire i, pp. 189 & 190.

Surrey. List of the Fishes by BOULENGER, Victoria History of Counties, Surrey i, pp. 198 & 199.

Devonshire. List of Fishes of the Exe Estuary: ALLEN & TODD, J. Mar. Biol. Ass. (2) vi, pp. 331–335.

Irish Sea. On the Fishes: HERDMAN & DAWSON, Fish. and Fisher. Irish Sea. London, 1902, 4to.

E. BADE brings out the second and concluding volume of his work, "Mitteleuropäischen Süsswasserfische." (Berlin, 1902, 8vo.)

France. List of the Fishes of the Salon River, Haute-Saône: MOCQUARD, Bull. Soc. C. Aquic. et Pêche 1902. On the Fishes of the Adour basin: G. DE SAINT-PAUL, C.R. Ac. Sci. cxxxiv, pp. 851–853.

Portugal. L. VIEIRA, Ann. Sci. nat. Porto vii, 1901, pp. 139–159, concludes his catalogue of the Portuguese Fishes in the Coimbra University Museum.

Upper Hungary. B. VON DESCÖ, Verh. v. Int. Zool. Congr. pp. 567–578, remarks on the changes in the fish-fauna, due to natural or artificial causes.

Dalmatia. On new or rare Fishes: KOLOMBATOVIĆ, Glasnik Naravosl. druzt. xiii, pp. 22–37, pl. —.

Croatia. On the Fish-fauna: M. MEDIČ, Rad Jugoslav. Ak. cxlvii, 1901, pp. 138–191, pls. i–vi.

Italy. A. TUTTOLOMONDO is the author of an ichthyological fauna of the coast of Catania (Girguti, 1901, 8vo).

Corsica. On the marine Fishes: L. ROULE, C.R. Ass. Franc. xxx, pp. 683 & 684, and Mem. Soc. zool. France xv, pp. 169–174.

ASIA.

Arabia and Socotra. On new Fishes: STEINDACHNER, Anz. Ak. Wiss. xxxix, pp. 316–318, 336–338.

Sea of Oman. G. A. BOULENGER's Note on deep-sea Fishes from the Sea of Oman [cf. Zool. Rec. 1901, Pisc., p. 15] is reprinted in J. Bombay Soc. xiv, pp. 372–374, pl.

Indian Seas. Chapters xv & xvi of ALCOCK's "Naturalist in Indian Seas" (London, 1902, 8vo), deal with the deep-sea Fishes.

Japan. D. S. JORDAN, in collaboration with H. W. FOWLER, M. SINDO, J. O. SNYDER, & E. C. STARKS, continues his revision of the fish-fauna, in P. U. S. Mus. xxiv, xxv & xxvi.

Formosa. On a collection of Fishes: JORDAN & EVERMANN, P. U. S. Mus. xxv, pp. 315–368, figg.

Borneo. On the freshwater Fishes: VAILLANT, Notes Leyden Mus. xxiv, pp. 1–166, figg., pls. i & ii, and C.R. Ac. Sci. cxxxv, pp. 977–980.

AFRICA.

Morocco. On some freshwater Fishes from near Mazagan: GÜNTHER, Nov. Zool. ix, pp. 446–448, pls. xxii & xxiii.

Abyssinia. Descriptions of new fishes: BOULENGER, Ann. Nat. Hist. (7) x, pp. 421–439.

White Nile. On a collection of Fishes from Gondokoro: BOULENGER, t. c. pp. 260–264.

Uganda Protectorate. List of the Fishes by BOULENGER, in Sir H. JOHNSTON, Uganda Protectorate i, pp. 447–449.

Kenya district, E. Africa. On a small collection of Fishes: BOULENGER, P. Z. S. 1902, ii, pp. 221–224, pls. xvi & xvii.

French Congo. On some new freshwater Fishes: PELLEGRIN, Bull. Mus. Paris 1901, pp. 328–332.

Congo. On collections from the Upper Congo and the Ubanghi: BOULENGER, Ann. Mus. Congo, Zool. ii, pp. 19–57, pls. vii–xvi, and P. Z. S. 1902, i, pp. 234–237, pls. xxii–xxiv, and pp. 265–271, pls. xxviii–xxx.

Lake Tanganyika. On the Fishes: J. E. S. MOORE, The Tanganyika Problem (London, 1902, 8vo), pp. 152–216, figg.

Lake Nyassa. Diagnoses of new Cichlidæ: BOULENGER, Ann. Nat. Hist. (7) x, pp. 69–71.

Mashonaland. On a small collection of Fishes: BOULENGER, P. Z. S. 1902, ii, pp. 13–15, pl. ii.

South Africa. J. D. F. GILCHRIST has compiled a list of the Fishes hitherto recorded from South Africa (Cape Town, 1902, 8vo, 179 pp.), and described some new Fishes, Marine Invest. S. Afr. ii, pp. 101–113, pls. v–x. The same author, Tr. S. African Soc. xi, pp. 207–232, writes on the local names of Cape Fishes.

AMERICA.

JORDAN & EVERMANN give a popular account of all the American food and game fishes known from North of the Equator, in a beautifully illustrated work, "American Food and Game Fishes," 8vo, published in New York and in London.

Great Lakes and connecting waters. List of the Fishes, by B. W. EVERMANN, Bull. U. S. Fish Comm. xxi, pp. 95 & 96. On the Fishes: EVERMANN & KENDALL, Rep. U. S. Fish. Comm. f. 1901, pp. 209–240.

Ontario. On a collection of Fishes: S. E. MEEK, Field Mus. Zool. iii, pp. 131–138.

Falls of the Ohio River. On the food-Fishes: EVERMANN, Rep. U. S. Fish. Comm. f. 1901, pp. 273–288, figg.

Long Island. Catalogue of the Fishes, with Notes upon their distribution, common names, habits, and rate of growth: T. H. BEAN, Ann. Rep. Forest, Fish, and Game Comm., State of New York, 1901 (1902), 478 pp.

Lake Chautauqua, New York. On the Fishes: EVERMANN & GOLDSBOROUGH, Rep. U. S. Fish. Comm. f. 1901, pp. 169–174.

Florida. Photographs of Marine Fishes in life-like attitudes: TURNER-TURNER, Giant Fish of Florida (London, 1902, 8vo).

Mexico. On a collection of freshwater Fishes, with notes on the geographical distribution: S. E. MEEK, Field Mus. Zool. iii, pp. 63–128, pls. xiv–xxxi. On a collection of Fishes: EVERMANN & GOLDSBOROUGH, Bull. U. S. Fish Comm. xxi, pp. 137–159, figg.

Guatemala. Descriptions of new Cichlid Fishes: VAILLANT & PELLEGRIN, Bull. Mus. Paris 1902, pp. 84–88.

Porto Rico. Account of the Fishes, by EVERMANN & MARSH, Bull. U. S. Fish Comm. xx, pp. 51–350, figg., pls. i–xlix.

Brazil. On a collection of *Cichlidæ*: PELLEGRIN, Bull. Mus. Paris 1902, pp. 181–184.

Chili. F. T. DELFIN, Revist. chilena iv, 1900, continues his Catalogue of the Fishes of Chili. Descriptions of new Selachians by PHILIPPI, An. Univ. Chile cix.

AUSTRALIA and POLYNESIA.

South Pacific. On a collection of Fishes: STEINDACHNER, Denk. Ak. Wien lxx, pp. 483–521, 6 pls.

Australia. On new or rare Fishes: E. R. WAITE, Rec. Austral. Mus. iv, pp. 175–194, 263–273, pls. xxvii–xxxi & xli–xliii.

Lower Murray River. List of the edible Fishes: A. H. C. ZIETZ, Tr. R. Soc. S. Austral. xxvi, pp. 265–267.

Hawaiian Islands. List of the principal Fishes, by JORDAN & EVERMANN, Rep. U. S. Fish. Comm. f. 1901, pp. 357–359.

New Zealand. On some Fishes: J. HECTOR, Tr. N. Zealand Inst. xxxiv, pp. 239–241, 563 & 564.

ANTARCTIC REGION.

On the Fishes of the "Southern Cross" Expedition: BOULENGER, Rep. Southern Cross, pp. 174–189, pls. xi–xviii.

IV. PALÆONTOLOGY.

The first 114 pp. of EASTMAN'S translation of ZITTEL'S text-book of Paleontology, vol. ii, are devoted to the Fishes.

Chalk of England. A. S. WOODWARD brings out the first part of an Illustrated Monograph of the Fishes, Palæontogr. Soc. 1902, pp. 1–56, pls. i–xiii.

Carboniferous Pendleside limestone, Yorkshire. On the Fish-fauna: WELLBURN, P. Yorksh. geol. Soc. (2) xiv, pp. 465–473.

Cretaceous of the North of France. A revision of the Fish-fauna: LERICHE, op. cit. xxxi, pp. 87–154, pls. ii–v.

Upper Jurassic of Boulogne s. M., France. On the Fish-remains preserved in the Havre Museum: H. E. SAUVAGE, Bull. Soc. geol. Normand. xxi, pp. 15–19.

Lower Montian (Cretaceous-Eocene) of Paris Basin. On the Fish Fauna: LERICHE, Ann. Soc. geol. Nord xxx, 1901, pp. 153–161, pl. v.

Lower Eocene, Reims, France. On the Fishes: F. PRIEM, Bull. Soc. geol. France (4) i, pp. 477–504, pls. x & xi.

Upper Kimmeridgian of Fumel, France. On the Fish remains: SAUVAGE, Mem. Soc. geol. France ix, No. 25, pp. 1–25, pls. i–v.

Lower Eocene of Belgium. M. LERICHE has prepared an illustrated catalogue of the fish-remains in the Brussels Museum, Mem. Mus. Belgique ii, pp. 1–48, pls. i–iii.

Middle Oligocene marine beds of Mayence Basin. E. WITTICH, Notizbl. Ver. geol. Landesanst. Darmstadt (4) xxi, pp. 19–29, pl. iii, continues his descriptions of Fish-remains.

Cretaceous of Bohemia. On Fish-remains: A. FRITSCH & F. BAYER, Ceska Ak. Praze, 4to, ii, 18 pp., 3 pls.

North America. Bibliography and list of the fossil Fishes : O. P. HAY, Bull. U. S. Geol. Surv. No. 179.

Mid-Cretaceous of the Belly River Series, N. W. North America. On the Fishes : L. M. LAMBE, Contr. Canad. Pal. iii, pp. 28–30.

Carboniferous of Mazon Creek, Illinois. On the Fish-fauna : EASTMAN, J. Geol. x, pp. 535–541, figg. and Bull. Mus. Harvard xxxix, pp. 55–99, figg., pls. i–vii.

Carboniferous, Victoria. Preliminary note on the Fish-fauna : A. S. WOODWARD, Geol. Mag. (iv) ix, pp. 471–473.

V. REFERENCES ARRANGED SYSTEMATICALLY.

TELEOSTOMI.

TELEOSTEI.

H. H. SWINNERTON, Quart. J. Micr. Sci. xlv, pp. 503–593, figg., pls. xxviii–xxxi, has a paper on the morphology of the Teleostean head-skeleton, based chiefly on *Gastrosteus.*

J. PELLEGRIN, Bull. Soc. zool. France xxvii, pp. 215–219, figg., records some cases of deviation of the spine in Teleosteans.

E. MARCEAU, C.R. Soc. Biol. liv, pp. 981–983, remarks on the structure of the heart in various Teleosts.

J. SABRAZÈS & L. MURATET, Trav. Stat. Zool. Arcachon 1900–1901, pp. 74–80, figg., write on the blood of *Hippocampus.*

P. STEPHAN, C.R. Ass. Franc. xxx, pp. 554–570, figg., has further observations on the genital organs of the hermaphrodite Sparid Fishes, *Sargus annulatus* and *Smaris vulgaris.*

P. STEPHAN, Bibliog. anat. x, pp. 121–127, also writes on some functional adaptations of the genital cells in Teleosteans.

E. GIACOMINI, Monit. Zool. ital. xiii, pp. 183–189, remarks on the existence of the medullar substance in the suprarenal capsule of Teleosteans.

T. PRYMAK, Anat. Anz. xxi, pp. 164–177, figg., has a contribution to the minute anatomy and involution of the thymus gland in Teleosteans.

A. BRAUER, SB. Ges. Marburg 1901, pp. 115–125, and Verh. Deutsch. zool. Ges. xii, pp. 42–57, figg., has investigated the structure of the eye in some deep-sea Teleosteans.

M. WEBER, Siboga Exped., Introd. p. 108, remarks on the luminous organs of *Heterophthalmus* and *Photoblepharon.*

F. MAZZA, Atti Soc. Ligustica xiii, pp. 181–224, pls. ix–xi, describes the development of *Lebias calaritana.*

F. SCHMITT, Verh. Deutsch. zool. Ges. xii, pp. 64–83, figg., writes on gastrulation in *Salmo trutta.*

F. SCHMITT, SB. Ges. Wurzburg 1902, pp. 30 & 31, gives an abstract of his researches on the gastrulation of double embryos of Trout.

P. STEPHAN, Arch. anat. micr. v, pp. 22–37, pl. ii, remarks on some points concerning the evolution of the germinal vesicle of Teleosteans.

T. MOROFF, Arch. mikr. Anat. lx, pp. 428–459, pls. xxi & xxii, has a paper on the development of the gills in Teleosteans.

J. REIBISCH, Wiss. Meeresuntersuch. (2) vi, Kiel, pp. 213–231, pl. vi, has made experiments on the influence of temperature in the development of fish-ova.

R. R. GURLEY, Amer. Journ. Psychol. xiii, pp. 408–425, remarks on the spawning periods of Fishes in connection with the rise or fall of the temperature of the water, and the effects of this connection as a factor in the distribution of species.

J. W. Fulton, Rep. Fish. Board Scotland xx, pt. iii, pp. 326–439, pls. xiv–xxi, writes on the rate of growth of Sea Fishes.

J. S. Thomson, J. Mar. Biol. Ass. (2) vi, pp. 373–375, pl. v, writes on the periodic growth of scales in *Gadidæ* and *Pleuronectidæ* as an index of age.

J. Arnold, Verh. v. Int. Zool. Congr. pp. 553–566, figg., has investigated the food of various Russian freshwater Fishes.

T. H. Morgan, Arch. Entwickmech. xiv, pp. 539–561, figg., has made further experiments on the regeneration of the tail of Fishes.

On change of colour in freshwater fishes: M. C. H. Bird, Zoologist (4) vi, p. 150.

PLECTOGNATHI.

Review of the Japanese species by Jordan & Fowler, P. U. S. Mus. xxv, pp. 251–286, figg.

Monacanthus oblongus, Schleg. Note by Jordan, Science (2) xvi, p. 870; *M. japonicus*, Til., and *oblongus*, Schleg., figured by Jordan & Fowler, t. c. pp. 266 & 267.

Pseudomonacanthus modestus, Gthr., figured by Jordan & Fowler, t. c. p. 269.

Rudarius, g. n., near *Pseudomonacanthus*, for *R. ercodes*, sp. n., Jordan & Fowler, t. c. p. 270, fig., Japan.

Brachaluteres ulvarum, sp. n., Jordan & Fowler, t. c. p. 271, fig., Japan.

Paraluteres prionurus, Blkr., figured by Jordan & Fowler, t. c. p. 273.

Tetrodon pinguis, sp. n., Vaillant, Notes Leyden Mus. xxiv, p. 38, Borneo; *T. miurus*, sp. n., Boulenger, Ann. Mus. Congo, Zool. ii, p. 55, pl. xv, fig. 4, Ubanghi.

PEDICULATI.

Review of the Japanese species by Jordan & Sindo, P. U. S. Mus. xxiv, pp. 361–381.

Lophiomus litulon, sp. n., Jordan & Sindo, t. c. p. 364, fig., Japan.

Dolopichthys niger, sp. n., Brauer, Zool. Anz. xxv, p. 292, Indian Ocean, 2000–2500 m.

Melanocetus krechi, p. 293, E. of Zanzibar, 2500 m., *vorax*, p. 294, Gulf of Guinea, 2492 m., and *pelagicus*, p. 295, Chagos Ids., 2500 m., Brauer, t. c.

Aceratias, g. n., for *A. macrorhinus*, *indicus*, and *mollis*, spp. nn., Brauer, t. c. pp. 296 & 297, Atlantic and Indian Oceans, 2000–2200 m.

Gigantactis, g. n., Brauer, t. c. p. 295; *G. vanhoeffeni*, sp. n., id. ibid. p. 296, Indian Ocean, 1900–2500 m.

Coelophrys, g. n., for *C. brevicaudata*, sp. n., Brauer, t. c. p. 291, W. of Sumatra, 1024 m.

Antennarius histrio, L., and *raninus*, Til., figured by Jordan & Sindo, t. c. pp. 368 & 370; *A. scriptissimus*, p. 373, fig., *sanguifluus*, p. 374, fig., and *nox*, p. 375, fig., spp. nn., iid. ibid., Japan.

Malthopsis tiarella, sp. n., Jordan & Sindo, t. c. p. 378, fig., Japan.

Halieutichthys smithii, sp. n., Evermann & Marsh, Bull. U. S. Fish Comm. xx, p. 339, fig., Porto Rico.

TÆNIOSOMI.

Lophotes cepedianus, Giorna, described by Kolombatović, Glasnik Naravosl. druzt. xiii, p. 32.

OPISTHOMI.

Mastacembelus goro, sp. n., BOULENGER, Ann. Mus. Congo, Zool. ii, p. 54, pl. xv, fig. 3, Ubanghi.

ACANTHOPTERYGII.

OPHIDIIDÆ.

Otophidium asiro, sp. n., JORDAN & FOWLER, P. U. S. Mus. xxv, p. 752, fig., Japan.

PODATELIDÆ.

Podateles, n. n. for *Ateleopus*, Schleg. nec D. & B., BOULENGER, Ann. Nat. Hist. (7) x, p. 403. The family *Podatelidæ* is characterized and regarded as nearer to the *Blenniidæ* than to the *Gadidæ* and *Macruridæ*.

CONGROGADIDÆ.

Hierichthys, g. n., near *Congrogadus*, for *H. encryptes*, sp. n., JORDAN & FOWLER, P. U. S. Mus. xxv, p. 744, fig., Japan.

ZOARCIDÆ.

Review of the Japanese species by JORDAN & FOWLER, P. U. S. Mus. xxv, pp. 745–750, figg., & 753–765, figg.

Lycenchelys poecilimon, sp. n., JORDAN & FOWLER, t. c. p. 748, fig., Japan.
Bothrocara zesta, sp. n., JORDAN & FOWLER, t. c. p. 749, fig., Japan.
Lycodes, Reinh. On the arctic species, JENSEN, Vid. Meddel. f. 1901, p. 192 ; *L. vahlii*, Rhdt. On its variations, id. ibid. p. 202. *L. similis*, p. 205, *eudipleurostictus*, p. 206, *microcephalus*, p. 206, *atlanticus*, p. 207, *platyrhinus*, p. 208, *celatus*, p. 208, *spitzbergensis*, p. 209, *agnostus*, p. 209, *ingolfianus*, p. 210, *flagellicauda*, p. 210, and *ophidium*, p. 212, spp. nn., JENSEN, t. c., Arctic Regions.
Brotula formosæ, sp. n., JORDAN & EVERMANN, P. U. S. Mus. xxv, p. 364, fig., Formosa.
Myxocephalus japonicus, Stdr. & Döderl., figured by JORDAN & FOWLER, t. c. p. 756.
Porogadus guentheri, n. sp., JORDAN & FOWLER, t. c. p. 762, fig., Japan.

BATRACHIDÆ.

Batrachoides goldmani, sp. n., EVERMANN & GOLDSBOROUGH, Bull. U. S. Fish Comm. xxi, p. 159, fig., Tabasco, Mexico.

BLENNIIDÆ.

Review of the Japanese species by JORDAN & SNYDER, P. U. S. Mus. xxv, pp. 441–504, figg.

Tripterygium etheostoma and *bapturum*, spp. nn., JORDAN & SNYDER, t. c. pp. 444 & 447, figg., Japan.
Zacalles, g. n., near *Lepisoma*, for *Z. bryope*, sp. n., JORDAN & SNYDER, t. c. p. 448, fig., Japan.

Blennius galerita, L. On the young, BYRNE, J. Mar. Biol. Ass. (2) vi, p. 383. *B. alpestris*, Blanch. Note by CONTE & VANEY, C.R. Soc. Biol. liv, p. 47. *B. yatabei*, sp. n., JORDAN & SNYDER, t. c. p. 450, fig., Japan.
Emblemaria pandionis, sp. n., EVERMANN & MARSH, Bull. U. S. Fish Comm. xx, p. 318, fig., Porto Rico.
Petroscirtes elatus, sp. n., JORDAN & SNYDER, t. c. p. 452, fig., Japan.
Aspidontus elegans, Stdr., figured by JORDAN & SNYDER, t. c. p. 454; *A. trossulus* and *dasson*, spp. nn., iid. ibid. pp. 455 & 456, figg., Japan.
Scartichthys enosimæ and *stellifer*, spp. nn., JORDAN & SNYDER, t. c. pp. 460 & 461, figg., Japan.
Salarias namiyei, sp. n., JORDAN & EVERMANN, P. U. S. Mus. xxv, p. 362, fig. *S. simonyi*, sp. n., STEINDACHNER, Anz. Ak. Wiss. xxxix, p. 317, S. Arabia.
Eulophias, g. n., near *Cebedichthys*, H. M. SMITH, Bull. U. S. Fish Comm. xxi, p. 93; *E. tanneri*, sp. n., iid. ibid. p. 94, fig., Japan.
Cristiceps argentatus, Risso. On the eggs and their artificial fecundation, F. KOPSCH, SB. Ges. naturf. Berlin 1902, 1902, p. 33.
Auchenopterus aysoni, sp. n., HECTOR, Tr. N. Zealand Inst. xxxiv, p. 240, pl. xv, New Zealand, Bay of Islands.
Azuma, g. n., near *Bryostemma*, for *A. emmnion*, sp. n., JORDAN & SNYDER, t. c. p. 463, fig., Japan.
Bryostemma otohime, p. 466, fig., *saitone*, p. 467, fig., *tarsodes*, p. 614, fig., and *decoratum*, p. 615, fig., spp. nn., JORDAN & SNYDER, t. c., Japan.
Bryolophus, g. n., near *Bryostemma*, for *B. lysimus*, sp. n., JORDAN & SNYDER, t. c. p. 617, fig., Japan.
Enedrias nebulosus, Schleg., figured by JORDAN & SNYDER, t. c. p. 469.
Pholis pictus, Kner, figured by JORDAN & SNYDER, t. c. p. 471.
Alectrias benjamini, sp. n., JORDAN & SNYDER, t. c. p. 475, fig., Japan.
Eulophias tanneri, H. M. Smith, figured by JORDAN & SNYDER, t. c. p. 478.
Neozoarces steindachneri, sp. n., JORDAN & SNYDER, t. c. p. 479, fig., Japan.
Zoarchias, g. n., near *Neozoarces*, for *Z. veneficus*, sp. n., JORDAN & SNYDER, t. c. p. 480, fig., Japan.
Opisthocentrus ocellatus, Til., figured hy JORDAN & SNYDER, t. c. p. 484; *O. zonope*, sp. n., iid. ibid. p. 485, fig., Japan.
Abryois, g. n., near *Opisthocentrus*, for *A. azumæ*, sp. n., JORDAN & SNYDER, t. c. p. 486, fig. Japan.
Ernogrammus hexagrammus, Schleg., figured by JORDAN & SNYDER, t. c. p. 490; *E. epallax*, sp. n., iid. ibid. p. 491, fig., Japan.
Ozorthe dictyogrammus, Herz., figured by JORDAN & SNYDER, t. c. p. 493.
Stichœus nozawæ, sp. n., JORDAN & SNYDER, t. c. p. 496, fig., Japan.
Dinogunellus grigorjewi, Herz., figured by JORDAN & SNYDER, t. c. p. 497.
Lumpenus fowleri, sp. n., JORDAN & SNYDER, t. c. p. 500, fig., Japan.

GOBIESOCIDÆ.

Aspasma, g. n., for *Lepadogaster minimus*, Döderl., JORDAN & FOWLER, P. U. S. Mus. xxv, p. 414; *A. ciconiæ*, sp. n., iid. ibid. p. 415, fig., Japan.
Lepadogaster strictopteryx, Holt & Byrne = *L. microcephalus*, Brook, BYRNE, P. Z. S. 1902, i, p. 102.

URANOSCOPIDÆ.

Ariscopus, g. n., near *Uranoscopus*, for *A. iburius*, sp. n., JORDAN & SNYDER, P. U. S. Mus. xxiv, p. 479, fig., Japan.

Nototheniidæ.

Remarks on the characters of this family, and synopsis of the genera by Boulenger, Rep. Southern Cross, p. 174.

Trematomus, g. n., Boulenger, op. cit. p. 177; *T. newnesi*, p. 177, pl. xi, *borchgrevinki*, p. 179, pl. xii, *hansoni*, p. 180, pl. xiii, and *bernacchii*, p. 181, pl. xiv, spp. nn., id. ibid., Victoria Land.

Notothenia, Rich. Synopsis of the species by Boulenger, op. cit. p. 183; *N. nicolai*, p. 184, pl. xv, Victoria Land, and *colbecki*, p. 185, pl. xvi, Campbell Id., S. of New Zealand, spp. nn., id. ibid.

Gymnodraco, g. n., Boulenger, op. cit. p. 186, for *G. acuticeps*, sp. n., id. ibid. pl. xvii, Victoria Land.

Parachænichthys, g. n., for *Chænichthys georgianus*, Fischer, Boulenger, op. cit. p. 176.

Leptoscopidæ.

Percis schauinslandi, sp. n., Steindachner, Denk. Ak. Wien lxx, p. 496, pl. iii, fig. 5, Honolulu.

Parapercis ommatura, sp. n., Jordan & Snyder, P. U. S. Mus. xxiv, p. 465, fig., Japan.

Bleekeria mitsukurii, sp. n., Jordan & Evermann, P. U. S. Mus. xxv, p. 333, fig., Formosa.

Pteropsaron, g. n., allied to *Bembrops*, Jordan & Snyder, P. U. S. Mus. xxiv, p. 470; *P. evolans* and *verecundum*, spp. nn., iid. ibid. pp. 471 & 472, figg., Japan.

Pleuragramma, g. n., for *P. antarcticum*, sp. n., Boulenger, Rep. Southern Cross, p. 187, pl. xviii, Victoria Land.

Trachinidæ.

A. Briot, CR. Soc. Biol. liv, pp. 1169-1171, 1197 & 1198, has made experiments on the poison of *Trachinus draco*.

Trachinus araneus, Cuv. Note by Kolombatović, Glasnik Naravosl. druzt. xiii, p. 27.

Triglidæ.

Trigla kumoides, sp. n., Steindachner, Denk. Ak. Wien lxx, p. 498, pl. i, fig. 2, New Zealand.

Cyclopteridæ.

Review of the Japanese species by Jordan & Snyder, P. U. S. Mus. xxiv, pp. 343-351, figg.

Lethotremus arvæ, sp. n., Jordan & Snyder, t. c. p. 344, fig., Japan.

Crystallias, g. n., allied to *Liparis*, Jordan & Snyder, t. c. p. 349; *C. matsushimæ*, sp. n., iid. ibid. p. 350, fig., Japan.

Paraliparis australis, sp. n., Gilchrist, Mar. Invest. S. Afr. ii, p. 107, pl. vii, off Cape of Good Hope, 300–600 fathms.

Cottidæ.

Cottus scorpius, L. and *C. quadricornis*, L. On the breeding habits, Nordqvist, Medd. Soc. Faun. Fenn. xxvi, 1900, p. 31.

Cottunculus subspinosus, sp. n., Jensen, Vid. Medd. f. 1901, p. 214, off Iceland.

COMEPHORIDÆ.

Comephorus baikalensis, Pall. On its habits and systematic position: ZOGRAF, Verh. v. Int. Zool. Congr. p. 592.

SCORPÆNIDÆ.

Scorpæna albifimbria and *bergii*, spp. nn., EVERMANN & MARSH, Bull. U. S. Fish Comm. xx, pp. 275 & 276, figg., Porto Rico.

Pontinus beanorum, sp. n., EVERMANN & MARSH, t. c. p. 279, fig., Porto Rico.

Choridactylodes, g. n., near *Choridactylus*, Rich., GILCHRIST, Mar. Invest. S. Afr. ii, p. 101, *C. natalensis*, sp. n., id. ibid. p. 102, pl. v, Coast of Natal.

Pterois barberi, sp. n., STEINDACHNER, Denk. Ak. Wien lxx, p. 491, pl. iii, fig. 2, South Pacific.

ECHENEIDIDÆ.

Echeneis naucrates, L. On a Dalmatin specimen, KOLOMBATOVIĆ, Glasnik Naravosl. druzt. xiii, p. 31.

GOBIIDÆ.

Gobius parvus and *claytonii*, spp. nn., MEEK, Field Mus. Zool. iii, p. 121, pl. xxxi, R. San Francisco, Vera Cruz, Mexico; *G. sternbergi*, sp. n., H. M. SMITH, Bull. U. S. Fish Comm. xxi, p. 169, fig., L. Buhi, Philippines.

Mistichthys, g. n., allied to *Gobius*, for *M. luzonensis*, sp. n., "the smallest known Vertebrate," H. M. SMITH, Science (2) xv, p. 30, and t. c. p. 167, figg., Philippines.

Aboma snyderi, sp. n., JORDAN & FOWLER, P. U. S. Mus. xxv, p. 575, fig., Japan.

Valenciennia longipinnis, Benn., redescribed and figured by WAITE, Rec. Austral. Mus. iv, p. 271, pl. xliii.

PLEURONECTIDÆ.

On the origin of the Pleuronectidæ from forms allied to *Zeus*; O. THILO, Zool. Anz. xxv, pp. 305–320, figg., and Biol. Centrbl. xxii, pp. 717–728, figg.

BOULENGER, Ann. Nat. Hist. (7) x, p. 295, also discusses the affinities of the *Pleuronectidæ*, which he regards as most nearly related to the *Zeidæ* among living Fishes, both families being probably derived from a form similar to the extinct *Amphistium*, which is made the type of a family, *Amphistiidæ*. The three families are united in a division of the *Acanthopterygii* under the name of *Zeorhombi*.

On growth of scales in the *Pleuronectidæ*: J. S. THOMSON, J. Mar. Biol. Ass. (2) vi, p. 373.

S. R. WILLIAMS, Bull. Mus. Harvard xl, pp. 1–57, pls. i–v, has a paper on the changes accompanying the migration of the eye in *Pleuronectes americanus*, with observations on the tractus opticus and tectum opticum.

On Steenstrup's observations on the migration of the eyes in Flat-fishes; J. T. CUNNINGHAM, Nature lxv, p. 511, and F. J. COLE, t. c. p. 585.

W. C. MCINTOSH, Ann. Nat. Hist. (7) ix, pp. 291–296, records cases of abnormal coloration in *Rhombus maximus*, *Pleuronectes flesus*, *P. limanda*, and *P. platessa*.

Paralichthodes, g. n., near *Paralichthys*, Gir., for *P. algoensis*, sp. n., GILCHRIST, Mar. Invest. S. Afr. ii, p. 108, pl. viii, Algoa Bay.
Citharichthys arenaceus, sp. n., EVERMANN & MARSH, Bull. U. S. Fish Comm. xx, p. 321, fig., Porto Rico.
Solea (*Pegusa*) *capensis*, sp. n., GILCHRIST, t. c. p. 110, pl. ix, Algoa Bay.
Liachirus nitidus, Gthr., figured by JORDAN & EVERMANN, P. U. S. Mus. xxv, p. 366.
Cynoglossus diplasios, sp. n., JORDAN & EVERMANN, t. c. p. 367, fig., Formosa. *C. pottii*, sp. n., STEINDACHNER, Anz. Ak. Wiss. xxxix, p. 336, Red Sea.

ZEIDÆ.

Review of the Japanese species by JORDAN & FOWLER, P. U. S. Mus. xxv, pp. 514–520.

Cyttopsis itea, sp. n., JORDAN & FOWLER, t. c. p. 519, fig., Japan.
Zeus faber, L. On the number and arrangement of the bony plates in the young ; L. W. BYRNE, Biometrika ii, p. 115, pl. i.

LUVARIDÆ.

On the skeleton and systematic affinities of *Luvarus imperialis*, WAITE, Rec. Austral. Mus. iv, p. 292, figg., pls. xlv & xlvi, and REGAN, Ann. Nat. Hist. (7) x, p. 279.

HISTIOPHORIDÆ.

Histiopterus orientalis, C. & V. On its sailing powers, M. WEBER, Siboga Exped., Introd. p. 110, fig.

SCOMBRIDÆ.

Thunnus germo, Lacep., recorded from Ireland, and figured by SCHARFF, Irish Natural. xi, p. 105, fig.
F. SUPINO, Ric. Labor. anat. Roma ix, pl. vi, describes and figures the skull of *Ruvettus pretiosus*.

SCARIDÆ.

Review of the Japanese species by JORDAN & SNYDER, P. U. S. Mus. xxiv, pp. 657–660.

Pseudoscarus arabicus, sp. n., STEINDACHNER, Anz. Ak. Wiss. xxxix, p. 318, S. Arabia.

LABRIDÆ.

Review of the Japanese species by JORDAN & SNYDER, P. U. S. Mus. xxiv, pp. 612–655, figg.

Pseudolabrus ruber, Cast., redescribed and figured by WAITE, Rec. Austral. Mus. iv, p. 185, pl. xxviii. *P. cossyphoides*, sp. n., STEINDACHNER, Denk. Ak. Wien lxx, p. 503, pl. ii, fig. 1, New Zealand.
Thalassoma ancitense, Gthr., redescribed and figured by WAITE, t. c. p. 187, pl. xxix.
Labrodon multidens, Münst. (foss.). Teeth described and figured by DE ALESSANDRI, Atti Mus. Milano xli, p. 454, pl. xii, figg. 9 & 10.

Phyllodus gaudryi, sp. n. (foss.), PRIEM, Bull. Soc. geol. France (4) i, p. 494, fig., pl. xi, fig. 14, Lower Eocene near Reims, France.

Nummoplates vaillanti and *paucidens*, spp. nn. (foss.), PRIEM, t. c. p. 497, pl. xi, figg. 16–18, Lower Eocene near Reims.

Chærops nyctemblema, sp. n., JORDAN & EVERMANN, P. U. S. Mus. xxv, p. 353, fig., Formosa.

Harpe vulpina, Richards., redescribed and figured by WAITE, Rec. Austral. Mus. iv, p. 269, pl. xlii.

Cossyphus perditio, Q. & G., figured by JORDAN & SNYDER, P. U. S. Mus. xxiv, p. 618.

Verreo, g. n., for *Cossyphus oxycephalus*, Blkr., which is figured, JORDAN & SNYDER, t. c. p. 619.

Semicossyphus reticulatus, C. & V., figured by JORDAN & SNYDER, t. c. p. 622.

Hemipteronotus verrens, sp. n., JORDAN & EVERMANN, P. U. S. Mus. xxv, p. 354, fig., Formosa.

Stethojulis psacas, p. 629, fig., *terina*, p. 631, fig., and *trossula*, p. 633, fig., spp. nn., JORDAN & SNYDER, t. c. Japan.

Halichoerus tremebundus, sp. n., JORDAN & SNYDER, t. c. p. 639, fig., Japan.

Novacula (*Iniistius*) *nigra*, sp. n., STEINDACHNER, Denk. Ak. Wien lxx, p. 505, pl. iv, fig. 2, Honolulu.

Coris auricularis, C. & V., figured by WAITE, Rec. Austral. Mus. iv, pl. xxx; *C. aygula*, Lacep., figured by JORDAN & SNYDER, t. c. p. 642; *C. multicolor*, Rüpp., figured by STEINDACHNER, t. c. pl. v, fig. 2; *C. argenteostriata* and *schauinslandi*, spp. nn., id. ibid. pp. 507 & 508, pl. iii, fig. 1, and pl. v, fig. 1, Honolulu.

Cirrhilabrus temmincki, Schleg., figured by JORDAN & SNYDER, t. c. p. 652.

POMACENTRIDÆ.

Review of the Japanese species by JORDAN & SNYDER, P. U. S. Mus. xxiv, pp. 595–612, figg.

Pomacentrus coelestis, Jord. & Starks, figured by JORDAN & SNYDER, t. c. p. 603.

Heliastes ovalis, sp. n., STEINDACHNER, Denk. Ak. Wien lxx, p. 502, Honolulu.

CICHLIDÆ.

Neetroplus bocourti, sp. n., VAILLANT & PELLEGRIN, Bull. Mus. Paris 1902, p. 85, Guatemala.

Heros heterodontus, p. 86, *spinosissimus*, p. 87, and *mento*, p. 88, spp. nn., VAILLANT & PELLEGRIN, t. c., Guatemala.

Cichlasoma teapæ, sp. n., EVERMANN & GOLDSBOROUGH, Bull. U. S. Fish Comm. xxi, p. 256, fig., Teapa, Mexico; *C. eigenmanni*, sp. n., MEEK, Field Mus. Zool. iii, p. 119, pl. xxx, R. Tehuacan, Pueblo, Mexico.

Acara geayi, sp. n., PELLEGRIN, Bull. Mus. Paris 1902, p. 417, French Guiana.

Paratilapia luebberti, sp. n., HILGENDORF, SB. Ges. naturf. Berlin 1902, p. 141, Otavi, S. W. Africa; *P. dorsalis*, sp. n., PELLEGRIN, Bull. Mus. Paris 1902, p. 419, Brazzaville, Congo; *P. nototænia*, sp. n., BOULENGER, Ann. Nat. Hist. (7) x, p. 69, L. Nyassa; *P. wingatii*, sp. n., id. ibid. p. 264, White Nile.

Cyrtocara, g. n., near *Paratilapia*, BOULENGER, Ann. Nat. Hist. (7) x, p. 69, for *C. moorii*, sp. n., id. ibid. p. 70, L. Nyassa.

Pelmatochromis tæniatus, sp. n. (non Boulenger 1900), BOULENGER, Ann. Mus. Congo, Zool. ii, p. 53, pl. xvi, Upper Congo ; name changed to *P. polyodon*, id. P. Z. S. 1902, i, p. 237 [=*P. multidens*, Pellegr.—REC.]

Pseudoplesiops squamiceps, sp. n., BOULENGER, P. Z. S. 1902, i, p. 270, pl. xxx, fig. 1, Lindi R., Upper Congo.

Tilapia stormsi, sp. n., BOULENGER, t. c. p. 270, pl. xxx, fig. 2, Lindi R., Upper Congo.

Hemitilapia, g. n., near *Tilapia*, BOULENGER, Ann. Nat. Hist. (7) x, p. 70, for *H. oxyrhynchus*, sp. n., id. ibid. p. 71, L. Nyassa.

Petrochromis nyassæ, sp. n., BOULENGER, t. c. p. 70, L. Nyassa.

Chilochromis, g. n., near *Petrochromis*, Blgr., for *C. duponti*, sp. n., BOULENGER, P. Z. S. 1902, i, p. 236, pl. xxiv, Lukula R., French Congo.

Cichla ocellaris, Bl. Schn. On its varieties, PELLEGRIN, Buil. Mus. Paris 1902, p. 183.

EMBIOTOCIDÆ.

On the Japanese species, JORDAN & SINDO, P. U. S. Mus. xxiv, pp. 353–359, figg.

Ditrema temmincki, Blkr., figured by JORDAN & SINDO, t. c. p. 358, fig.

Neoditrema ransonneti, Stdr., figured by JORDAN & SINDO, t. c. p. 356, fig.

ACANTHURIDÆ.

Review of the Japanese species by JORDAN & FOWLER, P. U. S. Mus. xxv, pp. 550–560, figg.

Acanthurus olivaceus, Sol., figured by JORDAN & EVERMANN, P. U. S. Mus. xxv, p. 358 ; *A. hypselopterus*, Blkr., described and figured by STEINDACHNER, Denk. Ak. Wien lxx, p. 494, pl. iv, fig. 1.

CHÆTODONTIDÆ.

Review of the Japanese species by JORDAN & FOWLER, P. U. S. Mus. xxv, pp. 528–548, figg.

Chætodon collaris, Bl., figured by JORDAN & FOWLER, t. c. p. 534 ; *C. dædalma*, sp. n., iid. ibid. p. 538, fig., Japan.

Coradion desmotes, sp. n., JORDAN & FOWLER, t. c. p. 539, fig., Japan.

Holacanthus ronin, sp. n., JORDAN & FOWLER, t. c. p. 546, fig., Japan.

CAPROIDÆ.

E. C. STARKS, P. U. S. Mus. xxv, pp. 565–672, figg., describes the skeleton of *Antigonia rubescens*, Schleg., and regards the Caproid Fishes as nearest allied to the Chætodonts.

Antigonia rubescens, Gthr., figured by JORDAN & FOWLER, P. U. S. Mus. xxv, p. 524 ; *A. steindachneri*, sp. n., iid. ibid. p. 522, Hawaiian Ids. and Japan.

MULLIDÆ.

Mulloides pflügeri, sp. n., STEINDACHNER, Denk. Ak. Wien. lxx, p. 485, pl. iii, fig. 4, Honolulu.

SPARIDÆ.

Dentex hypselosomus, Blkr., figured by JORDAN & EVERMANN, P. U. S. Mus. xxv, p. 345.

Nemipterus matsubaræ, sp. n., JORDAN & EVERMANN, t. c. p. 346, fig., Formosa.

Chrysophrys schoppii, sp. n. (foss.), WITTICH, Notizbl. Ver. geol. Landesanst. Darmstadt (4) xxi, p. 22, pl. iii, figg. 1–4 & 9–13, Middle Oligocene of Mayence basin.

Pagrus lepsii, sp. n. (foss.), WITTICH, t. c. p. 26, pl. iii, figg. 5–8 and 14–16, Middle Oligocene of Mayence basin.

PRISTIPOMATIDÆ.

Plectorhynchus ocyurus, sp. n., JORDAN & EVERMANN, P. U. S. Mus. xxv, p. 348, fig., Formosa.

HAPLODACTYLIDÆ.

Haplodactylus schauinslandi, sp. n., STEINDACHNER, Denk. Ak. Wien lxx, p. 487, pl. i, fig. 1, New Zealand.

GERRIDÆ.

Gerres socotranus, sp. n., STEINDACHNER, Anz. Ak. Wiss. xxxix, p. 316, Socotra.

SCIÆNIDÆ.

Sciæna heinii, sp. n., STEINDACHNER, Anz. Ak. Wiss. xxxix, p. 317, S. Arabia.

Cynoscion regalis, Bl. Schn. On the life-history of the young; EIGENMANN, Bull. U. S. Fish Comm. xxi, p. 45, figg.

Umbrina pecchiolii, Lawley (foss.). Note by DE ALESSANDRI, Atti Mus. Milano xli, p. 458.

R. J. SCHUBERT, Jahrb. geol. Reichsanst. li, pp. 301–315, figg., pl. x, describes Sciænid Otoliths from the Tertiary beds of Austria-Hungary. The following new names are proposed:—*Otolithus* (*Umbrina*) *subcirrhosus*, *plenus*; *O.* (*Corvina*?) *cirrhosoides*; *O.* (*Sciæna*) *kokeni*, *levis*, *telleri*, *excissus*, *compactus*, *corii*, *gracilis*, *subsimilis*, *subgemma*, *gemmoides*, *depressus*, *fuchsi*, *kittli*, and *dubius*.

SILLAGINIDÆ.

Sillago bassensis, C. & V. Note by WAITE, Rec. Austral. Mus. iv, p. 190; *S. æolus*, sp. n., JORDAN & EVERMANN, P. U. S. Mus. xxv, p. 360, fig., Formosa.

HOPLOGNATHIDÆ.

Characterized, with description of the two Japanese species, by JORDAN & FOWLER, P. U. S. Mus. xxv, pp. 75–78.

CEPOLIDÆ.

Acanthocepola mesoprion, Blkr., figured by JORDAN & EVERMANN, P. U. S. Mus. xxv, p. 363.

Pseudochromididæ.

Cichlops lineatus, Cast., redescribed and figured by Waite, Rec. Austral. Mus. iv, p. 191, pl. xxxi.

Gnathypops hopkinsi and *evermanni*, spp. nn., Jordan & Snyder, P. U. S. Mus. xxiv, pp. 492 & 493, figg., Japan.

Stalix, g. n., near *Gnathypops*, for *S. histrio*, sp. n., Jordan & Snyder, t. c. p. 495, fig., Japan.

Anomalopidæ.

Photoblepharon, g. n., for *Sparus palpebratus*, Bodd., M. Weber, Siboga Exped., Introd., p. 108, fig.

Serranidæ.

Ctenolates avus, sp. n. (foss.), A. S. Woodward, Rec. Geol. Survey N. S. Wales vii, 2, p. 90, pl. xxiv, fig. 2, Tertiary, Richmond River, N. S. Wales.

Epinephelus caninus, Val. Notes by Kolombatović, Glasnik Naravosl. druzt. xiii, p. 23.

Mycteroperca bowersi, sp. n., Evermann & Marsh, Bull. U. S. Fish Comm. xx, p. 158, fig., Porto Rico.

Hypoplectrodes armatus, Cast., redescribed and figured by Waite, Rec. Austral. Mus. iv, p. 181, fig.

Mesoprion sparus, Schleg., figured by Jordan & Evermann, P. U. S. Mus. xxv, p. 344.

Neomœnis megalophthalmus, sp. n., Evermann & Marsh, Bull. U. S. Fish Comm. xx, p. 177, figg., Porto Rico.

Glaucosoma burgeri, Rich., figured by Jordan & Evermann, P. U. S. Mus. xxv, p. 342.

Apogon rueppelli, Gthr., figured by Waite, Rec. Austral. Mus. iv, pl. xxvii; *A. sellicauda*, sp. n., Evermann & Marsh, Bull. U. S. Fish Comm. xx, p. 143, figg., Porto Rico.

Synagrops japonica, Döderl. Note by Jordan & Fowler, P. U. S. Mus. xxv, p. 573.

Acropomatidæ.

F. Supino, Ric. Labor. anat. Roma ix, pl. xii, describes and figures the skull of *Pomatomus telescopium*.

Percidæ.

Etheostoma aspro, Cope. On an aberrant specimen, Moenkhaus, P. Indiana Ac. 1901, p. 115.

Centrarchidæ.

Lepomis occidentalis, sp. n., Meek, Field Mus. Zool. iii, p. 118, pl. xxix, Chihuahua, Mexico.

Pempheridæ.

Pempheris nycterentes, sp. n., Jordan & Evermann, P. U. S. Mus. xxv, p. 339, fig., Formosa.

BERYCIDÆ.

Remarks on the systematic position and relationships, and synopsis of the genera, BOULENGER, Ann. Nat. Hist. (7) ix, pp. 197–204.

Review of the Japanese species by JORDAN & FOWLER, P. U. S. Mus. xxvi, pp. 1–21, figg.

F. SUPINO, Ric. Lab. anat. Roma ix, pl. xii, describes and figures the skull of *Hoplostethus mediterraneus.*

Berycopsis major, sp. n. (foss.), A. S. WOODWARD, Foss. Fish. Engl. Chalk, Palæontogr. Soc. 1902, p. 11, pl. ii, fig. 2, Chalk, Cuxton, Kent.

Hoplopteryx simus, sp. n. (foss.), A. S. WOODWARD, op. cit. p. 23, pl. viii, figg. 1–4, Chalk of S. of England. *H. brevis*, sp. n. (foss.), FRITSCH & BAYER, Ceska Ak. Praze, 4to, ii, p. 14, pl. iii, fig. 3, Cretaceous, Bohemia.

Homonotus rotundus, sp. n. (foss.), A. S. WOODWARD, op. cit. p. 28, pl. vii, fig. 8, Chalk, Charing, Kent.

Gephyroberyx, g. n., for *Trachichthys darwini*, Johnson, BOULENGER, t. c. p. 203.

Trachichthyoides, g. n., near *Trachichthys*, for *T. ornatus*, sp. n. (foss.), A. S. WOODWARD, op. cit. p. 29, pl. viii, fig. 5, Chalk of Kent.

Paratrachichthys prosthemius, sp. n., JORDAN & FOWLER, t. c. p. 9, fig., Japan.

Myripristis japonicus, C. &. V., figured by JORDAN & FOWLER, t. c. p. 12.

Holocentrus spinosissimus, Schleg., figured by JORDAN & FOWLER, t. c. p. 14; *H. ittodai*, sp. n., iid. ibid. p. 16, fig., Japan.

Beanea, g. n., like *Myripristis*, but with only 5 soft rays to the ventral, for *B. trivittata*, sp. n., STEINDACHNER, Anz. Ak. Wiss. xxxix, p. 337, Red Sea.

ANACANTHINI.

GADIDÆ.

C. G. J. PETERSEN, Rep. Dan. Biol. Stat. xi, pp. 3–28, has biological notes on the *Gadidæ* of the Danish Seas.

On growth of scales in the *Gadidæ*, J. S. THOMSON, J. Mar. Biol. Ass. (2) vi, p. 373, pl. v.

Gadus, L. H. C. WILLIAMSON, Rep. Fish. Board Scotland xx, Pt III, pp. 228–287, pls. iv–xi, describes in detail the external and osteological characters of *G. morrhua*, *virens*, and *pollachius*.

Onus mustela, L. On the pelvic fins in the postlarval and young stages, D. M. PAUL, Ann. Nat. Hist. (7) x, p. 115, pl. v.

Melanonosoma, g. n., near *Melanonus*, Gthr., for *M. acutecaudatum*, sp. n., GILCHRIST, Mar. Invest. S. Afr. ii, p. 106, off Cape of Good Hope, 360 fathoms.

Tripterophycis, g. n., of the Phycine group, combining a tripartite dorsal fin with a single anal, for *T. gilchristi*, sp. n., BOULENGER, Ann. Nat. Hist. (7) ix, p. 335, fig., off Cape of Good Hope, 250 fathoms.

MACRURIDÆ.

F. SUPINO, Ric. Labor. anat. Roma ix, pl. v, describes and figures the skull of *Macrurus trachyrhynchus.*

PERCESOCES.

O. P. HAY, Bull. U. S. Geol. Surv. No. 179, p. 397, proposes the new name *Mesichthyes* for an Order to embrace the *Percesoces* and the *Haplomi.*

ANABANTIDÆ.

Anabas, Cuv. Synopsis of the Congo species, BOULENGER, Ann. Mus. Congo, Zool. ii, p. 51; *A. pellegrini*, p. 51, pl. xv, fig. 1, and *oxyrhynchus*, p. 52, pl. xv, fig. 2, spp. nn., id. ibid., Ubanghi.

OPHIOCEPHALIDÆ.

Ophiocephalus striatus, Bl. Note on the habits, H. H. SMITH, Bull. U. S. Fish Comm. xxi, p. 171; *O. tadianus*, sp. n., JORDAN & EVERMANN, P. U. S. Mus. xxv, p. 330, fig., Formosa.

Channa formosana, sp. n., JORDAN & EVERMANN, t. c. p. 331, fig., Formosa.

STROMATEIDÆ.

Revision of the genera and species by C. T. REGAN, Ann. Nat. Hist. (7) x, pp. 115–131, 194–207.

Psenes edwardsii, sp. n., EIGENMANN, Bull. U. S. Fish Comm. xxi, p. 35, fig., off Southern New England.

Centrolophus niger, Gm. On a specimen from the Firth of Forth, TRAQUAIR, Ann. Scott. Nat. Hist. 1902, p. 10, pl. i; *C. pompilus*, C. & V. Note by KOLOMBATOVIĆ, Glasnik Naravosl. druzt. xiii, p. 30; *C. corcyrensis*, sp. n., id. ibid. p. 28, pl. —, Coast of Dalmatia.

Apolectus niger, Bl., figured by JORDAN & EVERMANN, P. U. S. Mus. xxv, p. 338.

TETRAGONURIDÆ.

Tetragonurus cuvieri, Risso. On Australian specimens: WAITE, Rec. Austral. Mus. iv, p. 267.

MUGILIDÆ.

Mugil chelo, Cuv. On a hermaphrodite specimen, ORLANDI, Atti Soc. Ligustica xiii, p. 3, fig.

ATHERINIDÆ.

Atherina, Art. On the European species; CLEMENTINA BORSIERI, Zool. Anz. xxv, p. 597; *A. riqueti*, sp. n., ROULE, t. c. p. 262, fig., Canal du Midi, France; = *A. rissoi*, C. & V., BORSIERI, t. c. p. 599.

Menidia, Bp. On the habits and characters of the species of the East coast of the United States, KENDALL, Rep. U. S. Fish. Comm. f. 1901, p. 241, figg.; *M. peninsulæ atrimentis* and *M. beryllina cerea*, subspp. nn., id. ibid. pp. 258 & 261, figg.

Chirostoma, Swains. Key to the species by S. E. MEEK, Field Mus. Zool. iii, p. 110; *C. attenuatum*, *labareæ*, *patzcuaro*, and *zirahuen*, spp. nn., id. ibid. pp. 112–114, pls. xxvii & xxviii, Mexico.

Melaniris, g. n., near *Chirostoma*, for *M. balsanus*, sp. n., MEEK, t. c. p. 117, pl. xxviii, R. Balsas, Guerrero, Mexico.

SCOMBRESOCIDÆ.

Hemirhamphus cotnog, sp. n., H. H. SMITH, Bull. U. S. Fish Comm. xxi, p. 170, L. Buhi, Philippines. *H. pacificus*, sp. n., STEINDACHNER, Denk. Ak. Wien lxx, p. 511, Laysan.

Belone vulgaris, Flem. On its habits, J. T. CUNNINGHAM, Nature lxv, p. 586.

CATOSTEOMI.

BOULENGER, Ann. Nat. Hist. (7) x, p. 147, discusses the characters of the *Lampridiдæ*, and proposes to associate them with the *Hemibranchii* and *Lophobranchii* in a suborder, under the above name. This suborder is formed of four Divisions:—

I. SELENICHTHYES. *Lampridiдæ.*
II. HEMIBRANCHII. *Gastrosteidæ, Aulorhynchidæ, Protosyngnathidæ, Aulostomatidæ, Fistulariidæ, Centriscidæ, Amphisilidæ.*
III. LOPHOBRANCHII. *Solenostomidæ, Syngnathidæ.*
IV. HYPOSTOMIDES. *Pegasidæ.*

The new family *Protosyngnathidæ* is proposed, p. 151, for the Tertiary genus *Protosyngnathus.*

O. P. HAY, Bull. U. S. Geol. Surv. No. 179, p. 396, proposes the new name *Phthinobranchii* for an Order to embrace the *Hemibranchii* and the *Lophobranchii*: SWINNERTON, Quart. J. Micr. Sci. xlv, p. 580, proposes that of *Thoracostei* for the same assemblage.

E. C. STARKS, P. U. S. Mus. xxv, pp. 619–634, figg., writes on the osteology and systematic position of the *Hemibranchii.*

On the systematic position and affinities of the *Gastrosteidæ*, SWINNERTON, Quart. J. Micr. Sci. xlv, pp. 574–583.

A. HUOT, Ann. Sci. Nat. (8) xiv, pp. 197–288, pls. xxi–xxvi, pls. xxi–xxvi, has a memoir on the structure and affinities of the *Lophobranchii.*

JORDAN & STARKS, P. U. S. Mus. xxvi, pp. 57–73, figg., review the Hemibranchiate Fishes of Japan.

Lampris luna, L. On a specimen from the Adriatic, KATURIĆ, Rad Jugoslav. Ak. cxlix, p. 89.

Pygosteus undecimalis, sp. n., JORDAN & STARKS, t. c. p. 62, fig., Japan.

Macrorhamphosus sagifue, sp. n., JORDAN & STARKS, t. c. p. 69, fig., Japan.

Aeoliscus, g. n., for *Amphisile strigata*, figured, JORDAN & STARKS, t. c. p. 71.

Microphis ignoratus, sp. n., VAILLANT, Notes Leyden Mus. xxiv, p. 40, fig., Borneo.

HAPLOMI.

CYPRINODONTIDÆ.

Synopsis of the North and Central American Genera, by S. E. MEEK, Field. Mus. Zool. iii, p. 88.

Fundulus oaxacæ, sp. n., MEEK, t. c. p. 90, pl. xx, R. Verde, Oaxaca, Mexico; *F. gularis*, sp. n., BOULENGER, P. Z. S. 1901, ii, p. 623, pl. xxxvii, figg. 2 & 3, S. Nigeria.

Zoogoneticus, g. n. for *Poecilia quitzeoensis*, B. A. Bean, and allies, MEEK, t. c. p. 91; *Z. diazi*, p. 93, pl. xxi, L. Patzcuaro, Mexico, and *miniatus*, p. 94, pl. xxi, L. Chalco, Mexico, spp. nn., id. ibid.

Chapalichthys, g. n., for *Characodon encaustus*, Jord. & Snyder, and allies, MEEK, t. c. p. 97.

Skiffia, g. n., near *Charcodon*, MEEK, t. c. p. 102; *S. lermæ*, p. 102, pl. xxv, L. Patzcuaro, Mexico, and *variegata*, p. 104, pl. xxv, L. Zirahuen, Mexico, spp. nn., id. ibid.

Goodea luitpoldii, Stdr., figured by, MEEK, t. c. pls. xxii & xxiii.

Heterandria lutzi, sp. n., MEEK, t. c. p. 106, pl. xx, R. Quiotepec, Oaxaca, Mexico.

Xiphophorus jalapæ, sp. n., MEEK, t. c. p. 107, pl. xxvi, Jalapa, Mexico.

Orestias tirapatæ, sp. n., BOULENGER, Ann. Nat. Hist. (7) x, p. 153, Andes of E. Peru.

Jenynsia pygogramma, sp. n., BOULENGER, Ann. Nat. Hist. (7) ix, p. 336, Mendoza, Argentina.

Gambusia infans, Woolman. Note by A. DUGÈS, Mem. Soc. Ant. Alzate xvii, p. 121.

AMBLYOPSIDÆ.

C. H. EIGENMANN, P. Indiana Ac. 1901, pp. 101–105, publishes an abstract of a paper on the history of the eye of *Amblyopsis*.

ALEPIDOSAURIDÆ.

Alepidosaurus ferox, Lowe. On its occurrence on the Coast of New Zealand, HUTTON, Tr. N. Zealand Inst. xxxiv, p. 197.

SCOPELIDÆ.

Scopelus sphengodes, Lütk. On a specimen from the North Atlantic, H. W. FOWLER, P. Ac. Philad. 1901, p. 620; *S.* (*Myctophum*) *novæseelandiæ*, sp. n., STEINDACHNER, Denk. Ak. Wien lxx, p. 513, New Zealand.

Dissomma, g. n., between *Synodus* and *Odontostomus*, for *D. anale*, sp. n., BRAUER, Zool. Anz. xxv, p. 278, S. Atlantic and Indian Oceans, 600–4000 m.

Sardinioides illustrans, sp. n. (foss.), A. S. WOODWARD, Foss. Fish. Engl. Chalk, Palæontogr. Soc. 1902, p. 34, pl. x, fig. 1, Chalk of Kent.

Tachynectes vinarensis, sp. n. (foss.), FRITSCH & BAYER, Ceska Ak. Praze, 4to, ii, p. 13, pl. i, fig. 7, Cretaceous, Bohemia.

GALAXIIDÆ.

On marine species and their bearing on the distribution of the group, BOULENGER, Nature lxvi, p. 84.

Galaxias bollansi, sp. n., HUTTON, Tr. N. Zealand Inst. xxxiv, p. 198, Auckland Ids.

HAPLOCHITONIDÆ.

Prototroctes maræna, Gthr., redescribed and figured by WAITE, Rec. Austral. Mus. iv, p. 265, pl. xli.

APODES.

C. H. EIGENMANN, Tr. Amer. Micr. Soc. xxiv, pp. 5–18, pl. i–iv, summarises our present knowledge of the breeding habits and metamorphoses of the Eel and Conger.

F. GALASSO has made an investigation of the palatine mucous membrane of *Muræna helena*, with special reference to its supposed poison-apparatus (Catangaro, 1901, 8vo).

H. M. COUTIÈRE, C.R. Soc. Biol. liv, pp. 787 & 788, denies the existence of a buccal poison-apparatus in *Muræna helena*, as stated by Bottard.

Anguilla remifera, sp. n., JORDAN & EVERMANN, P. U. S. Mus. xxv, p. 325, fig., Formosa.

Leptocephalus. On various larval forms of Eels from the Atlantic: EIGENMANN & KENNEDY, Bull. U. S. Fish Comm. xxi, p. 81, figg.; *L. grassii*, p. 84, *rex*, p. 86, *amphioxus*, p. 86, *caudomaculatus*, p. 87, *latus*, p. 87, *gillii*, p. 88, *strommani*, p. 89, *mucronatus*, p. 90, *discus*, p. 91, and *gilberti*, p. 92, spp. nn., iid. ibid.; *L. conger*, L. On the egg and development, EIGENMANN, t. c. p. 37, figg. *L. nystromi*, Jord. & Snyder. Note by JORDAN & FOWLER, P. U. S. Mus. xxv, p. 573.

Muræna flavimarginata, Rüpp., figured by SLEINDACHNER, Denk. Ak. Wien lxx, pl. vi, fig. 3; *M. laysana*, sp. n., id. ibid. p. 514, pl. vi, figg. 1 & 2, Laysan.

Lycodontis albimentis, sp. n., EVERMANN & MARSH, Bull. U. S. Fish Comm. xx, p. 78, fig., Porto Rico.

Gymnothorax pescadoris, sp. n., JORDAN & EVERMANN. P. U. S. Mus. xxv, p. 326, fig., Pescadores Islands.

Macropharynx, g. n., near *Eurypharynx*, BRAUER, Zool. Anz. xxv, p. 290; *M. longicaudatus*, sp. n., id. ibid. p. 291, Gulf of Guinea, 3500 m.

OSTARIOPHYSI.

ASPREDINIDÆ.

Bunocephalus doriæ, sp. n., BOULENGER, Ann. Nat. Hist. (7) ix, p. 286, Paraguay and Parana.

LORICARIIDÆ.

Acanthicus hystrix, Spix, and *Chætostomus spinosus*, Casteln. Further notes by HAGMANN, Zool. Anz. xxv, p. 414, figg.

Loricaria frenata and *jubata*, spp. nn., BOULENGER, Ann. Nat. Hist. (7) ix, pp. 69 & 70, N. W. Ecuador.

SILURIDÆ.

M. LERICHE, Ann. Soc. geol. Nord xxx, 1901, pp. 165–175, remarks on some remains, and on the geological and geographical distribution of fossil Silurids.

M. JAQUET, Bull. Soc. Bucarest x, pp. 558–568, pl. iii, studies the digestive system of *Silurus glanis*.

Clarias fuscus, Lacep., figured by JORDAN & EVERMANN, P. U. S. Mus. xxv, p. 321. *C. platycephalus*, p. 35, pl. x, fig. 1, Upper Congo, and *amplexicauda*, p. 36, pl. x, fig. 2, Ubanghi, spp. nn., BOULENGER, Ann. Mus. Congo, Zool. ii. *C. tsanensis*, L. Tsana, and *vinciguerræ*, Kassam R., Shoa, spp. nn., id. Ann. Nat. Hist. (7) x, p. 438.

Allabenchelys, g. n., intermediate between *Clarias* and *Clariallabes*, for *A. longicauda*, sp. n., BOULENGER, P. Z. S. 1902, i, p. 234, pl. xxii, fig. 1, Ja River, French Congo.

Clariallabes melas, Blgr., figured by BOULENGER, t. c. pl. xxii, fig. 2.

Silurus asotus, L., figured by JORDAN & EVERMANN, P. U. S. Mus. xxv, p. 320.

Wallago miostoma and *nebulosus*, spp. nn., VAILLANT, Notes Leyden Mus. xxiv, pp. 44 & 46, Borneo.

Ailia occidentalis, sp. n., PELLEGRIN, Bull. Mus. Paris 1901, p. 331, Cape Lopez, French Congo.

Parailia longifilis, sp. n., BOULENGER, Ann. Mus. Congo, Zool. ii, p. 37, pl. x, fig. 3, Ubanghi.

Pseudolais, g. n., near *Lais*, VAILLANT, Notes Leyden Mus. xxiv, p. 51; *P. tetranema*, sp. n., id. ibid. p. 52, fig., Borneo.

Liocassis moeschii, Blgr., redescribed and figured by VAILLANT, t. c. p. 61; *L. mahakamensis* and *macropterus*, spp. nn., id. ibid. pp. 55 & 58, figg., Borneo.

Akysis armatus, sp. n., VAILLANT, t. c. p. 64, fig., Borneo.

Acrochordonichthys pachyderma, sp. n., VAILLANT, t. c. p. 66, figg., Borneo.

Bagrus orientalis, p. 37, Zanzibar Coast, and *ubangensis*, p. 38, pl. xi, fig. 1, Ubanghi, spp. nn., BOULENGER, Ann. Mus. Congo ii.

Chrysichthys ornatus, sp. n., BOULENGER, t. c. p. 39, pl. xi, fig. 2, Upper Congo and Ubanghi.

Pimelodus gaudryi, Leriche, and *sadleri*, Heck. (foss.). Notes by LERICHE, Ann. Soc. geol. Nord xxx, 1901, pp. 165 & 166, pl. v, figg. 19 & 20.

Rhamdia oaxacæ, sp. n., MEEK, Field Mus. Zool. iii, p. 74, pl. xiv, Cuicatlan, Oaxaca, Mexico.

Auchenoglanis, Gthr. Synopsis of the species by BOULENGER, Ann. Mus. Congo, Zool. ii, p. 40; *A. ubangensis*, sp. n., id. ibid. p. 41, pl. xi, fig. 3, Ubanghi; *A. punctatus* and *pulcher*, spp. nn., id. P. Z. S. 1902, i, p. 267, pl. xxix, figg. 1 & 2, Lindi R., Upper Congo.

Anoplopterus, Pfeff. = *Amphilius*, Gthr., POGGE, Zool. Anz. xxv, pp. 121 & 211; synopsis of the species, BOULENGER, Ann. Mus. Congo, Zool. ii, p. 41; *A. angustifrons*, sp. n., id. ibid. p. 42, pl. x, fig. 4, Ubanghi; *A. brevis*, sp. n., id. P. Z. S. 1902, i, p. 268, pl. xxix, fig. 3, Lindi R., Upper Congo.

Leptoglanis, g. n., near *Amphilius*, Gthr., BOULENGER, Ann. Mus. Congo, Zool. ii, p. 42; *L. xenognathus*, sp. n., id. ibid. p. 43, pl. xiv, fig. 1, Ubanghi.

Conorhynchus nelsoni, sp. n., EVERMANN & GOLDSBOROUGH, Bull. U. S. Fish Comm. xxi, p. 140, fig., Yucatan.

Arius? lemoinei, sp. n. (foss.), PRIEM, Bull. Soc. geol. France (4) i, p. 492, pl. xi, figg. 9–11, Lower Eocene near Reims, France.

Glyptosternum nieuwenhiusi, sp. n., VAILLANT, Notes Leyden Mus. xxiv, pp. 72 & 162, fig., Borneo.

Breitensteinia insignis, Stdr., redescribed and figured by VAILLANT, t. c. p. 76, figg.

Sosia, g. n., near *Breitensteinia*, VAILLANT, t. c. p. 81; *S. chamæleon*, sp. n., id. ibid. p. 82, figg., Borneo.

Synodontis multimaculatus, p. 43, pl. xii, fig. 1, *longirostris*, p. 44, pl. xii, fig. 2, and *smiti*, p. 45, pl. xii, fig. 3, spp. nn., BOULENGER, Ann. Mus. Congo, Zool. ii, Ubanghi.

Chiloglanis brevibarbis, sp. n., BOULENGER, P. Z. S. 1902, ii, p. 224, pl. xvii, fig. 2, Mathoiya R., Kenya district, E. Africa.

Euchilichthys, Blgr. Note on the skeleton, BOULENGER, Ann. Mus. Congo, Zool. ii, p. 47; *E. royauxi*, sp. n., id. ibid. p. 46, pl. 13, Ubanghi.

Phractura, Blgr. Synopsis of the species by BOULENGER, P. Z. S. 1902, i, p. 269; *P. ansorgii*, sp. n., id. op. cit. 1901, i, p. 623, pl. xxxvii, fig. 1, S. Nigeria; *P. lindica*, sp. n., id. op. cit. 1902, i, p. 268, pl. xxviii, fig. 3, Lindi R., Upper Congo.

Paraphractura, g. n., BOULENGER, Ann. Mus. Congo, Zool. ii, p. 47; *P. tenuicauda*, sp. n., id. ibid. p. 48, pl. xiv, fig. 2, Ubanghi.

Trachyglanis, g. n., BOULENGER, t. c. p. 48; *T. minutus*, sp. n., id. ibid. p. 49, pl. xiv, fig. 3, Ubanghi.

Belonoglanis, g. n., BOULENGER, t. c. p. 50; *B. tenuis*, sp. n., id. ibid. pl. xiv, fig. 4, Ubanghi.

CYPRINIDÆ.

M. JAQUET, Bull. Soc. Bucarest x, pp. 544–557, pls. i & ii, describes and figures the skeleton of a Carp with malformed head.

Catostomus sonorensis and *conchos*, spp. nn., MEEK, Field Mus. Zool. iii, p. 75, pls. xv & xvi, Chihuahua, Mexico.

Labeo cyclorhynchus, Blgr., var. n. *variegata*, PELLEGRIN, Bull. Mus Paris 1901, p. 332, Ogowe. *L. greenii*, p. 29, pl. viii, fig. 4, and *parvus*, p. 30, pl. viii, fig. 5, spp. nn., BOULENGER, Ann. Mus. Congo, Zool. ii, Ubanghi. *L. lukulæ*, sp. n., id. P. Z. S. 1902, i, p. 235, pl. xxiii, Lukula R., French Congo; *L. darlingi*, sp. n., id. op. cit. 1902, ii, p. 13, pl. ii, fig. 1, Mashonaland.

Discognathus borneensis, sp. n., VAILLANT, Notes Leyden Mus. xxiv, p. 91, figg., Borneo.

Capoëta waldoi and *atlantica*, spp. nn., BOULENGER, Ann. Nat. Hist. (7) ix, p. 123, Morocco.

Pterocapoëta, g. n., near *Capoëta*, for *P. maroccana*, GÜNTHER, Nov. Zool. ix, p. 446, pl. xxii, Morocco.

Barbus, Cuv. Synopsis of the African species allied to *B. bynni*, Rüpp., BOULENGER, Ann. Nat. Hist. (7) x, p. 423, and of the species recorded from the Congo Basin, id. Ann. Mus. Congo, Zool. ii, p. 31; *B. reinii*, Gthr., and *rothschildi*, Gthr. Notes by GÜNTHER, Nov. Zool. ix, pp. 447 & 448; *B. riggenbachi*, sp. n., id. ibid. p. 447, pl. xxiii, Morocco; *B. brazzai*, sp. n., PELLEGRIN, Bull. Mus. Paris 1901, p. 330, Mobaka, Congo; *B. miolepis*, p. 31, pl. ix, fig. 1, *caudovittatus*, p. 32, pl. ix, fig. 2, and *humeralis*, p. 33, pl. ix, fig. 3, spp. nn., BOULENGER, Ann. Mus. Congo, Zool. ii, Ubanghi; *B. hindii*, *perplexicans*, and *labiatus*, spp. nn., id. P. Z. S. 1902, ii, pp. 222 & 223, pls. xvi & xvii, Mathoiya R., Kenya district, E. Africa. *B. rhodesianus*, sp. n., id. t. c. p. 14, pl. ii, fig. 2, Mashonaland; *B. bowkeri*, sp. n., id. Ann. Nat. Hist. (7) ix, p. 288, Natal; *B. gregorii*, sp. n., id. op. cit. x, p. 422, Tana R., E. Africa; *B. microterolepis*, p. 426, *macronema*, p. 427, *rueppelli*, p. 427, *harringtoni*, p. 428, *jarsinus*, p. 429, *plagiostomus*, p. 429, *platystomus*, p. 430, *kassamensis*, p. 431, *brevibarbis*, p. 431, *leptosoma*, p. 432, *oreas*, p. 432, *duchesnii*, p. 433, *mento*, p. 434, *hursensis*, p. 434, *degeni*, p. 435, *pleurogramma*, p. 436, *humilis*, p. 436, and *trispilopleura*, p. 437, spp. nn., id. ibid., Abyssinia; *B. anchisporus*, sp. n., VAILLANT, Notes Leyden Mus. xxiv, p. 96, fig., Borneo.

Rasbora sumatrana, Blkr., redescribed and figured by VAILLANT, t. c. p. 105, fig.

Tinca vulgaris, Cuv. On the variations, ROSETTA SEGRE, Boll. Mus. Torino xvii, No. 429.

Oreoleuciscus ignatowi, sp. n., NIKOLSKI, Annuaire Mus. St. Petersb. vii, p. 188, L. Tschoebok-kul, Altai.

Algansea rubescens, sp. n., MEEK, Field Mus. Zool. iii, p. 78, pl. xvii, R. Santiago, Jalisco, Mexico.

Gila minacæ, sp. n., MEEK, t. c. p. 80, pl. xvii, Minaca, Chihuahua, Mexico.

Aztecula mexicana, sp. n., MEEK, t. c. p. 81, pl. xviii, Queretaro, Mexico.

Notropis santamariæ, p. 147, fig., Chihuahua, Mexico, and *lermæ*, p. 147, fig., L. Lerma, Mexico, spp. nn., EVERMANN & GOLDSBOROUGH, Bull. U. S. Fish Comm. xxi; *N. robustus* and *santarosaliæ*, spp. nn., MEEK, Field Mus. Zool. iii, pp. 82 & 85, pl. xix, Chihuahua, Mexico.

Evarra tlahuacensis, sp. n., MEEK, t. c. p. 85, pl. xviii, L. Chalco, near Mexico City.

Paraphoxinus pstrossii, Stdr. Note by KOLOMBATOVIĆ, Glasnik Naravosl. druzt. xiii, p. 22.

Chondrostoma nasus, L., and *genei*, Bp. On their distribution in France, L. ROULE, C.R. cxxxv, p. 980.

Acheilognathus mesembrinum, sp. n., JORDAN & EVERMANN, P. U. S. Mus. xxv, p. 323, fig., Formosa.

Thynnichthys polylepis, Blkr., redescribed and figured by VAILLANT, Notes Leyden Mus. xxiv, p. 103, fig.

Bliccopsis erythrophthalmoides, Jäckel. Note by A. LUTHER, Medd. Soc. Faun. Fenn. xxviii, 1901, p. 12, fig.

Barilius longirostris, sp. n., BOULENGER, Ann. Mus. Congo, Zool. ii, p. 33, pl. ix, fig. 4, Ubanghi; *B. fasciolatus*, sp. n., id. ibid. p. 34, pl. ix, fig. 5, Ubanghi = *B. ubangensis*, Pellegr., id. P. Z. S. 1902, i, p. 266.

Zacco, g. n., for *Opsariichthys pachycephalus*, Gthr., JORDAN & EVERMANN, P. U. S. Mus. xxv, p. 322; *Z. evolans*, sp. n., id. ibid. p. 322, fig., Formosa.

Homaloptera orthogoniata, sp. n., VAILLANT, Notes Leyden Mus. xxiv, p. 123, figg., Borneo.

Parhomaloptera, g. n., near *Homaloptera*, VAILLANT, t. c. p. 129; *P. obscura*, sp. n., id. ibid. p. 130, fig., Borneo.

Gyrinocheilus, g. n., an aberrant form referred to the *Homalopterinæ*, VAILLANT, C.R. Ac. Sci. cxxxv, p. 702, and Notes Leyden Mus. xxiv, p. 107; *G. pustulosus*, sp. n., id. ibid. p. 111, figg., pls. i & ii, Borneo.

Nemachilus obesus and *euepipterus*, spp. nn., VAILLANT, Notes Leyden Mus. xxiv, pp. 134 & 137, figg., Borneo; *N. abyssinicus*, sp. n., BOULENGER, Ann. Nat. Hist. (7) x, p. 437, L. Tsana, Abyssinia.

Aperioptus, Rich. Remarks by VAILLANT, t. c. p. 141; *A. megalomycter*, sp. n., id. ibid. p. 145, figg., Borneo.

Acanthophthalmus anguillaris, sp. n., VAILLANT, t. c. p. 151, fig., Borneo.

Lepidocephalichthys pallens, sp. n., VAILLANT, t. c. p. 153, fig., Borneo.

CHARACINIDÆ.

Alestes tholloni, sp. n., PELLEGRIN, Bull. Mus. Paris 1901, p. 329, Congo.

Micralestes stormsi, sp. n., BOULENGER, P. Z. S. 1902, i, p. 265, pl. xxviii, figg. 1 & 2, Lindi R., Upper Congo.

Leporinus silvestrii, sp. n., BOULENGER, Ann. Nat. Hist. (7) ix, p. 285, Matto Grosso.

Parodon gestri, sp. n., BOULENGER, t. c. p. 285, Matto Grosso.

Nannocharax, Gthr. Synopsis of the species by BOULENGER, Ann. Mus. Congo, Zool. ii, p. 27; *N. brevis*, p. 27, pl. viii, fig. 2, and *tænia*, p. 28, pl. viii, fig. 3, spp. nn., id. ibid., Ubanghi.

Citharidium, g. n., intermediate between *Citharinus* and *Xenocharax*, for *C. ansorgii*, sp. n., BOULENGER, Ann. Nat. Hist. (7) ix, p. 144, pl. iii, S. Nigeria.

Curimatus nigrotænia, sp. n., BOULENGER, t. c. p. 285, Matto Grosso.

MALACOPTERYGII.

STOMIATIDÆ.

Chauliodus sloani, Schn. Recorded from the Mediterranean coast of Spain, ODÓN DE BUEN, Bol. Soc. espan. ii, p. 104.

Cyclothone livida, p. 279, Atlantic Ocean, *obscura*, p. 280, Atlantic and Indian Oceans, and *pallida*, p. 281, Atlantic and Indian Oceans, spp. nn., BRAUER, Zool. Anz. xxv.

Triplophos, g. n., for *T. elongatus*, sp. n., BRAUER, t. c. p. 282, off Ceylon.

Astronesthes boulengeri, sp. n., GILCHRIST, Mar. Invest. S. Afr. ii, p. 103, pl. vi, off Cape of Good Hope, 490 fathoms; *A. indicus* and *splendidus*, spp. nn., BRAUER, Zool. Anz. xxv, pp. 287 & 288, Indian Ocean, 2000–3000 m.

Bathylychnus, g. n., near *Astronesthes*, for *B. cyaneus*, sp. n., BRAUER, t. c. p. 289, S. of Ceylon, 2000 m.

Macrostomias, g. n., near *Stomias*, for *M. longibarbatus*, sp. n., BRAUER, t. c. p. 283, Gulf of Guinea, 1800 m.

Melanostomias, g. n., near *Stomias*, for *M. melanops* and *M. valdiviæ*, spp. nn., BRAUER, t. c. pp. 284 & 285, W. coast of Sumatra, 614 & 1024 m.

Winteria, g. n., near *Opisthoproctus*, for *W. telescopa*, sp. n., BRAUER, SB. Ges. Marburg 1901, p. 126, Gulf of Guiaca, deep sea.

ALEPOCEPHALIDÆ.

Bathytroctes longifilis, sp. n., BRAUER, Zool. Anz. xxv, p. 277, Gulf of Aden, 1469 m.

Dolichopteryx, g. n., for *Aulostoma longipes*, Vaill., and *D. anascopa*, sp. n., BRAUER, SB. Ges. Marburg 1901, p. 127, Indian Ocean, off Cocos Is., deep sea.

SALMONIDÆ.

Review of the Japanese species by JORDAN & SNYDER, P. U. S. Mus. xxiv, pp. 567–593, figg.; also JORDAN, Annot. zool. Japon. iv, pp. 69–75.

On the Salmonidæ of North America, from the point of view of the angler, SAGE, TOWNSEND, SMITH & HARRIS, "Salmon and Trout," New York, 1902, 8vo, x + 417 pp., figg.

J. W. W. BUND, Verh. v. Int. Zool. Congr. p. 986, remarks on the migration of the Salmon as affected by the changed condition of the Severn.

K. DAHL, Ørret og unglaks (Christiania, 1902), contributes to our knowledge of the life histories of *Salmo salar* and *S. trutta* in Norway, and points out the distinctive characters of the young of the two species.

J. K. BARTON, Rep. Fish. Board Scotland xx, Pt II, pp. 101–110, 9 pls., and J. Anat. Physiol. norm. path. (2) xvi, pp. 142–146, pls. viii & ix, has made further examinations of the condition of the digestive tract in Salmon and Sea-trout Kelts.

G. E. H. BARRETT-HAMILTON, Ann. Nat. Hist. (7) ix, pp. 106–120, has further observations on the nuptial ornamentation of Salmonids and on the nature of the pigmentation.

H. M. KYLE, P. R. Soc. Lond. lxx, pp. 48–66, has made experiments on the action of *Euphorbia hiberna* on Salmonids.

On the possibility of introducing *Salmonidæ* into Chili, F. ALBERT, Act. Soc. Chili xii, pp. 1–54, figg.

Salmo salar, L. On the life-history, CALDERWOOD, Rep. Fish. Board Scotland xx, Pt II, p. 55; on its habits in the River Inver, Scotland, HARVIE-BROWN, Ann. Scott. Nat. Hist. 1902, p. 14; *S. blackistoni*, Hilg., figured by JORDAN & SNYDER, t. c. p. 580.

Oncorhynchus masou, Brev., and *keta*, Walb., figured by JORDAN & SNYDER, t. c. pp. 572 & 573.

Coregonus macrophthalmus, Nüsslin. Remarks by FATIO, Arch. Sci. Nat. (4) xiv, p. 433.

Plecoglossus altivelis, Schleg., figured by JORDAN & SNYDER, t. c. p. 585.

Argentina kagoshimæ, sp. n., JORDAN & SNYDER, t. c. p. 590, fig., Japan.

CLUPEIDÆ.

J. T. JENKINS, Wiss. Meeresuntersuch. (2) vi, Kiel, pp. 81–121, figg., 1 pl., writes on the determination of age through the otoliths in the Clupeidæ.

Stolephorus lyolepis, sp. n., EVERMANN & MARSH, Bull. U. S. Fish Comm. xx, p. 89, fig., Porto Rico.

Clupea harengus, L. On a hermaphrodite example, SOUTHWELL, Ann. Nat. Hist. (7) ix, p. 195.

Alosa ohiensis, sp. n., EVERMANN, Rep. U. S. Fish Comm. f. 1901, p. 277, figg., Ohio River.
Microthrissa, g. n., near *Odaxothrissa*, Blgr., for *M. royauxi*, sp. n., BOULENGER, Ann. Mus. Congo, Zool. ii, p. 26, pl. viii, fig. 1, Ubanghi.
Pristigaster dolloi, sp. n., BOULENGER, P. Z. S. 1902, i, p. 271, pl. xxx, fig. 1, Mouth of Congo.

PANTODONTIDÆ.

Pantodon buchholzi, Ptrs. On a specimen from the Kasai R., Congo, C. M. L. POPTA, Notes Leyden Mus. xxiii, p. 111.

MORMYRIDÆ.

Marcusenius weeksii, p. 24, pl. vii, fig, 2, Upper Congo, and *tumifrons*, p. 24, pl. vii, fig. 3, Ubanghi, spp. nn., BOULENGER, Ann. Mus. Congo, Zool. ii.
Gnathonemus ibis, sp. n., BOULENGER, t. c. p. 25, pl. vii, fig. 4, Ubanghi. *G. fuscus*, sp. n., PELLEGRIN, Bull. Mus. Paris 1901, p. 328, Congo.

ELOPIDÆ.

Elopopsis smith-woodwardi, sp. n. (foss.), FRITSCH & BAYER, Ceska Ak. Praze, 4to, ii, p. 12, pl. iii, fig. 1, Cretaceous, Bohemia.
Parelops prazakii, g. and sp. nn. (foss.), FRITSCH & BAYER, t. c. p. 13, pl. ii, fig. 1, Cretaceous, Bohemia.
Osmeroides viranensis, Fritsch (foss.). On a very well preserved tail, FRITSCH & BAYER, t. c. p. 10, fig., pl. ii, fig. 2.

INCERTÆ SEDIS.

Stylophthalmus, g. n., for *S. paradoxus*, sp. n., for remarkable larvæ from the deep sea off the Cape of Good Hope and the Indian Ocean, the eye being carried on a very long peduncle, BRAUER, Zool. Anz. xxv, p. 298.
Gigantura, g. n., apparently related to *Stylophorus*, Shaw, for *G. chuni*, sp. n., BRAUER, SB. Ges. Marburg 1901, p. 128, Gulf of Guinea, deep sea.

GANOIDEI.

HOLOSTEI.

K. E. SCHREINER, Zeitschr. wiss. Zool. lxxii, pp. 467–524, figg., pls. xxviii & xxix, has investigated the structure and development of the occipital region of *Amia* and *Lepidosteus*.
H. PIPER, Verh. Anat. Ges. 1902, pp. 18–25, and Arch. Anat., Suppl. 1902, pp. 1–78, pls. i–iv, writes on the development of the liver, pancreas, and swim-bladder in *Amia calva*.

Amia robusta, sp. n. (foss.), PRIEM, Bull. Soc. geol. France (4), i, p. 485, figg., pl. x, figg. 1–13, Lower Eocene near Reims, France.
Hypsocormus combesi, sp. n. (foss.), SAUVAGE, Mem. Soc. geol. France ix, No. 25, p. 25, pl. iv, fig. 1, Kimmeridgian, Fumel, France.
Protosphyræna ferox, Leidy (foss.). Part of skeleton described and figured by FRITSCH & BAYER, Ceska Ak. Praze, 4to, ii, p. 6, pl. i, figg. 2–5.

Caturus woodwardi, sp. n. (foss.), SAUVAGE, t. c. p. 24, pl. ii, fig. 1, Kimmeridgian, Fumel, France.

Pycnodus munieri, p. 44, fig., and *savini*, p. 46, fig., spp. nn. (foss.), PRIEM, Bull. Soc. geol. France (4) ii, Eocene of Dept. Aude, France; *P. scrobiculatus*, Reuss (foss.). On the dentition, LERICHE, Ann. Soc. geol. Nord xxx, 1901, p. 162, pl. v, fig. 18.

Mesodon combesi, *lingua*, and *fourtani*, spp. nn. (foss.), SAUVAGE, Mem. Soc. geol. France ix, No. 25, pp. 13–15, pls. i, iii, v, Upper Kimmeridgian, Fumel, France.

Gyrodus larteti, Sauv. (foss.). On the dentition, LERICHE, t. c. p. 163, pl. v, fig. 17. *G. oltis* and *montmejai*, spp. nn. (foss.), SAUVAGE, t. c. pp. 18 & 20, pls. 1–111, Upper Kimmeridgian, Fumel, France.

Elonichthys perpennatus, sp. n. (foss.), EASTMAN, J. Geol. x, p. 539, Carboniferous of Mazon Creek, Illinois.

Schizospondylus dubius, g. and sp. nn., FRITSCH & BAYER, Ceska Ak. Praze, 4to, ii, p. 8, pl. i, fig. 6, Cretaceous, Bohemia.

CHONDROSTEI.

Acipenser, *L.* On the European species, BRUSINA, Rad Jugosl. Ak. cxlix, p. 1, pl. i. *A. albertensis*, sp. n. (foss.), LAMBE, Contr. Canad. Pal. iii, p. 29, pl. xxi, fig. 9, Belly River Series (Mid-Cretaceous), Alberta, Brit. N. America.

Benedenius deneensis, Traq. (foss.). Further notes by BOULENGER, Ann. Nat. Hist. (7) x, p. 52.

INCERTÆ SEDIS.

Atherstonia australis, sp. n. (foss.), A. S. WOODWARD, Rec. Geol. Survey N. S. Wales vii, 2, p. 88, pl. xxiv, fig. 1, Trias, Harrington, N. S. Wales.

Diphyodus longirostris, g. and sp. nn., for a premaxillary rostrum of unknown affinities, LAMBE, Contr. Canad. Pal. iii, p. 30, pl. xv, figg. 18 & 19, Belly River Series, Alberta, Brit. N. America.

CROSSOPTERYGII.

J. S. BUDGETT, Tr. Zool. Soc. xvi, pp. 315–340, pls. xxxiii–xxxv, describes the skeleton and urinogenital organs in a larval *Polypterus senegalus*, and remarks on the affinities of the living *Crossopterygians*. Also Rep. Brit. Ass. 1901, p. 693.

Polypterus, Geoffr. Young specimens of six species described and figured by BOULENGER, P. Z. S. 1902, i, pp. 121–125, pls. x & xi; *P. congicus*, Blgr., figured by MOORE, Tanganyika Problem, p. 152; *P. ornatipinnis*, sp. n., BOULENGER, Ann. Mus. Congo, Zool. ii, p. 23, pl. vii, fig. 1, Upper Congo.

Holoptychius nobilissimus, Ag. (foss.). On the scales, A. S. WOODWARD, Bih. Svenska Ak. xxvi, iv, No. 10, p. 3, pl. —, figg. 1–10.

Cœlacanthus, Ag. (foss.). On the general anatomy, and restoration, WELLBURN, P. Yorksh. geol. Soc. (2) xiv, p. 474, fig.; *C. hindi*, sp. n., id. ibid. p. 470, Carboniferous Pendleside limestone, Yorkshire. *C. exiguus*, sp. n., EASTMAN, J. Geol. x, p. 538, fig., Carboniferous of Mazon Creek, Illinois.

DIPNEUSTI.

A. N. SEWERTZOFF, Anat. Anz. xxi, pp. 593–608, figg., has a preliminary communication on the development of *Ceratodus forsteri*.

J. G. Kerr, P. Z. S. 1901, ii, pp. 484–498, figg., pls. xxvii & xxviii, writes on the genito-urinary organs of *Lepidosiren* and *Protopterus*.—Also P. Cambridge Soc. xi, pp. 329–333.

J. G. Kerr, Quart. J. Micr. Sci. xlvi, pp. 417–459, figg., pls. xxv–xxix, investigates the development of the skin and its derivation in *Lepidosiren paradoxa*.

Protopterus æthiopicus, Heck., figured by Moore, Tanganyika Problem, p. 152.

OSTRACOPHORI.

O. Jaekel, SB. Ges. naturf. Berlin 1902, pp. 103–115, pl. —, gives a restoration of *Coccosteus decipiens*, and considers the relations of the *Coccosteidæ* with other Fishes and the *Stegocephalia*.

W. Patten, Verh. v. Int. Zool. Congr. pp. 180–192, figg., compares the structure of the head of the *Ostracophori* with that of *Limulus* and Trilobites.

W. Patten, Amer. Natural. xxxvi, pp. 379–393, figg., also writes on the structure and classification of the *Trematastpidæ*, and proposes a new class, named *Peltacephala*, to include the *Pteraspidæ*, *Trematastpidæ*, *Pterichthyidæ*, and *Cephalaspidæ*.

L. Vaillant, CR. cxxxiv, pp. 1321 & 1322, remarks on the minute structure of the bony scales of Silurian Fishes from Colorado.

Cephalaspis carteri, McCoy. On the corner of a head-shield from Cornwall, A. S. Woodward, Tr. geol. Soc. Cornwall xii, p. 431.

Asterolepis incisa, sp. n., A. S. Woodward, Bih. Svenska Ak. xxvi, iv, No. 10, p. 6, pl. —, figg. 11–13, Upper Devonian, East Greenland.

Drepanaspis gemundenensis, Schlüter. Additional note by Traquair, Geol. Mag. (iv) ix, p. 289, figg.

CHONDROPTERYGII.

O. P. Hay, Tr. Amer. phil. Soc. (2) xx, pp. 63–75, writes on the chronological distribution of the Chondropterygians or Elasmobranchs.

HOLOCEPHALI.

F. K. Studnička, Bibliog. anat. xi, pp. 217–233, figg., has investigated the buccal epithelium of *Chimæra monstrosa*.

Chimæra monstrosa, var. n. *australis*, Hector, Tr. N. Zealand Inst. xxxiv, p. 239, pl. xiv, fig. c, New Zealand.

Ischyodus bohemicus, sp. n. (foss.), Fritsch & Bayer, Ceska Ak. Praze, 4to, ii, p. 5, Cretaceous, Bohemia.

PLAGIOSTOMI.

A. Dohrn, Mt. Stat. Neapel xv, pp. 555–654, pls. xxiv–xxx, has further contributions to the consideration of the development of the occipital region and ganglia in Selachians.

E. Ruge, Morphol. Jahrb. xxx, pp. 1–27, figg., pl. i, has investigated the development of the skeleton of the fore limb in *Spinax niger*.

F. H. Edgeworth, J. Anat. Physiol. norm. path. (2) xvii, pp. 73–86, pls. iv–x, has a paper on the development of the head muscles in *Scyllium canicula*.

A. B. Lamd, Tufts Coll. Stud. No. 7, pp. 275–292, figg., writes on the development of the eye muscles in *Acanthias.*

M. Cavalié, C.R. Soc. Biol. liv, pp. 1279 & 1280, remarks on the nerve terminations in the striated muscles of *Torpedo marmorata.*

B. Dean, Amer. Geol. xxx, pp. 273–278, remarks on the preservation of muscle-fibres in Sharks of the Cleveland Shale.

L. Vialleton, Arch. anat. micr. v, pp. 379–456, pls. xiii & xiv, writes on the lymphatic system of *Torpedo marmorata* in relation to the digestive tract.

A. Policard, C.R. Ac. Sci. cxxxiv, pp. 297–299, writes on the structure of the testicle in young Skates.

P. Stephan, C.R. Soc. Biol. liv, pp. 773–776, writes on the development and evolution of Sertoli's cell in the testicle of Selachians.

G. Retzius, Biol. Untersuch. (2) x, pp. 61–64, pl. xviii, describes and figures the spermatozoon of *Acanthias vulgaris.*

E. Greynfeltt, C.R. Ac. Sci. cxxxiv, pp. 362–364, and cxxxv, pp. 330–332, writes on the suprarenal bodies in Selachians.

E. Laguesse, Bibliog. anat. x, pp. 260–272, figg., writes on the structure of the pancreas in *Galeus canis.*

J. Beard, Zool. Jahrb. Anat. xvii, pp. 403–480, figg., pls. v–x, has a paper on the origin and histogenesis of the thymus in *Raia batis.*

J. Beard, Anat. Anz. xxi, pp. 50–61, writes on the germ-cells of embryos of *Pristiurus melanostomus.*

J. Beard, Zool. Jahrb. Anat. xvi, pp. 615–702, pls. xliii & xliv, writes on the germ-cells of *Raia batis.*

K. Berliner, Arch. mikr. Anat. lx, pp. 386–406, figg., pl. xx, has investigated the development of the olfactory organ in Selachians.

J. B. Johnston, Anat. Anz. xxi, pp. 308–313, criticises the work of Allis on the homology of the nerve sacs of Ganoids and the ampullæ of Selachians with the end buds of Teleosteans.

A. Coggi, Arch. Zoologico i, pp. 59–107, pls. iii & iv, writes on the development of the lateral line organs, the ampullæ of Lorenzini, and their respective nerves in *Torpedo.*

A. Romano, Anat. Anz. xx, pp. 513–535, has a preliminary paper on the histogenesis of the electric nervous centres in *Torpedo* and *Raia.*

E. Menel, Arch. mikr. Anat. lx, pp. 181–189, figg., pl. x, has remarks on the histology of the electric lobes of *Torpedo marmorata.*

B. Solger, Morphol. Jahrb. xxxi, pp. 104–115, pl. v, writes on the 'intercellular filaments' in the ganglion-cells of the electric organ of *Torpedo.*

N. E. Menel has a paper in Bohemian on the histology of the electric centrum of *Torpedo marmorata*, SB. Bohmisch. Ges. 1901, No. xx, 1 pl.

F. Leydig, Anat. Anz. xxii, pp. 297–301, remarks on the luminous organs of Selachians.

E. Couvreur, C.R. Soc. Biol. liv, pp. 1252 & 1253, writes on the respiratory mechanism of *Torpedo.*

H. Jabe, J. Geol. Soc. Tokyo ix, pp. 1–6, figg., notices some fossil Sharks' teeth from the Mesozoic formation of Japan.

Carcharias æthiops, sp. n., Philippi, An. Univ. Chile cix, Chili.

Galeus antarcticus, Gthr. On the fœtus: Waite, Rec. Austral. Mus. iv, p. 175, fig.

Lamna obliqua, Ag., and *vincenti*, Winkl. (foss.). Teeth described and figured by De Alessandri, Atti Mus. Milano xli, pp. 443 & 450, pl. xii, figg. 1–8. *L. vincenti*, Winkl. (foss.). Note by Leriche, Ann. Soc. geol. Nord xxx, 1901, p. 159, pl. v, fig. 16.

Odontaspis macrotus, Ag. (foss.). Note by Leriche, t. c. p. 156, pl. v, figg. 13–15.

Alopecias longimana, sp. n., PHILIPPI, An. Univ. Chile cix, Chili.

Scylliogaleus, g. n., characters of *Mustelus*, but nostrils as in *Scyllium*, for *S. queketti*, sp. n., BOULENGER, Ann. Nat. Hist. (7) x, p. 51, pl. iv, Natal.

Selache maxima, Gunn. Description and figures of a specimen from Victoria, KERSHAW, Victorian Natural. xix, p. 62, 2 pls.; on one from New South Wales, WAITE, Rec. Austral. Mus. iv, p. 263.

Rhinodon typicus, Smith. Recorded from the Coast of Florida by B. A. BEAN, Science (2) xv, p. 353; notes by GILL, t. c. p. 824.

Chiloscyllium indicum, Gm., figured by JORDAN & EVERMANN, P. U. S. Mus. xxv, p. 317.

Campodus corrugatus, Newb. & Worth. (foss.). On the symphysial dentition: EASTMAN, Amer. Natural. xxxvi, p. 853, fig.

C. R. EASTMAN, Bull. Mus. Harvard xxxix, pp. 55–77, figg., pls. i & ii, writes on the nature of *Edestus* and related forms, which are regarded as symphysial teeth of Cestraciont Sharks.

Campyloprion annectans, g. and sp. n. (foss.), for a new form of *Edestus*-like dentition: EASTMAN, Geol. Mag. (iv) ix, p. 151, pl. viii, fig. 2, locality unknown.

Notidanus medinæ and *wolniczkyi*, spp. nn., PHILIPPI, An. Univ. Chile cix, fig., Chili.

Etmopterus lucifer, sp. n., JORDAN & SNYDER, P. U. S. Mus. xxv, p. 79, fig., Japan.

Deania, g. n., near *Centrophorus*, for *D. eglantina*, sp. n., JORDAN & SNYDER, t. c. p. 80, fig., Japan.

Centrophorus ringens, Bocage & Capello, recorded from the Hebrides by G. SIM, Ann. Scott. Nat. Hist. 1902, p. 13.

Læmargus. On the anatomy and systematic position: H. HELBING, Anat. Anz. xxi, p. 658.

Squatina gaudryi, sp. n. (foss.), PRIEM, Bull. Soc. geol. France (4) i, p. 482, pl. xi, figg. 23 & 24, Lower Eocene near Reims, France.

Pristis antiquorum, Lath. On a supposed British specimen: SOUTHWELL, Zoologist (4) vi, p. 114.

Peripristis, St John (foss.). Remarks by EASTMAN, Geol. Mag. (iv) ix, p. 388, who proposes the establishment of a new family, *Peripristidæ*.

Astrape aysoni, sp. n., A. HAMILTON, Tr. N. Zealand Inst. xxxiv, p. 225, pls. x–xii, New Zealand.

Hypnarce, n. n. for *Hypnos*, A. Dum. nec Hübn., WAITE, Rec. Austral. Mus. iv, p. 180.

Raia circularis, Couch, and *R. radula*, Thoms. On the distinctive characters: G. SIM, Ann. Scott. Nat. Hist. 1902, p. 220, pls. iv & v; *R. magellanica*, sp. n., PHILIPPI, An. Univ. Chile cix, Magelhan.

Dasyatis akajei, Schleg., figured by JORDAN & EVERMANN, P. U. S. Mus. xxv, p. 319.

Myliobatis gemmellaroi, p. 63, pl. i, figg. 4–6, & pl. ii, figg. 15–17, *erctensis*, p. 68, pl. i, fig. 7, and *siculus*, p. 68, pl. i, figg. 1–3, & pl. ii, figg. 1–16, spp. nn. (foss.), SALINAS, Giorn. Soc. Palermo xxiii, Tertiary, Sicily.

Dicerobatis giorna, Lacep. On a gigantic specimen from Oran: PELLEGRIN, Bull. Mus. Paris 1901, p. 327.

Ptychodus, Ag. (foss.). On the dentition of various species from French Cretaceous beds, LERICHE, Ann. Soc. geol. Nord xxxi, pp. 89–101, fig., pl. ii; *P. decurrens*, Ag., var. n. *multiplicatus*, id. ibid. p. 96, pl. ii, fig. 20, Cenomanian, Autreppe, France; *P. carapetiæ*, p. 75, pl. i, figg. 11 & 12, and *catulloi*, p. 76, pl. i, figg. 8–10, spp. nn. (foss.), SALINAS, Giorn. Soc. Palermo xxiii, Tertiary, Sicily.

ACANTHODII.

Acanthodes marshi, p. 93, pl. vi, fig. 3 and pl. vii, figg. 1 & 2, and *beecheri*, p. 94, fig., spp. nn., EASTMAN, Bull. Mus. Harvard xxxix, Coal Measures, Mazon Creek, Illinois. Also J. Geol. x, pp. 536 & 537, figg.

Marsdenius, g. n. (*Diplacanthid.*), WELLBURN, P. Yorksh. geol. Soc. (2) xiv, p. 466; *M. summiti*, and *acuta*, spp. nn., id. ibid. pp. 467 & 468, Carboniferous Pendleside limestone, Yorkshire.

ICHTHYOTOMI.

Cladodus formosus, sp. n., O. P. HAY, Amer. Geol. xxx, p. 373, fig., Devonian of Colorado.

INCERTÆ SEDIS (ICHTHYODORULITES).

E. MARIANI, Atti Mus. Milano xli, p. 437, fig., describes some ichthyodorulites from the Chalk of Lombardy.

J. V. ROHON, SB. Bomisch. Ges. 1901, No. xvi, 31 pp., figg., 2 pls., has a contribution to the anatomy and histology of the *Psammosteidæ*.

Ganosteus, g. n., near *Psammosteus*, for *G. tuberculatus* and *stellatus*, spp. nn., Devonian of Russia.

Ctenacanthus, Ag. On species from the Carboniferous of the Mississippi Valley, EASTMANN, Bull. Mus. Harvard xxxix, pp. 79–92, figg.; *C. longinodosus*, p. 78, pl. v, fig. 2, *lucasi*, p. 80, pl. vi, fig. 1, *venustus*, p. 81, pl. iii, fig. 2, *decussatus*, p. 84, pl. vi, fig. 2, and *solidus*, p. 90, pl. vii, fig. 3, spp. nn., id. ibid.; *C. tenuistriatus*, Ag., recorded from the Carboniferous limestone of Visé, Belgium, P. DESTINEZ, Bull. Soc. geol. Belgique xxix, p. 108.

Coelodus latus, sp. n., LERICHE, Ann. Soc. geol. Nord xxx, 1901, p. 154, pl. v, fig. 1, Lower Montian of Mt Aimé, Marne, France.

Gyracanthus falsiformis, sp. n., TRAQUAIR, Mem. geol. Surv. U. K. f. 1901, p. 181, Calciferous sandstone near Dunse.

Erismacanthus formosus, sp. n., EASTMAN, Amer. Natural. xxxvi, p. 850, fig., Carboniferous, St Louis, Missouri.

CYCLOSTOMI.

W. H. GASKELL, J. Anat. Physiol. norm. path. (2) xvi, pp. 164–208, figg., continues his studies on *Ammocœtes* with reference to the origin of vertebrates, dealing specially with the origin of the auditory organ and the meaning of the VIIIth cranial nerve.

N. K. KOLTZOFF, Bull. Soc. Moscou 1901, pp. 259–589, has a memoir on the development of the head of *Petromyzon planeri*. Also published separately (Moscow, 1901, 8vo).

R. KOLSTER, Acta Soc. Faun. Fenn. xxix, No. 2, investigates the nerve-cells of *Petromyzon fluviatilis*.

A. DENDY, P. R. Soc. London lxix, pp. 485–494, figg., and Zool. Anz. xxv, pp. 511–519, figg., writes on a pair of ciliated grooves in the brain of *Ammocœtes*, apparently serving to promote the circulation of the fluid in the brain-cavity.

C. W. GREENE, Amer. J. Physiol. vi, pp. 318–324, writes on the absence of regulative nerves for the systematic heat in *Bdellostoma stouti*.

A. M. REESE, P. Ac. Philad. 1902, pp. 85–112, pls. iv–vii, writes on the structure and development of the thyroid gland of *Petromyzon*.

E. GIACOMINI, Monit. Zool. ital. xiii, pp. 143–162, pls. ii & iii, writes on the suprarenal bodies of *Petromyzon* and *Ammocœtes*.

E. WARREN, Quart. J. Micr. Sci. xlv, pp. 631–636, pl. xxxiv, has investigated the structure of the teeth of *Petromyzon* and *Myxine*.

L. PLATE, Zool. Jahrb. Suppl. v, pp. 651–673, pl. xix, has a systematic revision of the Petromyzontidæ of the Southern Hemisphere. Also remarks in Verh. Int. Zool. Congr. v, pp. 551 & 552.

Velasia, Gray, is an immature stage of *Geotria*, Gray, DENDY & MARGARET OLIVER, Tr. N. Zealand Inst. xxxiv, p. 147. *V. stenostomus*, Ogilby. Note by WAITE, Rec. Austral. Mus. iv, p. 179.

LEPTOCARDII.

A. WILLEY contributes the article "Amphioxus" to the xxvth vol. of the Encyclopædia Britannica, pp. 384–387, figg.

J. BOEKE, P. Ac. Amsterdam iv, pp. 695–698, figg., remarks on the infundibular region of the brain discovered by Kupffer in the Amphioxus. The same author, op. cit. v, pp. 350–358, pl. —, writes on the structure of the light-percepting cells in the spinal cord, on the neurofibrillæ in the ganglion cells, and on the innervation of the striped muscles in the Amphioxus.

J. BOEKE, Anat. Anz. xxi, pp. 411–414, figg., remarks on the homologue of the infundibulum in the Amphioxus.

R. LEGROS, Mt. Stat. Neapel xv, pp. 487–554, pls. xx–xxiii, has a contribution to the study of the vascular system of the Amphioxus.

E. S. GOODRICH, P. R. Soc. London lxix, pp. 350 & 351, and Quart. J. Micr. Sci. xlv, pp. 493–501, figg., pl. xxvii, writes on the structure of the excretory organs of the Amphioxus.

Branchiostoma capense, sp n, GILCHRIST, Mar. Invest. S. Afr. ii, p. 111, pl. x, S. Africa.

VI. TUNICATA.

BY

W. T. Calman, D.Sc.

CONTENTS.

	Page
Introduction	1
I. Titles	2
II. Subject-Index.	
a. Anatomy	5
b. Embryology	5
c. Geographical Distribution	5
III. Systematic	6

INTRODUCTION.

The Record of Tunicata for 1902 has been compiled under circumstances which render it possible that some papers may have been overlooked. It is hoped that such deficiencies may be made good next year. Among the more important contributions of the year attention may be called to Damas (7) on the embryology of *Molgulidæ*, Driesch's (9 & 10) experiments on regeneration, Van Name's (37) account of the rich Tunicate fauna of the Bermudas, and Herdman (13) on Antarctic forms.

I. TITLES.*

1. *Alessi, —. Appunti sui Tunicati; descrizione e sistematica. Avola 1898, 8vo, 13 pp.

2. Apstein, C. *Salpidæ*, Salpen, in K. Brandt's Nordisches Plankton iii (in Lief. i), Kiel and Leipzig, 1901, pp. 5–10, figg. 5–11.
Abstract by O. Seeliger, Zool. Centrlbl. ix, pp. 541 & 542.

Bergh, R. S. [See Driesch (9 & 10).]

3. Bonnier, Jules, & Pérez, Charles. Sur un nouveau Pyrosome gigantesque. C.R. Ac. Sci. cxxxiv, pp. 1238–1240.
Abstracts: in J. R. Micr. Soc. 1902, p. 426; by A. Della Valle, Zool. Jahresber. 1902.

4. Borgert, A. Die nordischen Dolioliden, in K. Brandt's Nordisches Plankton iii (in Lief. i), Kiel and Leipzig, 1901, pp. 1–4, figg. 1–4.
Abstract by O. Seeliger, Zool. Centrlbl. ix, pp. 541 & 542.

Brandt, K. [See Apstein (2), Borgert (4), Lohmann (18).]

5. *Caullery, M. Sur quelques particularités du burgeonnement chez les Ascidies composées du groupe des Distomidæ. C.R. Ass. Anat., 4 Sess., pp. 21–24, fig.
Abstract by A. Della Valle, Zool. Jahresber. 1902.

6. Cleve, P. T. The Plankton of the North Sea and the Skagerrak in 1900. Svenska Ak. Handl. xxxv, No. 7, 49 pp.

7. Damas, Desiré. Recherches sur le développement des Molgules. Arch. Biol. xviii, pp. 599–664, pls. xxv–xxviii.
Abstracts: in J. R. Micr. Soc. 1902, p. 639; by A. Della Valle, Zool. Jahresber. 1902.

8. Della Valle, A. *Tunicata* in Zool. Jahresber. 1902.
Abstracts of: Bonnier & Perez (3), Caullery (5), Damas (7), Driesch (9 & 10), Hunter (15), Magnus (19), Pizon (25 & 26), Redikorzew (29), Riedlinger (31), Todaro (35 & 36), Van Name (37).

9. Driesch, H. Ueber ein neues harmonisch-æquipotentielles System und über solche Systeme überhaupt. Arch. Entwickmech. xiv, pp. 227–246, 7 figg.
Abstracts: by A. Della Valle, Zool. Jahresber. 1902; by R. S. Bergh, Zool. Centrlbl. ix, pp. 672 & 673.

10. ——. Studien über das Regulationsvermögen der Organismen. 6. Die Restitutionen der *Clavellina lepadiformis*. Arch. Entwickmech. xiv, pp. 247–287, 6 figg.
Abstracts: by A. Della Valle, Zool. Jahresber. 1902; by R. S. Bergh, Zool. Centrlbl. ix, pp. 673 & 674.

10a. Fürth, Otto von. Vergleichende chemische Physiologie der niederen Tiere, pp. xiv+670, 8vo, Jena, 1903. [Received in London, December 1902.]

11. *Gólski, Stan. Dojrzewanie i zaplodnenie jajka u Ascidii; *Ciona intestinalis* F. [La maturation et la fécondation de l'œuf de *Ciona intestinalis* F.] Rospr. Ak. Krakow xxviii, pp. 50–69, 2 pls. (1901).

---

* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

HARTMEYER, R. (10) Zool. Rec. 1901.
Abstract by O. SEELIGER, Zool. Centrlbl. ix, p. 207.

12. ——. Varietätenbildung und eine geographische Varietät von *Ciona intestinalis* (L.). SB. Ges. naturf. Berlin 1902, No. 9, pp. 203-205.

HEIDER, K. [See KORSCHELT & HEIDER (16).]

13. HERDMAN, W. A. *Tunicata*, in Report on the Collections of Natural History made in the Antarctic Regions during the voyage of the "Southern Cross," pp. 190–200, pls. xix–xxiii.

14. ——. *Tunicata*, in Encyclopædia Britannica xxxiii, pp. 478–481, 10 figg. in text.

14a. HOWE, FREELAND. Report of a dredging expedition off the southern coast of New England, September 1899. Bull. U. S. Fish Comm. xix, pp. 237–240 (1901).

15. HUNTER, GEORGE WILLIAM, JR. The structure of the heart of *Molgula manhattensis* (Verrill). Anat. Anz. xxi, pp. 241–246, 3 figg. in text.
Abstracts: in J. R. Micr. Soc. 1902, p. 548; by A. DELLA VALLE, Zool. Jahresber. 1902.

16. KORSCHELT, E. & HEIDER, K. Lehrbuch der vergleichenden Entwicklungsgeschichte der wirbellosen Thiere. Allgemeiner Theil. 1st Lief., 1 & 2 Aufl., pp. x + 538, 318 figg. in text, 8vo, Jena, 1902.

16a. LANG, A. Fünfundneunzig Thesen über den phylogenetischen Ursprung und die morphologische Bedeutung der Centralteile des Blutgefässsystems der Tiere. Vierteljahrschr. Ges. Zurich xlvii, pp. 393–421. [*Tunicata*, pp. 414 & 415.]

17. LO BIANCO, SALVATORE. Le pesche pelagiche abissali eseguite dal Maia nelle vicinanze di Capri. (Con una carta topografica.) Mt. Stat. Neapel xv, pp. 413–482, pl. xix (1901).

18. LOHMANN, H. Die Appendicularien, in K. BRANDT'S Nordisches Plankton iii (in Lief. i), Kiel and Leipzig, 1901, pp. 11–21, figg. 12–24.
Abstract by O. SEELIGER, Zool. Centrlbl. ix, pp. 541 & 542.

19. MAGNUS, R. Die Bedeutung des Ganglions bei *Ciona intestinalis*. Mt. Stat. Neapel xv, pp. 483–486, 1 fig. in text.
Abstract by A. DELLA VALLE, Zool. Jahresber. 1902.

20. MATZDORFF, CARL. Jahresbericht über die Tunicaten für 1897 und 1898. Arch. Naturg. lxi (2) (dated 1895, published Dec. 1901), pp. 137–172.

MAYER, P. [See VIGNON.]

21. MORGAN, THOS. HUNT. Regeneration. (Columbia University Biological Series vii), pp. xii + 316, figg. in text, 8vo, New York, 1901.

NAME, WILLARD G. VAN. [See VAN NAME (37).]

22. PEARCEY, F. G. Notes on the Marine Deposits of the Firth of Forth and their relation to its Animal Life. Tr. Soc. Glasgow (n.s.) vi, pp. 217–251, with chart.

PÉREZ, CHARLES. [See BONNIER & PÉREZ (3).]

23. PERRIER, E. La fixation héréditaire des attitudes avantageuses. Verh. Zool. Congr. v, Berlin, pp. 336–338.

24. ——. Le Tachygénèse. Verh. Zool. Congr. v, Berlin, pp. 996–1000. [Tunicata, pp. 997 & 998.]

25. Pizon, A. Physiologie du cœur chez les colonies de Diplosomes (Ascidies composées). C.R. Ac. Sci. cxxxiv, pp. 1528–1530.
Abstracts: by A. Della Valle, Zool. Jahresber. 1902; in J. R. Micr. Soc. 1902, pp. 638 & 639.

26. ——. Origine et vitalité des granules pigmentaires des Tuniciers; mimétisme de nutrition. Verh. Zool. Congr. v, Berlin, pp. 737 & 738.
Abstract by A. Della Valle, Zool. Jahresber. 1902.

27. Pruvot, G. Le "Roland" et sa première croisière sur la côte de Catalogne en juillet–août 1900. Arch. Zool. exp. (3) ix (1901), pp. 1–42, figg. 1–15.
Abstract by J. Meisenheimer, Zool. Centrlbl. ix, p. 108.

28. Redeke, H. C. Note sur le composition du plankton de l'Escaut oriental. Tijdschr. Nederland. Dierk. Ver. (2) vii, pp. 244–253.

29. Redikorzew, W. Die Zwitterdrüsenbildung einer zusammengesetzten Ascidie. Zool. Anz. xxv, pp. 484–486, 1 fig. in text.
Abstracts: by A. Della Valle, Zool. Jahresber. 1902; in J. R. Micr. Soc. 1902, p. 548.

30. Retzius, Gustaf. Weiteres zur Kenntniss der Sinneszellen der Evertebraten. Biol. Untersuch., Neue Folge x, pp. 25–33, pls. viii–xii. [*Appendicularia*, p. 32, pl. xii.]

31. *Riedlinger, Reinhold. Untersuchungen über den Bau von *Styelopsis grossularia* der Ostsee. Acta Ac. German. lxxxi, pp. 5–62, pls. i–vi, 3 figg.
Abstract by A. Della Valle, Zool. Jahresber. 1902.

Ritter, W. E. (20) Zool. Rec. 1901.
Abstract by O. Seeliger, Zool. Centrlbl. ix, p. 542.

Schultze, L. S. (21) Zool. Rec. 1901.
Abstract by O. Seeliger, Zool. Centrlbl. ix, pp. 207–213.

32. Seeliger, Oswald. Tunicata (Mantelthiere). Bronn's Klassen und Ordnungen des Thier-Reichs iii, Suppl. Lief. 31–36, pp. 465–560, pls. xxiii–xxv, and figg. in text.

33. ——. Herr Dr Michaelsen und seine holosomen Ascidien des magalhaensisch-südgeorgischen Gebietes. Zool. Anz. xxv, pp. 338–344.

——. [See Apstein (2), Borgert (4), Hartmeyer, Lohmann (18), Ritter, Schultze.]

34. Steuer, Adolf. Beobachtungen über das Plankton des Triester Golfes im Jahre 1901. Mittheilungen aus der k. k. zoologischen Station in Triest, No. 4. Zool. Anz. xxv, pp. 369–372, with table.
Abstract by F. Zschokke, Zool. Centrlbl. ix, pp. 494 & 495.

35. Todaro, F. Sopra gli organi escretori delle Salpidi. Rend. Acc. Lincei xi, 1 Sem., pp. 405–417, 8 figg.

36. ——. Sur les organes excréteurs des Salpidés (*Salpidæ* Forbes). Arch. ital. Biol. xxxviii, pp. 33–48, 8 figg. in text.
Abstract (35 & 36) by A. Della Valle in Zool. Jahresber. 1902.

37. Van Name, Willard G. The Ascidians of the Bermuda Islands. Tr. Connect. Ac. xi, pp. 325–412, pls. xlvi–lxiv.
Abstracts: in J. R. Micr. Soc. 1902, p. 548; by A. Della Valle, Zool. Jahresber. 1902.

38. VERRILL, ADDISON E. Additions to the Fauna of the Bermudas from the Yale Expedition of 1901, with notes on other species. Tr. Connect. Ac. xi, pp. 15–62, pls. i–ix (*Tunicata* on pl. ix, no ref. in text).

VIGNON, P. (29) Zool. Rec. 1901.
Abstract by PAUL MAYER, Zool. Jahresber. 1902, Allg. Biol. p. 9.

ZSCHOKKE, F. [See STEUER (34).]

II. SUBJECT-INDEX.

A. ANATOMY, PHYSIOLOGY and GENERAL.

General account of Tunicata continued ; SEELIGER (32).
Summary of recent work ; HERDMAN (14).
Review of literature for 1897 & 1898 ; MATZDORFF (20) : for 1902 ; DELLA VALLE (8).
Anatomy of *Styelopsis* ; RIEDLINGER (31).
Heart and pericardium of *Tunicata*, morphology ; LANG (16A).
Heart, structure and histology in *Molgula manhattensis* ; HUNTER (15).
Histology, esp. nervous system of *Appendicularia* ; RETZIUS (30).
Excretory organs of *Salpidæ* ; TODARO (35 & 36).
Origin and nature of pigment-granules in *Tunicata* ; PIZON (26).
Glandular hermaphroditism in *Fragarium* ; REDIKORZEW (29).
Budding in *Distaplia* and *Colella* ; CAULLERY (5).
Regeneration in Ascidians ; MORGAN (21), p. 42, etc.
Regeneration in *Clavelina* ; DRIESCH (9 & 10).
Physiology of nervous system in *Ciona intestinalis* ; MAGNUS (19).
Pulsation of heart in developing and degenerating zooids of *Diplosomidæ* ; PIZON (25).
Physiological chemistry of *Tunicata*, Blood p. 98, Cellulose p. 467, &c. ; FÜRTH (10A).
Variation in *Ciona intestinalis* ; HARTMEYER (12).
Evolution of *Tunicata*, PERRIER (23).
Acceleration of development (" Tachygenesis ") in evolution of Tunicata ; PERRIER (24).

B. EMBRYOLOGY.

Oogenesis in Tunicata, p. 321 ; KORSCHELT & HEIDER (16).
Maturation and fertilisation of ovum in *Ciona* ; GÓLSKI (11).
Development of *Molgulidæ* (*Lithonephrya engyranda*, *Molgula echinosiphonica* and *Anurella bleizi*) ; DAMAS (7).

C. GEOGRAPHICAL DISTRIBUTION.

Distribution of *Ciona intestinalis* ; HARTMEYER (12).
Plankton of Northern Seas ; *Appendicularia*, LOHMANN (18) ; *Salpidæ*, APSTEIN (2) ; *Doliolidæ*, BORGERT (4) ; *Appendicularia* of N. Sea and Skagerrak, CLEVE (6) ; in estuary of Scheldt ; REDEKE (28).
Firth of Forth, lists of spp. ; PEARCEY (22).
Mediterranean : *Tunicata* dredged off Coast of Catalonia, PRUVOT (27) ; *Tunicata* of abyssal pelagic fauna, lists p. 415, notes on spp. p. 432, LO BIANCO (17) ; Gulf of Trieste, *Tunicata* of Plankton, STEUER (34).

Off Southern Coast of New England, list of *Tunicata*; HOWE (14A).
Bermudas, *Tunicata* n. gg. and spp. ; VAN NAME (37).
Indian Ocean, n. sp. *Pyrosoma* ; BONNIER & PÉREZ (3).
Antarctic, Cape Adare, n. spp. *Tunicata* ; HERDMAN (13).

III. SYSTEMATIC.

Classification and nomenclature; SEELIGER, Zool. Anz. xxv, p. 338.

Amaroucium, p. 352, *bermudæ*, p. 352, pls. l, fig. 20, lviii, figg. 96 & 97, *exile*, p. 354, pls. l, fig. 21, lviii, fig. 98, Bermudas; VAN NAME, Tr. Connect. Ac. xi : **n. spp.**

Appendicularia, histology; RETZIUS, Biol. Untersuch. x, p. 32, pl. xii.

Appendiculariæ of abyssal pelagic fauna, notes on spp., p. 432; LO BIANCO, Mt. Stat. Neapel xv.

Ascidia, p. 398, *atra*, p. 398, pl. lxiii, figg. 138 & 139, *curvata*, p. 400, pls. lvi, figg. 80–82, lxiii, figg. 145 & 146; VAN NAME, Tr. Connect. Ac. xi.

Ascidiidæ, p. 398 ; VAN NAME, t. c.

Atopogaster elongata, p. 194, pl. xxi, figg. 1–10; HERDMAN, Tunicata "Southern Cross."

Boltenia pachydermatina, p. 191, pl. xix, figg. 1 & 2; HERDMAN, t. c

Botryllidæ, p. 373 ; VAN NAME, Tr. Connect. Ac. xi.

Botrylloides, p. 373, *nigrum*, p. 375, pls. liii, fig. 54, lxi, fig. 125, var. *planum*, p. 377, pls. liii, fig. 55, lix, fig. 110, var. *concolor*, p. 378, pl. liii, fig. 53, var. *sarcinum*, p. 378, **n. varr.**; VAN NAME, t. c.

Ciona intestinalis, maturation and fertilisation of ovum; GÓLSKI, Rospr. Ak. Krakow xxviii, pp. 50–69, 2 pls.: physiology of nervous system, p. 483; MAGNUS, Mt. Stat. Neapel xv: var. *longissima* **n. var.**, p. 205; HARTMEYER, SB. Ges. naturf. Berlin 1902, No. 9.

Clavelina lepadiformis, experiments on regeneration; DRIESCH, Arch. Entwickmech. xiv, p. 227, ibid. p. 247: *C.* p. 333, *oblonga*, p. 334, pls. xlvi, fig. 1, xlvii, fig. 7, lxii, fig. 130*a*; VAN NAME, Tr. Connect. Ac. xi.

Clavelinidæ, p. 333 ; VAN NAME, t. c.

Cystodytes, p. 346, *draschii*, p. 347, pls. xlix, fig. 17, lviii, figg. 99–101; VAN NAME, t. c.

C. violaceus, Bermudas, p. 348, pl. xlviii, figg. 12–14 ; VAN NAME, t. c., **n. sp.**

Diandrocarpa, **n. g.** (*Polystyelidæ*), p. 382, *botryllopsis*, Bermudas, p. 383, pls. liv, fig. 68, lix, figg. 120 & 121, lx, fig. 123 ; VAN NAME, t. c., **n. sp.**

Didemnidæ, p. 355 ; VAN NAME, t. c.

Didemnum, p. 355, key to Bermudan spp., p. 357, *savignii*, p. 358, pls. li, figg. 27 & 35, lix, fig. 112 ; VAN NAME, t. c.

D. solidum, p. 358, pls. li, figg. 31 & 36, lix, fig. 119, *atrocanum*, p. 359, pls. li, figg. 30 & 34, lix, fig. 114, *porites*, p. 360, pls. li, figg. 29 & 33, lix, figg. 115, *lucidum*, p. 360, pl. li, figg. 26, 28 & 37, *orbiculatum*, p. 361, pls. li, figg. 32 & 38, lxi, figg. 127*a* & 128, Bermudas; VAN NAME, t. c., **n. spp.**

Diplosoma, p. 367, *macdonaldi*, p. 368, pls. liii, fig. 60, lx, fig. 124; VAN NAME, t. c.

D. lacteum, p. 369, pl. liii, fig. 59, *atropunctatum*, p. 370, pls. liii, fig. 56, lviii, fig. 103, lxii, fig. 137, Bermudas ; VAN NAME, t. c., **n. spp.**

Diplosomoides, p. 370, *fragile*, Bermudas, p. 370, pls. liii, figg. 57 & 58, lxi, fig. 126 ; VAN NAME, t. c., **n. sp.**

Distaplia, p. 349, *bermudensis*, Bermudas, p. 349, pls. xlix, figg. 15, 18 & 19, lix, fig. 108 & 111, lxii, fig. 130*b* ; VAN NAME, t. c., **n. sp.**

D. ignota Herdman=*Julinia australis* Calman, p. 197, pl. xx, figg. 7–9; HERDMAN, Tunicata "Southern Cross."

Distoma, p. 340, key to Bermudan spp., p. 340, *capsulatum*, p. 341, pls. xlvi, fig. 2, lviii, fig. 107, *convexum*, p. 342, pls. xlix, fig. 16, lviii, fig. 104, lix, fig. 118, *obscuratum*, p. 343, pl. xlviii, fig. 11, lviii, figg. 105 & 106, *olivaceum*, p. 344, pls. xlviii, fig. 9, lix, fig. 113, *clarum*, p. 345, pls. xlviii, fig. 10, lix, fig. 117, Bermudas; VAN NAME, Tr. Connect. Ac. xi, **n. spp.**

Distomidæ, p. 339; VAN NAME, t. c.

Doliolidæ of abyssal pelagic fauna, notes on spp., p. 433; LO BIANCO, Mt. Stat. Neapel xv.

Doliolum krohni, p. 1, fig. 1, sp. ?, p. 2, fig. 2, *tritonis*, p. 3, fig. 3, *nationalis*, p. 4, fig. 4; BORGERT, Nordisches Plankton iii.

Echinoclinum, **n. g.** (*Didemnidæ*), p. 371, *verrilli*, Bermudas, p. 372, pl. l, fig. 23–25; VAN NAME, Tr. Connect. Ac. xi, **n. sp.**

Ecteinascidia, p. 338, *turbinata*, p. 338, pls. xlvii, figg. 4 & 6, lix, fig. 116; VAN NAME, t. c.

Fragarium elegans, glandular hermaphroditism, p. 484; REDIKORZEW, Zool. Anz. xxv.

Fritillaria, p. 13, *borealis*, p. 13, fig. 14 & 15; LOHMANN, Nordisches Plankton iii.

Halocynthia, p. 393, *rubrilabia*, p. 393, pls. lvi, fig. 83, lvii, figg. 86 & 90, lxii, fig. 133, lxiv, figg. 150 & 152, *riiseana*, var. *munita* **n. var.**, p. 394, pls. lvi, fig. 84, lvii, figg. 85 & 87, lxiii, fig. 141; VAN NAME, Tr. Connect. Ac. xi.

Halocynthiidæ, p. 385; VAN NAME, t. c.

Leptoclinum, p. 362, *speciosum*, p. 363, var. *bermudense*, p. 364, pls. lii, figg. 39, 42 & 50, lxii, figg. 130*c*, 132 & 134, var. *pageti*, p. 364, pl. lii, fig. 45, var. *hamiltoni*, p. 365, pls. lii, figg. 43, 44 & 47, lxi, fig. 127*b*, lxii, fig. 135, var. *harringtonense*, p. 365, pl. lii, figg. 49 & 51, var. *acutilobatum*, p. 365, pl. lii, figg. 46 & 52, var. *somersi*, p. 366, pls. lii, fig. 48, lxii, fig. 136, **n. varr.**; VAN NAME, t. c.

Michaelsenia, **n. g.** (*Polystyelidæ*), p. 380, *tincta*, Bermudas, p. 381, pls. liv, figg. 61 & 63, lix, fig. 109; VAN NAME, t. c., **n. sp.**

Microcosmus, p. 396, *miniatus*, p. 396, pls. lvi, fig. 79, lvii, figg. 91 & 95, lxii, figg. 129 & 130, lxiv, fig. 148; VAN NAME, t. c.

Molgula manhattensis, structure of heart; HUNTER, Anat. Anz. xxi, p. 241.

Molgulidæ, development; DAMAS, Arch. Biol. xviii, p. 599.

Oikopleura, p. 13, *vanhöffeni*, p. 15, figg. 16 & 17, *labradoriensis*, p. 16, figg. 18 & 19, *chamissonis*, p. 17, *dioica*, p. 17, figg. 20 & 21, *parva*, p. 18, fig. 22, *longicauda*, p. 19, fig. 23, *fusiformis*, p. 20, fig. 24; LOHMANN, Nordisches Plankton iii.

Perophora, p. 337, *viridis*, p. 337, pl. xlvii, fig. 8; VAN NAME, Tr. Connect. Ac. xi.

Perophoridæ, p. 337; VAN NAME, t. c.

Polycarpa multiphiala, gonads, pl. ix, fig. 7; VERRILL, t. c.

Polycarpa, p. 385, *obtecta*, p. 386, pl. lvii, figg. 88, 89 & 92–94, lxiii, figg. 140 & 144, lxiv, figg. 151 & 153; VAN NAME, t. c.

Polyclinidæ, p. 351; VAN NAME, t. c.

Polyclinum adareanum, Cape Adare, p. 195, pl. xxii, figg. 1–9; HERDMAN, Tunicata "Southern Cross," **n. sp.**

Polystyelidæ, p. 379; VAN NAME, Tr. Connect. Ac. xi.

Polysyncraton, p. 366, *amethysteum*, Bermudas, p. 366, pls. liv, figg. 62 & 64–67, lviii, fig. 102; VAN NAME, t. c., **n. sp.**

Psammaplidium nigrum, Cape Adare, p. 196, pl. xxiii, figg. 1–3, *antarcticum*, Cape Adare, p. 196, pl. xxiii, figg. 4–6; HERDMAN, Tunicata "Southern Cross," **n. spp.**

Pyrosoma indicum, Indian Ocean, p. 1238; BONNIER & PÉREZ, C.R. Ac. Sci. 1902, **n. sp.**

Pyrosoma atlanticum in abyssal pelagic fauna, p. 432; LO BIANCO, Mt. Stat. Neapel xv.

Rhodozona **n. g.** (*Clavelinidæ*), p. 335, *picta*, p. 335, pls. xlvi, fig. 3, xlvii, fig. 5, lx, fig. 122; VAN NAME, Tr. Connect. Ac. xi.

Salpidæ of abyssal pelagic fauna, notes on spp., p. 433; LO BIANCO, Mt. Stat. Neapel, xv: excretory organs; TODARO, Arch. ital. Biol. xxxviii, pp. 33–48, 8 figg., Rend. Acc. Lincei xi, 1 Sem., pp. 405–417, 8 figg.

Salpa mucronata, p. 5, fig. 5 *a*, *b*, *fusiformis*, p. 7, fig. 6 *a*, *b*, *asymmetrica*, p. 8, fig. 7 *a–c*, *pinnata*, p. 9, fig. 8 *a*, *b*, *maxima*, p. 10, fig. 9 *a*, *b*, *zonaria*, p. 10, fig. 10 *a*, *b*, *tilesii*, p. 10, fig. 11 *a*, *b*; APSTEIN, Nordisches Plankton iii.

Styela partita, gonads, pl. ix, fig. 8; VERRILL, Tr. Connect. Ac. xi: *S. partita*, p. 388, pls. lv, fig. 69, lvi, figg. 76–78, lxiv, figg. 147 & 149, var. *bermudensis*, **n. var.**, p. 388, pls. lv, figg. 70–75, lxiii, figg. 142 & 143; VAN NAME, t. c.

Styela lactea, p. 192, pl. xix, fig. 38; HERDMAN, Tunicata "Southern Cross."

Symplegma viride, p. 378, pl. l, fig. 22; VAN NAME, Tr. Connect. Ac. xi.

Tylobranchion antarcticum, Cape Adare, p. 193, pl. xx, figg. 1–6; HERDMAN, Tunicata "Southern Cross," **n. sp.**

VII. MOLLUSCA.

BY

E. R. Sykes, B.A.

Assisted by E. A. Smith.

CONTENTS.

	Page
Introduction	1
I. Titles	4
Obituary Notices, &c.	34
II. Biology.	
Anatomy, Physiology, &c.	34
Distribution.	
Geographical.	
Non-Marine	39
Marine	46
Geological	50
III. Systematic.	
Cephalopoda	56
Dibranchiata	56
Ammonea	57
Tetrabranchiata	58
Gastropoda	58
Pulmonata	58
Stylommatophora	58
Basommatophora	67
Opisthobranchiata	68
Nudibranchiata	68
Tectibranchiata	68
Nucleobranchiata	69
Prosobranchiata	69
Pectinibranchiata	69
Scutibranchiata	77
Scaphopoda	79
Pelecypoda	80
Septibranchiata	80
Eulamellibranchiata	80
Pseudolamellibranchiata	83
Filibranchiata	84
Protobranchiata	84
Amphineura	85
Aplacophora	85
Polyplacophora	85

INTRODUCTION.

Judging from the number of titles given, a slight falling off in the amount of papers published in 1902 would appear to exist, but this may very probably be due in reality to the fact that the work has been completed at an earlier date than in past years, and also be affected by the omission of a few papers which appeared to be rather of geological than palæontological interest.

The writer desires in the first place to make a most earnest appeal to authors to send reprints or copies of their papers, indicating the original pagination, in order that they may be fully digested in the 'Record.' Most important libraries receive a large proportion of their periodicals by exchange and frequently the senders do not distribute the works until several parts or volumes have accumulated, the result being that important papers are liable not to be recorded until a year or more after the proper date; also far more time and care can be devoted to the work if it has not to be done under the pressure which prevails in most public libraries. Again, a large loss of time—and often expense—is caused by the search for privately issued papers and works of a similar nature. Whether the 'Record' be complete or incomplete, rests in a large measure with authors themselves, and to those who have already sent copies of their papers, grateful thanks are here tendered.

As of old, Mr Pilsbry has made steady progress with TRYON's (556) 'Manual,' the *Bulimulidæ* being completed, with a valuable index, the *Cerionidæ* dealt with, and the *Urocoptidæ* commenced. Herr Simroth has continued BRONN's (58) work, but the remarks as to its 'snail-like' rate of progress made in this preface some years ago, are equally applicable to-day.

The 'Conchylien-Cabinet' of MARTINI & CHEMNITZ (337) has regularly appeared, the parts issued dealing with *Buliminidæ*, *Leptopoma*, *Naninidæ*, *Helix*, *Vermetidæ*, *Cæcidæ*, *Chitonidæ*, *Pleurotomaria*, *Pyramidellidæ*, and *Styliferidæ*: it is to be regretted that some of the plates, e.g. those of the *Chitonidæ*, are by no means satisfactory. Under the name of BÉNARD (38) will be found some useful plates showing sections of the shell; while KESTEVEN (278, &c.) has given valuable information on the protoconchs of many Gastropods. SMITH (490) has pointed out that the supposed specific identity of some Arctic and Antarctic Molluscs is by no means satisfactorily made out. To JOHANSEN (257) we owe an interesting discussion of the supposed sinking of sea-beds. The origin of pearls has been dealt with by JAMESON (246).

Several papers relating to the Mollusca collected by various Expeditions may be grouped together. NIERSTRASZ (371) has dealt with the Aplacophora collected by the 'Siboga' Expedition; SMITH (496) has reviewed the Antarctic Collections of the 'Southern Cross'; FRIELE (180) and KNIPOVITSCH (284) have added to our knowledge of the Arctic fauna; MARTENS (336) has described a few shells from the German deep-sea Expedition; HEDLEY (219) has chronicled the Pelecypods collected by the 'Thetis' off the coasts of New South Wales; while BERGH (40, 41) has dealt with the Opisthobranchs collected by the Danish Expedition in the Gulf of Siam, and continued his Philippine work in Semper's 'Reisen.'

The European Marine fauna has been the subject of much attention. KOBELT (286) has continued his valuable work; BELLINI (37) has catalogued the fauna of Capri; GRAEFFE (201) that of Triest; PALLARY (389) has added to our knowledge of the North African molluscs; GRANGER (202) has dealt with the Mediterranean fauna of France, while a useful list of the Channel Islands shells has been written by MARQUAND (323). OSTROUMOV (382) has chronicled some shells from the Sea of Azov, while a list of the Aden fauna has been given by SHOPLAND (481), and ELIOT (160) has described some Nudibranchs from Zanzibar. DALL (113, &c.) has given several valuable papers on American molluscs, both of the East and West Coast. To DAUTZENBERG (128) we owe a study of the New Caledonian *Cypræidæ*. Those interested in the Australasian fauna will find much in the papers of HEDLEY (216, &c.), KESTEVEN (276, &c.), and PRITCHARD & GATLIFF (431, 432) to repay attention.

A very valuable and detailed account of the Russian slug-fauna has been written by SIMROTH (484). PILSBRY (403, &c.) has described a number

of molluscs from Japan, which of late years has proved so prolific ; GUDE (211) has continued his list of the Helicoids of Asia ; and MOELLENDORFF (355) has published a further part of his supplement to Semper's 'Reisen.' The attention of workers may also be drawn to a number of scattered papers dealing with shells from the Malay Peninsula and the Austro-Malayan Region. A posthumous and concluding part of the work on the fauna of Mexico and the adjacent region by FISCHER & CROSSE (172) has been published. TAYLOR (547) has issued the first part of the systematic portion of his work on the British fauna, including some very useful maps illustrating specific distribution.

Amongst the more purely systematic papers we may first note the very valuable list of names, with references, used in the *Columbellidæ*, given by PACE (385) ; an unusual feature being that he has dealt equally with recent and fossil molluscs. KOBELT (285) has monographed the *Cyclophoridæ* and GUDE (210) the *Streptaxidæ*. Some interesting notes on *Partula* will be found in the paper by SMITH (498). A new family of Pteropods has been described by MEISENHEIMER (349). DALL (119, 120) has given valuable synopses of the *Veneracea* and *Carditacea*. JOUBIN (262) has reviewed the *Sepiolidæ*, while the student's attention may be drawn to a privately printed paper by BUCKMAN (61) on some Cephalopods, which contains a number of new names. THIELE (550) has dealt with the systematic position of the Aplacophora.

Turning to the morphological work we have to chronicle careful studies of *Nautilus* by GRIFFIN (208) and WILLEY (591). HOYLE (234) has described a luminous organ in *Pterygioteuthis*, and STEINACH (516, 517) has given some interesting notes on colour changes in Cephalopods. *Pleurotomaria* has been studied by BOUVIER & FISCHER (56) ; *Polygyra* and *Limax* by SIMPSON (483), *Lucapina* by ILLINGWORTH (244), *Vaginula* by KELLER (266), *Chytra* and *Limnotrochus* by DIGBY (138) and the *Volutidæ* by PACE (384). PELSENEER (395) has written a most valuable work on the Pulmonate Gastropods, and COLLINGE (89, &c.) has given several notes on slugs. To MAZZARELLI (347) we owe some information on the larval Gastropod, while HOFFMANN (230) has dealt with the Embryology of *Nassa*. Amongst other papers we may refer to those of BÄCKER (25, 26) on the Gastropod eye, FLEURE (173) on the Kidneys in *Haliotis*, DRUMMOND (149, 150) on *Paludina*, with special reference to Gastropod torsion, and VIGNON (563) on the cytology of the epithelium. Attention may also be called to the notes on sexual dimorphism by SMITH (489) and PELSENEER (396), while specific variation may be studied in the papers by DIMON (139) and HENSGEN (223). The Pelecypod hinge has attracted REIS (444). A detailed account of the *Mytilidæ* of the Gulf of Naples may be found in LIST (305). LACAZE-DUTHIERS' (295) posthumous paper on the Morphology of *Tridacna* and *Hippopus* may well prove a classic, while CARAZZI (66) has added to our knowledge of the Histology and Physiology of the Pelecypoda.

Owing to his absence from London, Mr Pace has been unable to assist this year.

The only change made in the 'Record' has been that the paragraph dealing with obituary notices has been broken up, and it is hoped that this will now prove more easy to refer to ; the attention of the student is also called to the corrections given below (p. 4.)

CORRIGENDA IN PREVIOUS RECORDS.

Record for 1897, Vol. XXXIV.

p. 64. For *Diplommatina auricula* read *D. auriculata.*
p. 65. For *Lagocheilus connexum* read *L. convexum.*
p. 65. For *Omphalotropis strictipila* read *O. striatipila.*
p. 65. For *Pomatias waldernari* read *P. waldermari.*

Record for 1898, Vol. XXXV.

p. 60. For *Tornelasmus* read *Tomelasmus.*

Record for 1899, Vol. XXXVI.

p. 41. Under Java, add *Microparmarion javanica*, n. sp.; COLLINGE (80).

Record for 1900, Vol. XXXVII.

p. 48. In Tertiary, under Asia, for MARTIN (311) read MARTIN (310).

Record for 1901, Vol. XXXVIII.

p. 72. For *Vitronoconus* read *Vitrinoconus.*
p. 83. For *Mangilia avarina* read *M. averina.*

TITLES.*

1. ADAMS, L. E. The census of the British land and freshwater Mollusca. J. Conch. x, pp. 217–237.

2. ALCOCK, A. A Naturalist in Indian Seas. London, 8vo, 328 pp., 98 figg. Mollusca, pp. 277–282.

3. ALLEN, E. J. & TODD, R. A. The Fauna of the Exe Estuary. J. Mar. Biol. Ass. vi, pp. 295–335, map.

4. AMI, H. M. Bibliography of Sir John William Dawson. Tr. R. Soc. Canada vii, sect. iv, pp. 15–44.

5. ——. Bibliography of Canadian Geology and Palæontology, for the year 1900. T. c. pp. 123–133.

6. AMMON, L. VON. Ueber Conchylien aus Münchner Schotterablagerungen und über erratische Blöcke. Geognost. Jahresh. xiv, pp. 1–22.

7. ANCEL, P. Sur les mouvements de la chromatine et les nucléoles pendant la période d'augmentation de volume de l'ovocyte d'*Helix.* Arch. zool. exp. Notes x, pp. liii–lvii.

7A. ——. Sur le déterminisme cyto-sexuel des gamètes glandes génitales d'*Helix pomatia* sans ovocyte. T. c. pp. lviii–lxiv.

8. ——. Sur l'hermaphrodisme glandulaire accidentel et le déterminisme cyto-sexuel des gamètes. T. c. pp. lxxxiv–xciv.

9. ——. Les corps intracytoplasmiques dans l'ovocyte d'*Helix.* C.R. Soc. Biol. liv, pp. 1049–1051.

10. ——. Sur les premières phases du developpement de la glande génitale et du canal hermaphrodite chez *Helix pomatia.* Bibliog. anat. x, pp. 160–162.

---

* An asterisk prefixed to a title indicates that the Recorder has not seen the paper in question.

11. [Ancel, P.] Sur les premières différenciations cellulaires dans la glande hermaphrodite d'*Helix pomatia*. Op. cit. xi, pp. 17–20.

12. ——. La réduction numérique des chromosomes dans la spermatogénèse d'*Helix pomatia*. T. c. pp. 145–148.

13. ——. Sur le Nebenkern des spermatocytes d'*Helix pomatia*. T. c. pp. 234–240.

14. Ancey, C. F. Description d'une nouvelle espèce de *Bulimulus* [*bonneti*, Bolivia]. J. Conchyl. l, pp. 40 & 41, fig.

15. ——. Remarques sur différentes espèces peu connues du Genre *Achatina*. T. c. pp. 273–280, figg.

16. ——. Two new *Bulimini* from Central Asia. Nautilus xvi, pp. 47 & 48.

17. ——. Contributions towards the knowledge of the Mollusca of Madagascar. T.c. pp. 64–68, 80–82.

18. Andreae, A. Untermiocäne Landscheckenmergel bei Oppeln in Schlesien. Mt. Mus. Hildesheim xvi, 8 pp., figg.

19. ——. Zweiter Beitrag zur Binnenconchylienfauna des Miocäns von Oppeln in Schlesien. Op. cit. xviii, 31 pp., figg.

20. Andrussov, N. Beiträge zur Kenntniss des Kaspichen Neogen. Die Aktschagylsschichten. Trudui geol. Kom. xv, No. 4, 153 pp., 5 pls.

21. Angermann, E. Ueber das Genus *Acanthoteuthis* Munst. aus den lithographischen Schiefern in Bayern. N. Jahrb. Min. B.B. xv, pp. 205–230, pl. vi.

22. Authelin, C. Note préliminaire sur la zone à *Harpoceras concavum* dans le nord de la Lorraine. Bull. Soc. Nancy ii, pp. 10 & 11.

23. Babor, J. F. Zur Histogenese der Bindesubstanzen bei Weichtieren. Congr. Zool. 1901, pp. 796–799.

24. ——. Die Entwickelung des knorpeligen Schädels bei *Eledone moschata*. T. c. pp. 799–803.

25. Bäcker, R. Zur Kenntnis der Gastropodenaugen. Zool. Anz. xxv, pp. 548–550.

26. ——. Die Augen einiger Gastropoden. Arb. Inst. Wien xiv, pp. 259–290, pls. xi & xii.

27. Bail, —. Die Thierklasse der Kopffüsser oder Tintenschnecken. Schr. Ges. Danzig x, pp. vii–x.

28. Baker, F. C. The gross Anatomy of *Limnæa emarginata* Say var. *mighelsi* Binney. Bull. Chicago Ac. ii, pp. 191–211, 6 pls. [1900].

29. ——. Cruising and collecting off the Coast of Lower California. Nautilus xvi, pp. 25–29.

30. ——. List of shells collected on San Martin Island, Lower California, Mexico. T. c. pp. 40–43.

31. ——. Some interesting Molluscan monstrosities. Tr. Ac. St. Louis xi, pp. 143–146, pl. xi [1901].

32. Bartsch, P. A new *Rissoina* [*bakeri*] from California. Nautilus xvi, p. 9.

——. [See also Dall & Bartsch (123).]

33. Beck, A. O zjawiskach elektrycznych wywolanych przez oswietlinie siatkowki glowonoga (*Eledone moschata*) [Über die elektrischen Erscheinungen, die durch die Belichtung der Netzhaut des Tintenfisches hervorgerufen werden]. Kosmos polski. xxv, pp. 1–35.

34. Beede, J. W. New fossils from the Upper Carboniferous of Kansas. Science Bull. Kansas i, pp. 147–152, pl. v.

35. —— & Rogers, A. F. Coal Measures Faunal Studies ii. T. c. pp. 163–181.

36. Bellini, R. I Molluschi di alcuni depositi Elveriani presso S. Genesio (Torino). Boll. Nat. xxii, pp. 112–116.

37. ——. Contribuzione alla conoscenza della fauna dei molluschi marini dell' isola di Capri. Boll. Soc. Napoli xv, pp. 85–121.

38. [Bénard, C.] Album des Coupes longitudinales et transversales de coquilles de Mollusques Gastéropodes et Céphalopodes appartenant au Musée océanographique de S.A.S. Albert 1er, Prince Souverain de Monaco, et exécutées dans le Laboratoire de M. Charles Bénard. Bordeaux, 1902, folio, 13 pls.

39. Benney, A. E. Snails. Rep. Barrow Club xv, pp. 87–89.

40. Bergh, R. The Danish Expedition to Siam, 1899–1900. I. Gasteropoda Opisthobranchiata. Danske Selsk. Skr. xii, pp. 153–218, 3 pls. & map.

41. ——. Reisen im Archipel der Philippinen von Dr C. Semper. Wissenschaftliche Resultate. Band vii. Malacologische Untersuchungen. 4te Abtheilung, 4te Abschnitt. *Ascoglossa*, *Aplysiidæ*, pp. 313–382, pls. xxv–xxix (completed).

42. Bergmann, W. Untersuchungen über die Eibildung bei Anneliden und Cephalopoden. Zeitschr. wiss. Zool. lxxiii, pp. 278–301, pls. xvii–xix.

43. Bernard, F. On the Unit of Classification for Systematic Biology. P. Cambridge Soc. xi, pp. 268–280.

Beylot, —. [See Cavalié & Beylot (70).]

44. Billups, A. C. Fossil land shells of the old forest bed of the Ohio River. Nautilus xvi, pp. 50–52.

45. Blake, J. F. Cuttle-fish. Encyc. Brit. xxvii, pp. 319–323, figg.

46. *Blanckenhorn, M. Das Urbild der Ammonshörner. Naturw. Wochenschr. xvi, pp. 57–59. [Fide Bibl. Zool. vii, p. 214.]

47. Blanford, W. T. On *Rhiostoma dalyi*, n. sp., and *Sesara megalodon*, n. sp., obtained by the late Mr W. M. Daly in Siam. P. Malac. Soc. London v, pp. 34 & 35, figg.

48. Bloomer, H. H. The Anatomy of the British Species of the genus *Solen*. J. Malac. ix, pp. 18–21, pl. ii ; 133–136, pl. x.

49. ——. Notes on some further malformed specimens of *Anodonta cygnea* L. T. c. p. 96, pl. vii.

50. *Bochenek, A. L'anatomie fine de la cellule nerveuse de *Helix pomatia* Lin. C.R. Assoc. Anatomist, 3 Sess., pp. 106–108. [Fide Bibl. Zool. vii, p. 69.]

51. Boettger, O. Zur Kenntnis der Fauna der Mittelmiocänen Schichten von Kostej im Krassó-Szörényer Komitat. Herrmanstadt, 1901, 200 pp. Forms part of Verh. Siebenb. Ver. li.

52. Bohn, G. Des ondes musculaires, respiratoires et locomotrices, chez les Annélides et les Mollusques. Bull. Mus. Paris 1902, pp. 96–102.

53. Boistel, A. Quelques coupes du Miocène de la Bresse dans l'Anse du Bas-Bugey. Bull. Soc. geol. France i, pp. 657–676, fig.

54. Bourne, G. C. An introduction to the study of the comparative anatomy of animals. London, 8vo, 321 pp., 77 figg. Mollusca, pp. 53–89, figg.

55. Boutan, L. Sur le centre nerveux qui innerve la périphérie du manteau cher le *Pecten*. C.R. Ac. Sci. cxxxv, pp. 587–589.

56. Bouvier, E. L. & Fischer, H. L'organisation et les affinités des Gastéropodes primitifs d'après l'étude anatomique du *Pleurotomaria beyrichi*. J. Conchyl. l, pp. 117–269, pls. ii–vi, figg.

57. Brockmeier, H. Die Züchtung der *Limnæa truncatula* aus Laich einer *Limnæa palustris*. Congr. Zool. 1901, pp. 756–758.

58. Bronn's Klassen und Ordnungen des Thier-Reich....., Bd. iii. Mollusca.....Bearbeitet von H. Simroth. Lief. 62–65. Abth. ii, pp. 545–600, pls. xl–xlii. [Relates to *Gastropoda*.]

59. Bryant, F. W. A new variety of *Glyptostoma newberryanum*. Nautilus xvi, p. 70.

60. Buchner, O. Einige ergänzende Bemerkungen über Gehäuseabnormitäten bei unseren Landschnecken. Jahresh. Ver. Wurttemb. lviii, pp. 77–82, pl. i. Also forms part of Mt. Nat.-Kab. Stuttgart No. 21.

61. Buckman, S. S. Emendations of Ammonite Nomenclature. Cheltenham, 8vo, 1902, 7 pp.

62. Bullen, R. A. Notes on Holocene Mollusca from North Cornwall. P. Malac. Soc. London v, pp. 185–188.

63. Burne, R. H. Note on the Histology of Molluscan and other Olfactory Nerve Centres. P. Malac. Soc. London v, p. 184.

64. Button, F. L. West American *Cypræidæ*. J. Conch. x, pp. 254–256.

65. Call, B. E. The European Pond-snail. Science xvi, p. 65.

66. Carazzi, D. Contributo all' istologia e alla fisiologia dei Lamellibranchi. Int. J. Anat. xx, pp. 57–90, pls. iii & iv.

Carlson, A. J. [See Jenkins & Carlson (250).]

67. Carpenter, H. F. The shell-bearing Mollusca of Rhode Island. Nautilus xv, pp. 104–107, 113–115, 130–132; xvi, pp. 17 & 18.

68. Casey, T. L. A new genus [*Ptereulima*] of Eocene *Eulimidæ*. Nautilus xvi, pp. 18 & 19, fig.

69. Cavalié, M. Sur la sécrétion de la glande albuminipare chez l'escargot (*Helix pomatia* et *Helix hortensis*). C.R. Soc. Biol. liv, pp. 880–882.

70. —— & Beylot, —. Sur la glande albuminipare de l'escargot. T. c. pp. 297 & 298.

71. Caziot, E. Note on the pairing of *Pyramidula rotundata* (Müll.) with *Vitrea lucida* (Drap.). P. Malac. Soc. London v, p. 11.

72. ——. Comparaison entre les faunes terrestres et fluviatiles des deux iles Corse et Sardaigne. C.R. Ass. Franc. 1901, Pt. 2, pp. 571–576. See also Feuille Natural. Ann. 33, pp. 10 & 11.

73. [Caziot, E.] L'*Anodonta anatina* de Moquin-Tandon. Feuille Natural. Ann. 32, p. 23 [1901].

74. Chartron, C. & Cossmann, M. Note sur l'infralias de la Vendée et spécialement sur un gisement situé dans la commune du Simon-la-Vineuse. Bull. Soc. geol. France ii, pp. 163–203, pls. iii & iv.

75. Chédeville, J. Liste des fossiles tertiares du bassin parisien. Bull. Soc. Elbeuf xx, 67 pp.

76. Choffat, P. Recueil d'études paléontologiques sur la Faune Crétacique du Portugal. Vol. i. Espèces nouvelles ou peu connues. Ser. iii. Mollusques du Sénonien à facies fluvio-marin. Pp. 87–104, 2 pls. Commun. geol. Portugal.

77. ——. Recueil d'études paléontologiques sur la Faune Crétacique du Portugal. Vol. i. Espèces nouvelles ou peu connues. Ser. iv. Espèces diverses. Pp. 105–171, 7 pls. T. c.

Clapp, G. H. [See Pilsbry & Clapp (420).]

78. Clarke, J. M. Limestones of Central and Western New York interbedded with Bituminous Shales of the *Marcellus* stage, with notes on the nature and origin of their faunas. Bull. N. York Mus. x, pp. 115–138, pl. viii.

79. ——. *Amnigenia* as an indicator of freshwater deposits during the Devonic of New York, Ireland, and the Rhineland. T. c. pp. 199–203, pl. xi.

80. ——. The squids from Onondaga Lake, N. Y. Science xvi, pp. 947, 991.

81. *——. Molluscos devonianos do estado do Pará, Brazil. Arch. Mus. Rio Janeiro x, pp. 49–174, 6 pls. [? 1899.]

82. Claudon, E. Faunule malacologique Marine de Saint-Raphaël (Var). Feuille Natural. Ann. 32, pp. 184–199, 209–213, 2 maps.

Clessin, S. [See Martini & Chemnitz (337).]

83. Cockerell, T. D. A. Three new species of *Chromodoris* [California]. Nautilus xvi, pp. 19–21.

84. ——. *Unio popei* Lea, in New Mexico. T. c. pp. 69 & 70.

85. —— & Cooper, M. Notes on *Ashmunella*. Op. cit. xv, pp. 109 & 110.

86. [Cole, W.] *Petricola pholadiformis* in Essex and Kent. Essex Natural. xi, pp. 168–171, figg.

87. Collett, O. Contributions to Ceylon Malacology. (3) The Terrestrial Mollusca of Ambagamuwa (Part ii). J. Ceylon Asiat. Soc. xvi, pp. 132–139.

88. Collier, E. The section *Placostylus* of the genus *Bulimus*. J. Conch. x, pp. 208–214.

89. Collinge, W. E. On the Anatomy of the genus *Myotesta* Cllge. J. Malac. ix, pp. 11–16, pl. i.

90. ——. Description of a new species of *Onchidium* [*burnupi*] from South Africa. T. c. p. 17, figg.

91. ——. Is *Amalia carinata* Risso a British slug? T. c. p. 63.

92. ——. On the Non-Operculate Land and Freshwater Molluscs collected by the Members of the "Skeat Expedition" in the Malay Peninsula, 1899–1900. T. c. pp. 71–95, pls. iv–vi.

93. [Collinge, W. E.] Some notes on the genus *Prisma* Simroth. T. c. pp. 129–132, pl. ix. [1903.]

94. ——. Further notes on *Amalia carinata* Risso. T. c. pp. 132 & 133. [1903.]

Cooper, M. [See Cockerell & Cooper (85).]

95. Corbett, H. H. Terrestrial Mollusca of Doncaster. Naturalist 1902, pp. 205–207.

96. Corney, R. G. Poisonous Molluscs. Nature lxv, p. 198.

97. Cornish, C. J. The Naturalist on the Thames. London, 1902, viii + 260 pp.

98. Cossmann, M. Appendice No. 3 au Catalogue illustré des Coquilles fossiles de l'Éocène des environs de Paris. Ann. Soc. malac. Belgique xxxvi, pp. 9–110, pls. ii–vii.

99. ——. Mollusques Éocéniques de la Loire-Inférieure. Bull. Soc. Ouest France ii, pp. 5–157, pls. i–xii.

100. ——. Determination d'espèces nouvelles. Bull. Soc. Beziers xxii, pp. 119 & 120, figg.

101. ——. Rectifications de nomenclature. Rev. paleozool. vi, pp. 52, 96–98, 160–162, 223.

102. ——. Sur quelques grandes Vénéricardes de l'Éocène. Bull. Soc. geol. France i, pp. 652–656, figg.

103. —— & Pissarro, G. Faune Éocènique du Cotentin (Mollusques). Bull. Soc. geol. Normand. xx, pp. 11–90, 8 pls.

——. [See also Chartron & Cossmann (74).]

104. Coutagne, G. Les Mollusques de la Tarentaise. Feuille Natural. Ann. 32, pp. 137–149, 157–161.

105. Couvreur, E. Sur le sang des Mollusques Gastéropodes Marins. C.R. Soc. Biol. liv, pp. 1251 & 1252.

106. Crick, G. C. Note on the type-specimen of *Belemnoteuthis montefiorei* J. Buckman, from the Lower Lias Shales between Charmouth and Lyme Regis, Dorset. P. Malac. Soc. London v, pp. 13–16, pl. i.

107. ——. Additional note on *Ammonites calcar* Zieten. Geol. Mag. 1902, pp. 47 & 48.

108. ——. Note on the genus *Tmægoceras* Hyatt. T. c. pp. 127 & 128.

109. ——. Note on *Nautilus robustus* Foord & Crick. T. c. pp. 342–346, fig.

Crosse, H. [See Fischer & Crosse (172).]

110. Crowther, J. W. The Natural History of Tag Lock: v. Freshwater Snails. Halifax Natural. vii, pp. 78–80.

111. Cuénot, L. La valeur respiratoire du liquide cavitaire chez quelques invertébrés. Trav. Soc. Arcachon 1900–1901, pp. 107–125.

112. ——. Détermination du *Pectunculus* de Naples qui possède des hématies à hémoglobine. Zool. Anz. xxv, pp. 543–4.

Dainelli, G. [See Stefani & Dainelli (513).]

113. Dall, W. H. A new species of *Volutomitra* [*alaskana*, W. America]. Nautilus xv, pp. 102 & 103.

114. [Dall, W. H.] Note on the names *Elachista* and *Pleurotomaria*. T. c. p. 127.

115. ——. Notes on the giant Limas. Op. cit. xvi, pp. 15–17.

116. ——. New species of Pacific Coast Shells. T. c. pp. 43 & 44.

117. ——. Note on *Neocorbicula* Fischer. T. c. pp. 82 & 83.

118. ——. Illustrations and Descriptions of new, unfigured or imperfectly known Shells, chiefly American, in the U. S. National Museum. P. U. S. Mus. xxiv, pp. 499–566, pls. xxvii–xl.

119. ——. Synopsis of the family *Veneridæ*, and of the North American recent species. Op. cit. xxvi, pp. 335–412, pls. xii–xvi.

120. ——. Synopsis of the *Carditacea* and of the American species. P. Ac. Philad. 1902, pp. 696–716. [1903.]

121. ——. On the true nature of *Tamiosoma*. Science xv, pp. 5–7.

122. ——. On the genus *Gemma* Deshayes. J. Conch. x, pp. 238–243.

123. —— & Bartsch, P. A new *Rissoa* [*kelseyi*] from California. Nautilus xvi, p. 94.

124. Daniels, L. E. A new species of *Lampsilis* [*blatchleyi* Indiana]. Nautilus xvi, pp. 13 & 14, pl. ii.

125. Dautzenberg, P. Descriptions de coquilles nouvelles provenant de la Nouvelle-Calédonie. J. Conchyl. xlix, pp. 299–302, pl. viii.

126. ——. Descriptions de coquilles nouvelles rapportées du Pérou par M. Baer. T. c. pp. 306–313, pl. ix.

127. ——. Sur une nouvelle variété de *Chlamys opercularis*. T. c. p. 340.

128. ——. Revision des *Cypræidæ* de la Nouvelle-Calédonie. Op. cit. l, pp. 291–384, pl. vii.

129. ——. Observations sur quelques mollusques rapportés par M. Ch. Alluaud, du sud de Madagascar. Bull. Soc. zool. France xxvii, pp. 196–199.

130. ——. Description de mollusques nouveaux provenant de l'île Obi (Moluques). Naturaliste 1902, pp. 247 & 248, 7 figg.

——. [See also Dollfus & Dautzenberg (140).]

131. Davenport, C. P. Relative variability of *Pectens* from the East and West Coast of the United States. Science xv, p. 531.

132. Day, A. E. Remarkable Fossil Oysters from Syria. Nature lxvi, pp. 606 & 607.

133. Deflandre, C. Fonction adipogénique du foie chez les Mollusques. C.R. Soc. Biol. liv, pp. 762–764.

134. ——. Rôle de la fonction adipogénique du foie chez les Invertébrés. C.R. Ac. Sci. cxxxv, pp. 807–809.

135. Deninger, K. Beitrag zur Kenntnis der Molluskenfauna der Tertiärbildungen von Reit im Winkel und Reichenhall. Geognost. Jahresh. xiv, pp. 221–245, pls. vii & viii.

136. Deperet, C. & Roman, F. Monographie des Pectinidés néogènes de l'Europe et des régions voisines. Première partie: Genre *Pecten*. Mem. Soc. geol. France, Pal. x, fasc. 1, 73 pp., 8 pls.

137. Diener, C. Ueber den Typus der Gattung *Pseudomonotis* Beyr. Centrbl. Mineral. 1902, pp. 342–344.

138. Digby, L. On the structure and affinities of the Tanganyika Gastropods *Chytra* and *Limnotrochus*. J. Linn. Soc. xxviii, pp. 434–442, pls. xxxviii–xl.

139. Dimon, A. C. Quantitative study of the effect of Environment upon the forms of *Nassa obsoleta* and *Nassa trivittata* from Cold Spring Harbour, Long Island. Biometrika ii, pp. 24–43, figg.

140. Dollfus, G. F. & Dautzenberg, P. Conchyliologie du Miocène moyen du Bassin de la Loire. Première partie: Description des gisements fossilifères, Pélécypodes. Mem. Soc. geol. France, Pal. x, fasc. 2 & 3, 106 pp., 5 pls.

141. Donald, J. On some of the Proterozoic Gasteropoda which have been referred to *Murchisonia* and *Pleurotomaria*, with descriptions of new Subgenera and Species. Quart. J. Geol. Soc. lviii, pp. 313–338, pls. vii–ix.

142. Dor, L. Urobiline des Gastéropodes. C.R. Soc. Biol. liv, pp. 54–56.

143. Douvillé, H. Sur le genre *Chondrodonta* Stanton. Bull. Soc. geol. France ii, pp. 314–318, pl. xi.

144. Downing, E. R. Variation in the position of the adductor muscles of *Anadonta* (sic) *grandis* Say. Amer. Natural. xxxvi, pp. 395–400, figg.

145. Drevermann, F. Die Fauna der Untercoblenzschichten von Oberstadtfeld bei Daun in der Eifel. Palæontogr. xlix, pp. 73–120, pls. ix–xiv.

146. ——. Die Fauna der oberdevonischen Tuffbreccie von Langenaubach bei Haiger. Jahrb. geol. Landesanst. Berlin xxi, Abh. Auss. pp. 99–207, pls. xii–xvi.

147. Drew, G. A. The Anatomy of *Sphærium sulcatum* Lam. P. Iowa Ac. iii, pp. 173–182, pls. viii–x [1896].

148. ——. The Circulatory System of Lamellibranchs. Science xv, p. 572.

149. Drummond, J. M. Note on the Development of *Paludina vivipara*, with Special Reference to the Urinogenital Organs and Theories of Gasteropod Torsion. P. R. Soc. London lxix, pp. 291–294, fig.

150. ——. Note on the Development of *Paludina vivipara*, with Special Reference to the Urinogenital Organs and Theories of Gasteropod Torsion. Quart. J. Micr. Sci. lxx, pp. 97–143, pls. vii–ix.

151. Dubois, R. Sur le mécanisme intime de la formation de la pourpre chez *Murex brandaris*. C.R. Soc. Biol. liv, pp. 82 & 83.

152. ——. Sur la physiologie comparée de l'organe purpurigène du *Murex trunculus* et du *Murex brandaris*. T. c. pp. 657 & 658.

153. ——. Sur le mode de formation des perles dans *Mytilus edulis*. C.R. Ass. Franc. 1901, Pt 1, pp. 149 & 150.

154. ——. Sur le mécanisme intime de la formation de la Pourpre. C.R. Ac. Sci. cxxxiv, pp. 245–247.

155. Dumez, R. Rapports du cytoplasme et du noyau dans l'œuf de la *Cytherea chione* L. Cellule xix, pp. 437–452, figg.

156. Dupuis, P. & Putzeys, S. Note concernant la découverte du *Petricola pholadiformis* L. en Belgique. Ann. Soc. malac. Belgique xxxvii, Bull. p. iv.

157. Dybowski, W. Die Verwandschaft von *Ancylodoris*. Nachrbl. Deutsch. malak. Ges. 1902, pp. 18 & 19.

158. ——. Die *Cycladidæ* des Baikalsees. T. c. pp. 81–97.

159. Elbert, J. Das untere Angoumien in den Osningburgkatten des Teutoburger Waldes. Verh. Ver. Rheinland lviii, pp. 77–167.

160. Eliot, C. On some Nudibranchs from Zanzibar. P. Zool. Soc. London 1902, ii, pp. 62–72, pls. v & vi.

161. Elrod, M. J. Collecting shells in Montana. Nautilus xv, pp. 103 & 104, 110–112, 129 & 130.

162. Enriques, P. Le foie des Mollusques et ses fonctions. Arch. ital. Biol. xxxvii, pp. 177–199.

163. Etheridge, R. A new Permo-Carboniferous Genus (*Keeneia*) of *Pleurotomariidæ* and a *Straparollus* in New South Wales. Rec. Austral. Mus. iv, pp. 195–200, pls. xxxii & xxxiii.

164. ——. Two undescribed Pelecypoda from the Lower Cretaceous of Queensland in the Collection of the Australian Museum. T. c. pp. 201–206, pls. xxxiv & xxxv.

165. ——. Palæontologia Novæ Cambriæ Meridionalis.—Occasional Descriptions of New South Wales Fossils, No. 4. Rec. Geol. Surv. N. S. Wales vii, pp. 66–69, pl. xviii.

166. ——. The Cretaceous Mollusca of South Australia and the Northern Territory. Mem. R. Soc. S. Austral. ii, pp. 1–54, pls. i–vii.

167. Evermann, B. W. & Goldsborough, E. L. Notes on the fishes and mollusks of Lake Chautauqua, New York. Rep. U. S. Fish. Comm. xxvii, pp. 169–175.

168. Faussek, V. Ueber den Parasitismus der *Anodonta*-Larven. Congr. Zool. 1901, pp. 761–766.

169. Ficalbi, E. *Doratopsis vermicularis* larva di *Chiroteuthis veranyi*. Monit. Zool. ital. xiii, pp. 37–39.

170. Finn, F. Transport of Molluscs by Waterfowl. Nature lxv, p. 534.

171. Fischer, H. A propos du type de l'*Helix prunum* Férussac. J. Conchyl. l, pp. 385 & 386.

——. [See also Bouvier & Fischer (56).

172. Fischer, P. & Crosse, H. Mission Scientifique au Mexique et dans l'Amérique Centrale. Études sur les Mollusques terrestres et fluviatiles. Tom. ii, p. 657–731, pls. lxvii–lxxii.

173. Fleure, H. J. Notes on the Relations of the Kidneys in *Haliotis tuberculata*, etc. Quart. J. Micr. Sci. xlvi, pp. 77–96, pl. vi.

174. Frandsen, P. Studies on the reactions of *Limax maximus* to directive stimuli. P. Amer. Ac. xxxvii, pp. 185–227.

175. Frech, F. Ueber *Diceras*-ähnliche Zweischaler aus der mittleren Alpentrias. N. Jahrb. Min. 1902, ii, pp. 127–132, pls. iv & v.

176. ——. Ueber Trias-Ammoniten aus Kaschmir. Centrbl. Mineral. 1902, pp. 134–137, figg.

177. ——. Ueber *Epitornoceras* und *Tornoceras*. T. c. pp. 172–176, figg.

178. [Frech, F.] Ueber *Gervilleia*. T. c. pp. 609–620, figg.

179. ——. Über devonische Ammoneen. Beitr. Pal. Oesterr.-Ung. xiv, pp. 27–112, pls. ii–v.

180. Friele, H. Mollusken der ersten Nordmeerfahrt des Fischereidampfers "Michael Sars" 1900 unter Leitung von Herrn Dr Johan Hjort. Bergens Mus. Aarbog 1902, No. 3, 19 pp., 4 pls. & map.

181. Frierson, L. S. Collecting *Unionidæ* in Texas and Louisiana. Nautilus xvi, pp. 37–40.

182. Fuchs, T. Ueber den Charakter der Tiefseefauna des Rothen Meeres auf Grund der von den österreichischen Tiefsee-Expedition gewonnenen Ausbeute. SB. Ak. Wien cx, Abth. 1, pp. 249–258.

183. ——. Ueber ein neuartiges Pteropoden-Vorkommen aus Mähren. Anz. Ak. Wien 1902, pp. 167 & 168.

184. Fucini, A. Altre due nuove specie di Ammoniti dei Calcari rosso ammonitiferi inferiori della Toscana. Atti Soc. Toscana xviii, pp. 3–8, pl. i.

Fujita, M. [See Oku, Ito, & Fujita (377).]

185. Fulton, H. Description of *Ennea affectata*, n. sp., from Zanzibar. P. Malac. Soc. London v, p. 32, fig.

186. ——. Description of *Thersites* (*Rhagada*) *woodwardi*, n. sp., from N. W. Australia. T. c. p. 33, fig.

187. ——. Descriptions of a new *Alycæus* from Perak and a *Bulimulus* from Bolivia. Ann. Nat. Hist. ix, pp. 68 & 69.

188. ——. Description of new Species of Land-Mollusca from New Guinea. T. c. pp. 182–184.

189. ——. Descriptions of new Species of *Ampelita* and *Tropidophora* from Madagascar. T. c. pp. 313–315.

190. ——. Descriptions of new Species of Helicoids from German New Guinea and New Mecklenburg (New Ireland). T. c. pp. 315–318.

191. Gardiner, J. S. On the Unit of Classification for Systematic Biology. P. Cambridge Soc. xi, pp. 423–427.

192. Gatliff, J. H. Notes on Perry's "Conchology." Victorian Natural. xix, pp. 75 & 76.

——. [See also Pritchard & Gatliff (431, 432).]

193. Gautier, E. F. Sur les terrains paléozoïques de l'Oued Saoura et du Gourara. C.R. Ac. Sci. cxxxv, pp. 1071–1073.

194. Geiger, P. Die Nerineen des Schwäbischen Jura. Jahresh. Ver. Wurttemb. lvii, pp. 275–318, 1 pl.

195. Gilson, G. Exploration de la mer sur les côtes de la Belgique in 1899. Mem. Mus. Belgique i, pp. 7–81, pls. i–iii [? 1900].

196. Goette, A. Lehrbuch der Zoologie. Leipzig, 8vo, xii + 504 pp., 512 figg. Mollusca, pp. 265–302, 49 figg.

197. Godwin-Austen, H. H. On *Helix basileus* Benson, from Southern India: its Anatomy and generic position. P. Malac. Soc. London v, pp. 248–252, pl. vi.

Goldsborough, E. L. [See Evermann & Goldsborough (167).]

198. Goloubiatnikow, D. V. [Les dépôts méditerranéens du Daghestan.] Bull. Com. geol. St. Petersb. xxi, pp. 185–230, pl. iv.

199. Gortani, M. Nuovi fossili raibliani della Carnia. Riv. ital. Pal. viii, pp. 76–94, pls. viii & ix.

200. Grabau, A. W. Studies of Gastropoda. Amer. Natural. xxxvi, pp. 917–945, figg.

201. Graeffe, E. Ueberricht der Fauna des Golfes von Triest. Mollusca. Arb. Inst. Wien xiv, pp. 89–136.

202. Granger, A. Les Mollusques testacés marins des côtes méditerranéennes de France. Bull. Soc. Beziers xxii, pp. 41–100; xxiii, pp. 5–30.

203. Grant, F. E. & Thiele, E. O. Notes on some recent Marine Deposits in the neighbourhood of Williamstown. P. Soc. Victoria xv, pp. 36–40.

——. [See also Thiele & Grant (548).]

204. Gredler, V. Die Conchylien des Thales Kartitsch von Prof. Leonhard Wiedermayr [Review, &c.]. Nachrbl. Deutsch. malak. Ges. 1902, pp. 15–18.

205. ——. Zur Conchylien-Fauna von Borneo und Celebes. T. c. pp. 53–62.

206. Green, W. A. A few notes on imported Mollusca. J. Conch. x, pp. 185 & 186.

207. Grierson, R. H. Some land and freshwater shells from Co. Clare. Irish Natural. xi, pp. 139 & 140.

208. Griffin, L. E. The Anatomy of *Nautilus pompilius*. Mem. Ac. Washington viii, pp. 103–197, 17 pls. [? 1898].

209. Gude, G. K. Note on *Eulota blakeana* Newc. and *Eulota luna* Pils. P. Malac. Soc. London v, pp. 10 & 11.

210. ——. A synopsis of the genus *Streptaxis* and its allies. T. c. pp. 201–244, pl. iv.

211. ——. A classified list of the Helicoid Land Shells of Asia. J. Malac. ix, pp. 1–11, 51–59, 97–104, 112–129.

212. ——. Description of a new species of *Chloritis* [*prestoni*] from New Guinea. T. c. pp. 59 & 60, figg.

213. ——. Description of two new Helicoid Land-Shells. Ann. Nat. Hist. x, pp. 332 & 333, figg.

Gulick, A. [See Pilsbry & Gulick (421).]

214. Hamlyn-Harris, R. The Statocysts of Cephalopoda. Rep. Brit. Ass. 1901, pp. 355 & 356.

215. Harmer, F. W. A sketch of the later Tertiary History of East Anglia. P. Geol. Ass. xvii, pp. 416–479.

216. Hedley, C. A day on the Great Barrier Reef. Nautilus xv, pp. 97–100.

217. ——. Notes on Tasmanian and West Indian Conchology. Op. cit. xvi, p. 49.

218. ——. A new Australian Volute (*V. perplicata*). Rec. Austral. Mus. iv, p. 309, fig.

219. [Hedley, C.] Scientific Results of the trawling expedition of H.M.C.S. "Thetis" off the Coast of New South Wales in February and March, 1898. Mollusca. Part i. Brachiopoda and Pelecypoda. Mem. Austral. Mus. iv, pp. 287–324, figg.

220. ——. Studies on Australian Mollusca. Part v. P. Linn. Soc. N. S. Wales xxvi, pp. 700–708, pl. xxxiv.

221. ——. Studies on Australian Mollusca. Part vi. Op. cit. xxvii, pp. 7–29, pl. i–iii.

Heider, K. [See Korschelt & Heider (290).]

222. Henderson, J. B. & Simpson, C. T. A new Haitien *Chondropoma* [*superbum*]. Nautilus xvi, pp. 88 & 89, fig.

223. Hensgen, C. Biometrische Untersuchungen über die Spielarten von *Helix nemoralis*. Biometrika i, pp. 468–492, figg.

224. Hill, R. T. Geography and Geology of the Black and Grand Prairies, Texas, with detailed descriptions of the Cretaceous Formations.... Rep. U. S. Geol. Surv. xxi, Part vii, 666 pp.

225. Hinch, J. de W. A contribution to the Glacial Geology of County Dublin. Irish Natural. xi, pp. 229–236.

226. Hind, W. On the characters of the Carboniferous Rocks of the Pennine System. P. Yorksh. geol. Soc. xiv, pp. 422–464.

227. ——. A list of localities where fossils occur in the Pendleside series of the country round North Staffordshire. Rep. North Staffordsh. Club xxxvi, pp. 77–81, 1 pl.

Hirase, Y. [See Pilsbry & Hirase (422).]

228. Hoernes, R. Über *Limnocardium semseyi* Halav. und verwandte Formen aus den oberen pontischen Schichten von Königsnad (Királykegye). SB. Ak. Wien cx, Abth. i, pp. 78–94, pls. i–iii.

229. ——. *Congeria oppenheimi* und *helluri*, zwei neue Formen der *Rhomboidea*-Gruppe aus den oberen pontischen Schichten von Königsnad (Királykegye), nebst Bemerkungen über dasselbst vorkommende Limnocardien und Valenciennesien. T. c. pp. 206–235, 1 pl.

230. Hoffmann, R. W. Ueber die Ernährung der Embryonen von *Nassa mutabilis* Lam. Zeitschr. wiss. Zool. lxxii, pp. 657–720, 3 pls. & 12 figg. in text.

231. Holmgren, E. Ueber die "Trophospongien" der Nebenhodenzellen und der Lebergangzellen von *Helix pomatia*. Anat. Anz. xxii, pp. 83–86, 2 figg.

232. Houssay, F. La Forme et la Vie. Essai de la méthode mécanique en Zoologie. Paris, 8vo [1902 ?], Parts 1 & 2. Mollusca, pp. 81–96, figg.

233. Howes, G. B. Recent work on Molluscan Morphology. Essex Natural. xi, pp. 46–48.

234. Hoyle, W. E. The Luminous Organs of *Pterygioteuthis margaritifera*, a Mediterranean Cephalopod. Mem. Manchester Soc. xlvi, No. 16, 14 pp.

235. ——. British Cephalopoda : their nomenclature and classification. J. Conch. x, pp. 197–206.

236. ——. Two points in nomenclature. i. *Cypriniadea* versus *Cyprina*. ii. The genus *Antiopa*. T. c. p. 214.

237. [Hoyle, W .E.] On an Intrapallial Luminous Organ in the *Cephalopoda.* Congr. Zool. 1901, p. 774.

238. Hutton, F. W. On a new Fossil *Pecten* from the Chatham Islands. Tr. N. Zealand Inst. xxxiv, p. 196, pl. viii.

239. Hutchinson, F. On the freshwater shells of Rissington, Hawke's Bay. Tr. N. Zealand Inst. xxxiii, pp. 207–213 [1901].

240. Ihering, H. von. Die *Photinula*-Arten der Magellan-Strasse. Nachrbl. Deutsch. malak. Ges. 1902, pp. 97–104.

241. ——. Zur Systematik der Gattung *Solaropsis.* T. c. pp. 179 & 180.

242. ——. Historia de la Ostras Argentinas. An. Mus. Buenos Aires vii, pp. 109–123.

243. ——. On the Molluscan Fauna of the Patagonian Tertiary. P. Amer. Phil. Soc. xli, pp. 132–137, pl. xix.

244. Illingworth, J. F. The anatomy of *Lucapina crenulata* Gray. Zool. Jahrb. Anat. xvi, pp. 449–480, pls. xxxi–xxxiii, 15 figg.

Ito, K. [See Oku, Ito, & Fujita (377).]

245. Jaekel, O. Thesen über die Organisation und Lebensweise ausgestorbener Cephalopoden. Zeitschr. Deutsch. geol. Ges. liv, Verh. pp. 67–101.

246. Jameson, H. L. On the origin of Pearls. P. Zool. Soc. London 1902, i, pp. 140–166, pls. xiv–xvii, figg.

247. Janensch, W. Die Jurensisschichten des Elsass. Abh. geol. Karte Elsass v, 151 pp., 12 pls.

248. Jarvis, P. W. Notes on the distribution of the *Pleurodonte acuta* group. Nautilus xv, pp. 137–141, map.

249. ——. Note on the distribution of the *Pleurodonte sinuata* group. Op. cit. xvi, pp. 1–4, map.

250. Jenkins, O. P. & Carlson, A. J. The rate of nervous impulse in certain molluscs. Amer. J. Physiol. viii, pp. 251–268.

251. Jensen, A. S. Studier over nordiske Mollusker. II. *Cyprina islandica.* Vid. Medd. 1902, pp. 33–42.

252. ——. Fortegnelse over Skaller af bivalve Grundtvandsmollusker fra store Havdyb mellem Jan Mayen og Island. T. c. pp. 43–46.

253. Jobert, —. Sur la structure des muscles de l'*Anomia ephippium.* C.R. Ac. Sci. cxxxv, pp. 906 & 907.

254. Johansen, A. C. Einige Bemerkungen über *Assiminea grayana* und die Molluskenfauna des Furesö's. Nachrbl. Deutsch. malak. Ges. 1902, pp. 162–166.

255. ——. Om Aflejringen af Molluskernes Skaller i Indsøer og i Havet. Vid. Medd. 1901, pp. 5–46.

256. ——. On the Mollusca between tide-marks at the Coasts of Iceland. Op. cit. 1902, pp. 385–392.

257. ——. On the hypotheses on the sinking of sea-beds, based on the occurrence of dead shallow-water shells at great depths in the sea. T. c. pp. 393–435.

258. Johnson, J. P. Additions to the Palæolithic Fauna of the Uphill Brickyard, Ilford, Essex. Essex Natural. xi, pp. 209–212.

259. Jolyet, F. & Sellier, J. Contributions à l'étude de la physiologie comparée de la contraction musculaire chez les animaux invertébrés. Trav. Soc. Arcachon 1899, pp. 49–92, figg.

260. Jooss, C. Beiträge zur Schneckenfauna des Steinheimer Obermiocäns. Jahresh. Ver. Wurttemb. lviii, pp. 302–306, figg.

261. Joubin, L. Observations sur divers Céphalopodes : sur un nouvelle espèce du genre *Rossia*. Bull. Soc. zool. France xxvii, pp. 138–143, figg.

262. ——. Revision des *Sepiolidæ*. Mem. Soc. zool. France xv, pp. 80–144, 38 figg.

263. Jourdain, S. Bruit particulier produit par les Gastéropodes pulmonés. C.R. Soc. Biol. liii, p. 406 [1901].

264. Karakasch, J. Note sur le Crétacé inferiéur de Biassala (Crimée). Trav. Lab. geol. Grenoble vi, pp. 93–107, 1 pl.

265. Kayser, E. Ueber eine Molluskenfauna von Grey Hook auf Spitzbergen. Bih. Svenska Ak. xxvii, Afd. iv, No. 2, 20 pp., 2 pls.

266. Keller, W. Die Anatomie von *Vaginula gayi* Fischer. Zool. Jahrb. Suppl. Bd. v. Fauna Chilensis ii, pp. 607–642, pl. xviii.

267. Kellogg, J. L. Clam and Scallop industries of New York State. Bull. N. York Mus. viii, pp. 605–631, map.

268. Kelly, H. M. Note on the time of Sexual Maturity in certain *Unios*. P. Iowa Ac. viii, pp. 81–84.

269. Kennard, A. S. & Woodward, B. B. On the non-marine Mollusca from the Holocene Deposits at London Wall and Westminster. P. Malac. Soc. London v, pp. 180–182.

270. —— & ——. The Post-pliocene non-marine Mollusca of Ilford, Essex. Essex Natural. xi, pp. 213–215.

271. —— & ——. The non-marine Mollusca of the Walton Crag. T. c. pp. 216–218.

272. —— & ——. Notes on the Mollusc *Paludestrina jenkinsi* Smith, in Essex and elsewhere. T. c. pp. 288–291, figg.

273. Kenyon, A. Further note on the Type-specimen of *Voluta roadnightæ* McCoy. P. Malac. Soc. London v, p. 10.

274. ——. Some undescribed varieties of *Cypræa*. J. Conch. x, pp. 183 & 184.

275. Kershaw, J. A. Notes on the Argonauts. Victorian Natural. xix, pp. 28–32.

276. Kesteven, H. L. The systematic position of the genus *Fossarina* A. Adams and Angas, and of *Fossarina varia* Hutton. Rec. Austral. Mus. iv, pp. 317–322, figg.

277. ——. The systematic position of *Purpura tritoniformis* of Blainville. P. Linn. Soc. N. S. Wales xxvi, pp. 533–538, pl. xxix.

278. ——. The protoconchs of certain Port Jackson Gasteropoda. T. c. pp. 709–716, pls. xxxv & xxxvi.

279. ——. A note on two species of *Astralium* from Port Jackson. Op. cit. xxvii, pp. 2–6, figg.

280. ——. Notes on Prosobranchiata, No. I. *Lotorium*. T. c. pp. 443–483, pl. xvii.

281. Kew, H. W. On the mucus-threads of Land-slugs. J. Conch. x, pp. 153–165, figg.

282. ——. Lincolnshire Non-marine Mollusca. Naturalist 1902, pp. 261–270.

283. Keyes, C. R. & Rowley, R. R. Vertical Range of fossils at Louisiana. P. Iowa Ac. iv, pp. 26–40 [1897].

284. Knipovitsch, N. M. Zoologische Ergebnisse der Russischen Expeditionen nach Spitzbergen. Mollusca und Brachiopoda. I. Ueber die in den Jahren 1899–1900 im Gebiete von Spitzbergen gesammelten recenten Mollusken und Brachiopoden. Annuaire Mus. St. Petersb. vi, pp. 435–558, pls. xviii & xix.

285. Kobelt, W. Das Tierreich. 16 Lieferung. Mollusca. *Cyclophoridæ.* Berlin, 8vo, 1902, xxxix + 662 pp., figg., map.

286. ——. Iconographie der schalentragenden europäischen Meeresconchylien. Lief. xvi (Band iii, pp. 1–24, pls. lix–lxii). Wiesbaden, 1902.

287. ——. *Campylæa cingulata* Stud. bei Lugano. Nachrbl. Deutsch. malak. Ges. 1902, pp. 104 & 105.

——. [See also Martini & Chemnitz (337), Moellendorff & Kobelt (360), Rossmaessler (455).]

288. Koert, W. Zwei neue Aufschlüsse von marinem Oberoligocän im nördlichen Hannover. Jahrb. geol. Landesanst. Berlin xxi, Abh. Mitarb. pp. 187–199.

289. Koken, E. Eine altsilurische Bohrmuschel, *Lithobia atava* Ko. Centrbl. Mineral. 1902, pp. 132 & 133.

290. Korschelt, E. & Heider, K. Lehrbuch der vergleichenden Entwicklungsgeschichte der Wirbellosen Thiere. Jena, 8vo, 1902, Lief. 1 & 2, 750 pp., 400 figg.

291. Kostanecki, C. Sztuczne zaplodnienie i sztuczny partenogenetyczny podzial jojek mieczaka *Mactra* [Artificial fecundation and parthenogenesis in *Mactra*]. Bull. Ac. Cracovie 1902, pp. 363–387, figg.

292. *Kräepelin, K. Die Fauna der Umgebend Hamburgs. Extr. from 'Hamburg in naturwissenschaftlicher und medizinischen Beziehung.' Hamburg, 1901 [Fide Nachrbl. Deutsch. malak. Ges. 1902, p. 111].

293. Krause, P. G. Die Fauna der Kreide von Temojoh in West-Borneo. Samm. geol. Mus. Leiden vii, pp. 1–28, 2 pls.

294. ——. Über tertiäre, cretaceische und ältere Ablagerungen auf West Borneo. Jaarb. Mijn. Ned. Oost-Ind. xxix [? 1899], pp. 1–52, pls. xii & xiii.

295. Lacaze-Duthiers, H. de. Morphologie de *Tridacna elongata* et de *Hippopus.* Arch. Zool. exp. x, pp. 99–212, pls. i–x.

296. Lafite-Dupont, —. Fibres et fibrilles musculaires striées du manteau de *Sepia officinalis.* Trav. Soc. Arcachon 1899, pp. 39–42.

297. Lange, A. Über den Bau und die Funktion der Speicheldrüsen bei den Gastropoden. Anat. Hefte. Arb. xix, pp. 85–153, pl. v.

298. Lebour, M. V. Marine Mollusca of Sandsend, Yorkshire. Naturalist 1902, pp. 171–176.

299. Leney, F. A List of the 'Type,' Figured, and Described Fossils in the Norwich Castle Museum. Geol. Mag. 1902, pp. 220–231.

300. Letellier, A. Recherches sur le mécanisme intime de la formation de la pourpre chez le *Purpura lapillus*. Arch. zool. exp. Notes x, pp. xxxiii–xxxvi.

301. Levi, G. Fauna nel Lias inferiore di Cima alla Foce nell' Alpe Corfino. Boll. Soc. geol. Ital. xxi, pp. 398–410.

302. Licherdopol, —. Fragments de la faune malacologique des départements d'Ilfov, de Vlashca, et de Téléorman. Bull. Soc. Bucarest x, pp. 568–574; xi, pp. 347–365.

303. Liebus, A. Über einige Fossilien aus der Karpathischen Kreide. Beitr. Pal. Oesterr.-Ung. xiv, pp. 113–130, pl. vi.

304. Lindholm, A. Einige für die Fauna des St. Petersburger Gouvernements neue Binnenmollusken. Nachrbl. Deutsch. malak. Ges. 1902, pp. 208–211.

305. List, T. Fauna und Flora des Golfes von Neapel. Monographie 27. Die Mytiliden, 312 pp., 22 pls.

306. Locard, A. Observations sur les Mollusques testacés marins des côtes de Corse. C.R. Ass. Franc. 1901, Pt. 2, pp. 618–626.

307. ——. Faunule malacologique des sables quaternaires de l'étang de Capestang (Hérault). Bull. Soc. Beziers xxii, pp. 27–40.

308. ——. Notices Conchyliologiques. lvi. Sur la classification des *Rissoïdæ* du système européen. Echange xvii, pp. 5–7, 11 & 12.

309. ——. Notices Conchyliologiques. lvii. Les Ptéropodes testacés des mers d'Europe. T. c. pp. 67 & 68, 74 & 75.

310. ——. Description de Mollusques nouveaux appartenant à la Faune souterraine de France et d'Italie. Bull. Mus. Paris viii, pp. 608–621, figg.

311. Łomnicki, A. M. Materyaly do miocénskiego utwaru slodkowodnego w okolicy Krakowa [Contribution to the knowledge of the freshwater miocene deposits near Cracow]. Kosmos polski. xxvii, pp. 227–239, 1 pl. Includes Résumé in German.

312. Longhi, P. Contribuzione alla conoscenza della Fauna del calcare cretaceo di Calloneghe presso il Lago di S. Croce nelle Alpi Venete. Riv. ital. Pal. viii, pp. 23–26, pl. ii.

313. ——. Cefalopodi della Fauna triassica di Val di Pena presso Lorenzago. T. c. pp. 53–61, pls. iii & iv.

314. Loppens, K. *Petricola pholadiformis* L. Ann. Soc. malac. Belgique xxxvii, Bull. pp. xli & xlii.

315. Lörenthey, E. Die Pannonische Fauna von Budapest. Palæontogr. xlviii, pp. 137–296, pls. ix–xxi.

316. Loriol, P. de. Etude sur les Mollusques et Brachiopodes de l'Oxfordien supérieur et moyen du Jura Bernois. Premier Supplément. Abh. Schweiz. pal. Ges. xxviii, 119 pp., 7 pls.

317. Luther, A. Über eine *Clausilia* aus Finland. Medd. Soc. Faun. Fenn. xxvii, pp. 104–106, figg.

318. McIntosh, W. C. Notes from the Gatty Marine Laboratory, St. Andrews. No. 5. On the Boring of *Polydora* in Australian Oysters. Ann. Nat. Hist. ix, pp. 299–308.

319. Magnus, R. Die Pupillarreaction der Octopoden. Arch. ges. Physiol. xcii, pp. 623–643, pl. vii, 9 figg. in text.

320. *Mantovani, P. Catalogo della collezione malacologica del Gabinetto di Storia naturale del R. Istituto tecnico di Livorno. Livorno, 1899, 8vo, 70 pp. [Fide Bibl. Zool. vii, p. 63.]

321. Margier, E. Un Mollusque terrestre à grand dispersion. *Pupa* (*Lauria*) *cylindracea* Da Costa (*P. umbilicata* Drap.). Feuille Natural. Ann. 32, pp. 49 & 50.

322. Marinelli, O. Descrizione geologica dei dintorni di Tarcento in Friuli. Florence, 1902, 4to, 238 pp., 5 pls.

323. Marquand, E. D. The marine shells of Guernsey and the Lesser Channel Islands. Rep. Guernsey Soc. 1901, pp. 70–86.

324. Marsh, W. A. Description of a new *Unio* [*andrewsii*] from Tennessee. Nautilus xv, pp. 115 & 116.

325. ——. Description of a new *Unio* [*beauchampi*] from Tennessee. Op. cit. xvi, pp. 7 & 8, pl. i.

326. Marshall, J. T. *Tapes geographicus* and *T. pullastra*. J. Conch. x, pp. 166 & 167.

327. ——. Additions to "British Conchology." T. c. pp. 190–193.

328. ——. Notes on the British Species of *Buccinum*, *Fusus*, etc. J. Malac. ix, pp. 35–50.

329. Martens, E. von. Die Mollusken (Conchylien) und die übrigen wirbellosen Thiere im Rumpf's Raritätkamer. In Rumphius Gedenkboek. Haarlem, 1902, at pp. 109–136.

330. ——. Neue Unioniden aus Tonkin und Anam. Nachrbl. Deutsch. malak. Ges. 1902, pp. 130–135.

331. ——. Das neue Auftreten der *Helix obvia* Menke (*candicans* Pfr.). SB. Ges. naturf. Berlin 1902, pp. 45 & 46.

332. ——. Einige Schnecken der Cocosinsel. T. c. pp. 59–62.

333. ——. Die geographische Verbreitung von *Pomatias septemspiralis* Raz. (*maculatus* Drap.). T. c. pp. 62–73: Reprinted in Nachrbl. Deutsch. malak. Ges. 1902, pp. 166–172.

334. ——. Die Meeres-Conchylien der Cocos-Insel. T. c. pp. 137–141.

335. ——. Eine für die Provinz Brandenburg neue Süsswasserschnecke, *Physa acuta* Drap. T. c. pp. 166–168.

336. ——. Einige neue Arten von Meer-Conchylien aus den Sammlungen der deutschen Tiefsee-Expedition. T. c. pp. 237–244.

337. Martini & Chemnitz. Systematisches Conchylien-Cabinet, Lief. 469–478. *Buliminidæ* by W. Kobelt, pp. 837–1051, pls. cxxiv–cxxxiii; *Cyclostomacea* by W. Kobelt, pp. 401–448, pls. li–lv; *Naninidæ* by W. Kobelt, pp. 1061–1092, pls. cclxx–cclxxv; *Helix* by W. Kobelt, pp. 1–56, pls. ccc–cccxi; *Vermetidæ* and *Cæcidæ* by S. Clessin, pp. 25–80, pl. xiii; *Chitonidæ* by S. Clessin, pls. iv–xv, no text; *Pleurotomaria* by C. Schmalz, pp. 80–114, pls. xiv–xvi; *Pyramidellidæ* and *Styliferidæ* by S. Clessin, pp. 241–273, pl. xli.

338. Masefield, J. R. B. The land and freshwater Mollusca of Staffordshire. Rep. North Staffordsh. Club xxxvi, pp. 45–64.

339. Matheron, P. Note sur les Mollusques fossiles des gisements Gardoniens du midi de la France. Ann. Mus. Marseille vii, pp. 9–22.

340. MATTE, H. Documents pour servir a la description géologique des Alpes Delphino-Savoissiennes. Trav. Lab. geol. Grenoble vi, pp. 109–200.

341. MATTHEW, G. F. *Acrothyra* and *Hyolithes*—a comparison. Tr. R. Soc. Canada vii, sect. iv, pp. 93–107, figg.

342. ——. *Hyolithes gracilis* and related forms from the Lower Cambrian of the St. John Group. T. c. pp. 109–111, figg.

343. MAYER, A. G. Some species of *Partula* from Tahiti. A study in variation. Mem. Mus. Harvard xxvi, pp. 117–135, 1 pl.

344. MAYER-EYMAR, C. Interessante neue Gastropoden aus dem Untertertiär Egyptens. Vierteljahrschr. Ges. Zurich xlvi, pp. 22–34, pls. i & ii.

345. ——. Rectification d'une erreur de détermination. J. Conchyl. xlix, pp. 322 & 323.

346. MAYFIELD, A. The Mollusca of a Suffolk Parish [Mendlesham]. Tr. Norfolk Soc. vii, pp. 348–352.

347. MAZZARELLI, G. Ricerche intorno alla struttura delle larve libere dei Gasteropodi opistobranchi. Rend. Ist. Lombardo xxxv, pp. 715–732, figg.

348. ——. Note biologiche sugli Opistobranchi del golfo di Napoli. Parte prima: Tectibranchi. Atti Soc. Ital. xl, pp. 291–314.

349. MEISENHEIMER, J. Ueber eine neue Familie der gymnosomen Pteropoden aus dem Material der Deutschen Tiefseeexpedition (Pteroceaniden). Zool. Anz. xxvi, pp. 92–99, 2 figg.

350. MELVILL, J. C. Thomas Rogers. J. Conch. x, pp. 142–144.

351. MEVES, F. Ueber oligopyrene und apyrene Spermien und über ihre Entstehung, nach Beobachtungen an *Paludina* und *Pygaera*. Arch. mikr. Anat. lxi, pp. 1–84, pls. i–viii.

352. ——. Ueber die sog. wurmförmigen Samenfäden von *Paludina* und über ihre Entwickelung. Anat. Anz. xix, Ergänzungsheft, pp. 23–36, 8 figg. [1901.]

353. MILTHERS, V. & NORDMANN, V. Ueber einige interglaciale Süsswassermollusken der Umgegend von Posen. Zeitschr. Deutsch. geol. Ges. liv, Mitth. pp. 39–42.

354. MOELLENDORFF, O. F. VON. On some questions of Malacological Nomenclature. Ann. Nat. Hist. ix, pp. 120–124.

355. ——. Landmollusken. Ergänzungen und Berichtigungen zu Band III. Semper's Reisen im Archipel der Philippinen. Wissenschaftliche Resultate, Band viii, pp. 147–224, pls. xiv–xxv.

356. ——. [Review of] Synopsis Molluscorum in regione palæarctica viventium ex typo *Clausilia* Drap., auctore Dr Carl Agardh Westerlund. Nachrbl. Deutsch. malak. Ges. 1902, pp. 48–52.

357. ——. Binnenmollusken aus Hinterindien. 1. Landschnecken von Kelantan, Ostküste der Halbinsel Malacca. 2. Neue Arten und Unterarten von Frühstorfer in Siam gesammelt. 3. Binnenmollusken aus Perak. T. c. pp. 135–149, 153–162.

358. ——. Diagnosen neuer Naniniden aus Hinterindien. T. c. pp. 178 & 179.

359. [Moellendorff, O. F. von.] Binnenmollusken aus Niederländisch Indien. T. c pp. 185–207.

360. —— & Kobelt, W. Diagnose einer neuen *Achatina* [*A. erlangeri* Somaliland]. T. c. pp. 180 & 181.

361. Mojsisovičs, E. Die Cephalopoden der Hallstätter Kalke. Abh. geol. Reichsanst. vi, Abth. 1, Suppl. Heft, pp. 175–356, xxiii pls.

362. Moore, J. E. S. Further researches concerning the Molluscs of the Great African Lakes. P. Zool. Soc. London 1901, ii, pp. 461–470, pls. xxv & xxvi.

363. —— & Randles, W. B. A new interpretation of the gastric organs of *Spirula*, *Nautilus*, and the Gastropods. P. R. Soc. London lxx, pp. 231–237, figg.

364. Morse, E. S. *Pholas truncata* in Salem Harbour. Nautilus xvi, p. 8.

365. Mulder, J. F. Newer Pliocene Strata on the Moorabool River. P. Soc. Victoria xiv, pp. 82–84.

366. Naegele, G. Einige Neuheiten aus Vorderasien. Nachrbl. Deutsch. malak. Ges. 1902, pp. 1–9.

367. *Nalato, G. Molluschi della Venezia. ii. Contribuzioni alla fauna malacologica del mare e del litorale Veneto. Venice, 1900, 8vo, 7 pp. [Fide Bibl. Zool. vii, p. 64.]

368. Newton, R. B. On *Ctenostreon burckhardti*, n. sp., from the Middle Oolites of Switzerland. P. Malac. Soc. London v, pp. 245–247, pl. v.

369. ——. On the adoption of Rovereto's *Cypriniadea* for *Arctica* of Schumacher. J. Conch. x, pp. 196, 243.

370. ——. List of Thomas Say's types of Maryland (U.S.) Tertiary Mollusca in the British Museum. Geol. Mag. 1902, pp. 303–305.

371. Nierstrasz, H. F. The Solenogastres of the Siboga-Expedition. Leiden, 1902, 47 pp., 6 pls.

372. Noetling, F. Beiträge zur Morphologie der Pelecypoden. N. Jahrb. Min. B.B. xv, pp. 394–421, pl. vii.

373. Nordenskiöld, E. Östersjöns nutida sötvattensmollusk-fauna jämförd med Ancylussjöns. Bih. Svenska Ak. xxvi, Afd. iv, No. 11, 13 pp., 2 pls.

Nordmann, V. [See Milthers & Nordmann (353).]

374. Norman, A. M. Notes on the Natural History of East Finmark. Ann. Nat. Hist. x, pp. 341–361.

375. *Noter, R. L'Escargot. Son histoire, ses moeurs, son élévage, etc. Paris, 1902, 12mo, 56 pp., figg.

376. Nylander, O. O. The original locality of *Limnæa ampla* Mighels. Nautilus xv, pp. 127–129.

377. Oku, K., Ito, K. & Fujita, M. The action of Calcium sulphate on living oysters. Journ. Fisheries Bureau Tokyo x, No. 2, pp. 13–29. [1901.]

378. Oppenheim, P. Ueber die Fauna des Mt. Promina in Dalmatien und das Auftreten von Oligocän in Macedonien. Centrbl. Mineral. 1902, pp. 266–281.

379. Orcutt, C. R. Shells of Western Lake and Stream. W. Amer. Scient. xii, pp. 33–40.

380. ——. West-American Mollusca. T. c. pp. 67 & 68, 105–108.

381. Ortmann, A. E. Tertiary Invertebrates. Rep. Princeton Univ. Exped. Patagonia iv, pp. 45–332, pls. xi–xxxix.

382. Ostroumov, A. A. [Résultats d'une excursion Zoologique dans la mer d'Azov au bord du bateau "Ljedokol Donskieh Girl" du 10–20 Mai 1900. Livr. 3. Liste des Mollusques récueillis pendant l'excursion.] Annuaire Mus. St. Petersb. vi, pp. 621–625.

383. Overton, H. On a malformed variety of *Limnæa pereger* Müll. J. Malac. ix, p. 64, figg.

384. Pace, S. On the Anatomy and relationships of *Voluta musica* Linn.; with notes upon certain other supposed members of the *Volutidæ*. P. Malac. Soc. London v, pp. 21–31, pl. ii.

385. ——. Contributions to the study of the *Columbellidæ*: No. i. T. c. pp. 36–154.

386. ——. On the identity and relationships of *Buccinum dermestoideum* Lam.: *Pseudamycla* nov. gen. T. c. pp. 253–257, figg.

387. Pálfy, M. Alvincz környékének felsökrétakoru rétegei. Magyar Fold. int. evkon. xiii, pp. 203–302, pls. xix–xxvii.

388. Pallary, P. Diagnoses de quelques coquilles nouvelles provenant du Maroc. J. Conchyl. xlix, pp. 314 & 315.

389. ——. Liste des Mollusques testacés de la baie de Tanger. Op. cit. l, pp. 1–39, pl. i.

390. Panneli, C. The land and freshwater Mollusca of Surrey, with the Localities where the species and varieties have been found. J. Conch. x, pp. 168–179.

391. *Paravicini, G. Osservazioni filogenetiche sui Molluschi. Milan, 1899, 8vo, 16 pp., 1 pl. [Fide Bibl. Zool. vii, p. 63.]

392. Patrini, P. Studio geologico delle colline di Chiuppano nel Vicentino. Rend. Ist. Lombardo xxxv, pp. 659–676.

393. Pearcey, F. G. Notes on the Marine Deposits of the Firth of Forth, and their Relation to its Animal Life. Tr. Soc. Glasgow vi, pp. 217–251.

394. Pelseneer, P. Mollusca. Encyc. Brit. xxx, pp. 793–799, figg.

395. ——. Études sur les Gastropodes pulmonés. Mem. Ac. Belgique liv, fasc. 3, 76 pp., 14 pls.

396. ——. Sur l'exagération du dimorphisme sexuel chez un Gastropode marin. J. Conchyl. l, pp. 41–43, fig.

397. ——. Les Néoméniens de l'Expédition antarctique belge et la distribution géographique des *Aplacophora*. Congr. Zool. 1901, p. 775. See Title 418, last year.

398. ——. Les cavités cérebrales des Mollusques Pulmonés. T. c. p. 776.

399. Peron, A. Les étages crétaciques supérieurs des Alpes-Maritimes. Bull. Soc. geol. France i, pp. 505–536.

400. ——. Études Paléontologiques sur les terrains du departement de l'Yonne. ii. Les Nerinéidées des terrains jurassiques. Bull. Soc. Yonne lv, pp. 31–66, 1 pl.

401. Petch, T. *Paludestrina jenkinsi* near Hull. Tr. Hull Club i, pp. 236 & 237 [1901].

402. Petraschek, W. Die Ammoniten der sächsischen Kreideformation. Beitr. Pal. Oesterr.-Ung. xiv, pp. 131–162, pls. vii–xii.

403. Pilsbry, H. A. Notices of new Japanese land shells. Nautilus xv, pp. 116–119.

404. ——. *Truncatella subcylindrica* Linnæus. T. c. pp. 119 & 120.

405. ——. Notices of new land shells of the Japanese Empire. T. c. pp. 141 & 142.

406. ——. Notices of new land shells of the Japanese Empire. Op. cit. xvi, pp. 4–7.

407. ——. New land shells of the Japanese Empire. T. c. pp. 21 & 22.

408. ——. New American land shells. T. c. pp. 30–33.

409. ——. New land Mollusks of the Japanese Empire. T. c. pp. 45–47.

410. ——. A new Floridian *Helicina* [*tantilla*]. T. c. p. 53.

411. ——. New land Mollusks from the Japanese Empire. T. c. pp. 53–57.

412. ——. "*Pyramidula*" *elrodi* and *Epiphragmophora circumcarinata*. T. c. pp. 62 & 63.

413. ——. New land Mollusca from Japan and the Bonin Islands. P. Ac. Philad. 1902, pp. 25–32.

414. ——. Revision of Japanese *Viviparidæ*, with notes on *Melania* and *Bithynia*. T. c. pp. 115–121, pl. ix.

415. ——. On the localities of A. Adams' Japanese *Helicidæ*. T. c. pp. 233–240.

416. ——. Additions to the Japanese Land-Snail Fauna, vi. T. c. pp. 360–382, pls. xvii–xxi.

417. ——. South-western Land Snails. T. c. pp. 510–512.

418. ——. Additions to the Japanese Land-Snail Fauna, vii. T. c. pp. 517–533, pls. xxvii & xxviii.

419. ——. New Land Mollusca from Idaho. T. c. p. 593.

420. —— & Clapp, G. H. New land shells from the Santa Marta Mountains, Colombia. Nautilus xv, pp. 133–137, pl. vii.

421. —— & Gulick, A. List of land Mollusca from the neighbourhood of Sapporo, Yesso. Op. cit. xvi, pp. 68 & 69.

422. —— & Hirase, Y. Notices of new Japanese land snails. T. c. pp. 75–80.

423. —— & Vanatta, E. G. Papers from the Hopkins Stanford Galapagos Expedition, 1898–1899. xiii. Marine Mollusca. P. Washington Ac. iv, pp. 549–560, pp. xxxv.

——. [See also Tryon (556), Walker & Pilsbry (572).]

Pissarro, G. [See Cossmann & Pissarro (103).]

424. Pollonera, C. Molluschi. In Osservazioni Scientifiche.....la Spedizione Polare di S.A.R. Liugi Amadeo di Savoia, Duca delli Abruzzi. Milan, 1903, 4to, pp. 621–623, figg.

425. Pompeckj, J. F. Die Jura-Ablagerungen zwischen Regensburg und Regenstauf. Geognost. Jahresh. xiv, pp. 139–220.

426. Pontier, G. Evolution et régression chez les Ammonoïdes, Ammonites crétacées à sutures de Cératites. Naturaliste 1902, pp. 17–19.

427. Pottier, R. Les huîtres comestibles et l'ostréiculture. Paris, 8vo, 1902, 288 pp., figg.

428. Pravoslavlev, P. C voprosu o kharakter Aralo-Kaspiīskīkh obrazovaniĭ nīzovagh povolzhya (predvarītelnoe soobshchenie). [On the Aralo-Caspian formations of the Volga delta (preliminary notice).] Trudui Obshch. Varshav. xi, Biol. Sect., No. 9, 22 pp.

429. ——. Gheologhīches kiya nablyudeniya po pravomu bereghu r Volghī mezhdu Kamuishīnuim ī Kamennuim Yarom (kraīkaya zamyetka). [Geological observations on the right bank of the Volga between Kamuisheny and Kamenny Yar (short notes).] T. c. Biol. Sect., No. 10, 44 pp.

430. Preston, H. B. New species of land shells from New Guinea. P. Malac. Soc. London v, pp. 17–19, figg.

431. Pritchard, G. B. & Gatliff, J. H. Catalogue of the Marine Shells of Victoria, Part v. P. Soc. Victoria xiv, pp. 85–138.

432. —— & ——. On some new species of Victorian Mollusca, No. 5. T. c. pp. 180–184, pls. ix & x.

433. Pruvot, G. Sur les affinités et le classement des Néoméniens. Arch. zool. exp. Notes x, pp. viii–xxvii.

Putzeys, S. [See Dupuis & Putzeys (156).]

434. Radkewitsch, G. [Sur les dépôts tertiares et inférieurs aux environs de Kanew.] Zapiski Kiev. Obshch. xvi, pp. 319–363.

435. Randles, W. B. On the presence of a Crystalline style and style-sac in *Turritella communis*. Anat. Anz. xxi, pp. 200–203, 3 figg.

——. [See also Moore & Randles (363).]

436. Ravn, J. P. J. Molluskerne i Danmarks Kridtaflejringer. i. Lamellibranchiater. Danske Selsk. Skr. xi, pp. 69–140, 4 pls., map.

437. Raymond, P. E. The Crown Point Section. Bull. Amer. Pal. 14, 40 pp., 3 pls.

438. Reed, F. R. C. Woodwardian Museum Notes: Salter's Undescribed Species. vi. Geol. Mag. 1902, pp. 122–126, pl. vi.

439. ——. Woodwardian Museum Notes: Salter's Undescribed Species. vii. T. c. pp. 145–148, pl. vii.

440. ——. Woodwardian Museum Notes: Salter's Undescribed Species. viii. T. c. pp. 256–259, pl. xvi.

441. Rees, P. A. van. Catalogue de la Collection de Coquilles, Livres Conchyliologiques, Armoires refermant la collection, etc., etc. La Haye, 1900, 72 pp.

442. Rehbinder, R. Fauna und Alter der cretaceischen Sandsteine in der Umgebung des Salzsees Baskuntschak. Trudui geol. Kom. xvii, No. 1, 162 pp., 4 pls.

443. Reid, C. The Geology of the Country around Southampton. Mem. Geol. Survey, 1902, 70 pp.

444. Reis, O. M. Das Ligament der Bivalven. Jahresh. Ver. Wurttemb. lviii, pp. 179–291, pls. ii–v.

445. Remeš, M. Nachträge zur Fauna von Stramberg. I. Die Fauna des rothen Kalksteins (Nesselsdorfer Schichten). Beitr. Pal. Oesterr.-Ung. xiv, pp. 195–217, pls. xviii–xx.

446. ——. Die Fauna des Kalkes von Skalička. Verh. geol. Reichsanst. 1902, pp. 135–141.

447. Repelin, J. Description des Faunes et des Gisements du Cénomanien saumatre ou d'eau douce du midi de la France. Ann. Mus. Marseille vii, pp. 25–112, pls. i–viii.

448. Reynolds, S. H. & Vaughan, A. On the Jurassic Strata cut through by the South Wales Direct Line between Filton and Wootton Bassett. Quart. J. Geol. Soc. lviii, pp. 719–752.

449. Ridewood, W. G. On the Structure of the Gills of the Lamellibranchia. P. R. Soc. London lxx, pp. 499 & 500.

450. Rivers, J. J. *Pandora* (*Kennerlia*) *grandis* Dall. Bull. South. Calif. Ac. i, p. 69, fig.

Rogers, A. F. [See Beede & Rogers (35).]

451. Rolle, H. Neue Landschnecken. Nachrbl. Deutsch. malak. Ges. 1902, pp. 211 & 212.

452. Rollier, L. Sur l'age des calcaires à *Helix* (*Tachea*) *sylvana* von Klein. Bull. Soc. geol. France ii, pp. 278–288.

Roman, F. [See Deperet & Roman (136).]

453. Rope, G. T. Duration of life in *Helix pomatia*. Zoologist 1902, pp. 151 & 152.

454. Rosen, O. W. von. [Materialien zur Kenntnis der Molluskenfauna des Kaukasus und Central-Asiens]. Tagebl. Zool. Abth. Ges. Fr. Nat. Moskau iii, No. 2, pp. 7–12 [1901]. Inserted as not seen last year; may also form part of Izv. Obshch. Moskov.

455. Rossmaessler, E. A. Iconographie der Europäischen Land- und Süsswasser Mollusken. Fortgesetzt von W. Kobelt. Neue Folge, ix, Pts. 5 & 6, pp. 57–86, pls. cclxi–cclxx.

456. Rowell, J. A new *Helix* from California. Nautilus xvi, p. 52.

Rowley, R. R. [See Keyes & Rowley (283).]

457. Ruedemann, R. Hudson River Beds near Albany and their taxonomic equivalents. Bull. N. York Mus. viii, pp. 489–596, 2 pls.

458. ——. Trenton conglomerate of Rysedorph Hill and its fauna. Op. cit. x, pp. 3–114, 7 pls.

459. Sabrazès, —. Perte de poids considérable subie par diverses espèces du genre *Helix* mises à jeuner. Pr.-verb. Soc. Bordeaux lvii, p. lxxxviii.

460. Sacco, F. I Molluschi dei terreni terziari del Piemonte e della Liguria. Boll. Mus. Torino xvi, pp. 115–125. [1901.]

461. Saint-Hilaire, C. Ueber die Struktur der Speicheldrüsen einiger Mollusken. Congr. Zool. 1901, pp. 767–773.

462. *Saitta, E. Pesci e Molluschi dei Mari della Sicilia, con aggiunta dei più comuni Crostacei ed altri Animali d' acqua salsa. Messina, 1902, 12mo, 99 pp. [Fide Naturæ nov. 1902, p. 601.]

463. Salomon, W. Die Familienzugehörigkeit der Pleuronectiten. Centrbl. Mineral. 1902, pp. 19–23, fig.

464. Sanchez, D. Note sobre el diverticulo del conducto de la bolsa copulatriz o vesicula seminal del *Helix aspersa* (Müll.). Bol. Soc. espan. i, pp. 380–385, fig.

465. Sarasin, C. & Schöndelmayer, C. Étude monographique des Ammonites du Crétacique inférieur de Châtel St. Denis. Ire partie. Abh. Schweiz. pal. Ges. xxviii, 91 pp., 11 pls.

466. Scalia, S. Sul Pliocene e il Post-Pliocene di Cannizzaro. Boll. Acc. Gioen. Fasc. lxxii, pp. 2–6.

467. ——. Il Post-pliocene del Poggio di Cibali e di Catira presso Catania. Atti Acc. Gioen. xiv, No. xi, 15 pp.

468. ——. Sopra una nuove località fossilifera del Post-pliocene subetneo. T. c. No. xii, 9 pp.

469. Schaffer, F. Beiträge zur Kenntnis des Miocänbeckens von Cilicien. Jahrb. geol. Reichsanst. lii, pp. 1–38.

470. Schapiro, J. Ueber Ursache und Zweck des Hermaphroditismus, seine Beziehungen zur Lebensdauer und Variation mit besonderer Berücksichtigung einiger Nacktschneckenarten. Biol. Centrbl. xxii, pp. 97–108, 136–151, figg.

471. Schepman, M. M. Description of a new species of *Nerita*. Notes Leyden Mus. xxiii, pp. 63 & 64, fig.

472. *Schierl, A. Die Land- und Süsswassermollusken Mährens. Club f. Naturk. Brunn pp. 49–60, 1901. [Fide Bibl. Zool. vii, p. 210.]

473. Schlosser, M. Die Fauna der Lias und Dogger in Franken und der Oberpfalz. Zeitschr. Deutsch. geol. Ges. liii, pp. 513–569, pl. xvi.

Schmalz, C. [See Martini & Chemnitz (337).]

474. Schmidt, M. Unteroligocän von Vardeilsen bei Einbeck. Jahrb. geol. Landesanst. Berlin xxi, pp. lxxxviii–xciii.

475. Schneider, K. C. Lehrbuch der Vergleichenden Histologie der Tiere. Jena, 8vo, 988 pp., 691 figg. Mollusca, pp. 510–571.

Schöndelmayer, C. [See Sarasin & Schöndelmayer (465).]

476. Scott, T. The land and freshwater Mollusca [of the Clyde Area]. Brit. Assoc. Handbook.....Glasgow.....1901, 8vo, pp. 183–188.

477. *Scrofani, P. L' apparato genitale dei Gasteropodi. Parte I. (I Pulmonati) con speciali osservazioni sugli organi genitali dell' *Helix pomatia*. Modica, 1900, 8vo, 16 pp. [Fide Bibl. Zool. vii, p. 69.]

Sellier, J. [See Jolyet & Sellier (259).]

478. Sheppard, T. Bibliography: Papers and Records.....North of England. Geology and Palæontology, 1899. Naturalist 1902, pp. 317–336.

479. Shimek, B. The Distribution of Loess fossils. P. Iowa Ac. vi, pp. 98–113. [1899.]

480. ——. The Loess of Natchez, Miss. Amer. Geol. xxx, pp. 279–299, pls. x–xvi.

481. Shopland, E. R. List of marine shells collected in the neighbourhood of Aden between 1892 and 1901. P. Malac. Soc. London v, pp. 171–179, 184.

482. SIMPSON, C. T. A new Naiad [*Diplodon websteri*] from New Zealand. Nautilus xvi, p. 30.

——. [See also HENDERSON & SIMPSON (222).]

483. SIMPSON, G. B. Anatomy and physiology of *Polygyra albolabris* and *Limax maximus* and embryology of *Limax maximus*. Bull. N. York Mus. viii, pp. 237–311, 28 pls.

484. SIMROTH, H. Die Nacktschneckenfauna des Russischen Reichs. St. Petersburg, 1901 [?1902], xii + 321 pp., 26 pls., 10 maps.

485. ——. Ueber Gebiete kontinuierlichen Lebens und über die Entstehung der Gastropoden. Biol. Centrbl. xxii, pp. 239–256, 262–278.

486. ——. Ueber einige kürzlich beschriebene neue Nacktschnecken, ein Wort zur Aufklärung systematischer Verwirrung. Anat. Anz. xxv, pp. 355–357.

487. ——. Ueber die Ernährung der Tiere und der Weichtiere im besonderen. Congr. Zool. 1901, pp. 777–785, 1 fig.

——. [See also BRONN (58).]

488. SMIDT, H. Die intraepithelialen freien Nervenendigungen bei *Helix* und ihre Beziehungen zu Sinneszellen und Drüsen. Anat. Anz. xx, pp. 495–506, 8 figg.

489. SMITH, B. Phylogeny of the Species of *Fulgur* with remarks on an abnormal form of *Fulgur canaliculatum*, and Sexual Dimorphism in *Fulgur carica*. P. Ac. Philad. 1902, pp. 505–507.

490. SMITH, E. A. On the supposed similarity between the Mollusca of the Arctic and Antarctic regions. P. Malac. Soc. London v, pp. 162–166.

491. ——. Note on *Cypræa microdon* Gray. T. c. pp. 167 & 168.

492. ——. Description of *Achatina machachensis*, n. sp., from Basutoland. T. c. p. 169, fig.

493. ——. On *Corona pfeifferi* var. *gracilis*, n. var., from S.-E. Colombia. T. c. p. 170, fig.

494. ——. Description of a new species of *Gomphina* [*maorum*] from New Zealand. J. Malac. ix, pp. 109 & 110, fig. [1903.]

495. ——. Descriptions of new species of marine shells from South Africa. J. Conch. x, pp. 248–251, pl. iv [not yet issued].

496. ——. Report on the Collections of Natural History made in the Antarctic Regions during the Voyage of the "Southern Cross." Mollusca at pp. 201–213, pls. xxiv & xxv. London, 1902.

497. ——. Land [and freshwater] molluscs of Uganda. In JOHNSTON, 'The Uganda Protectorate' i, pp. 449–453. London, 4to, 1902.

498. SMITH, H. H. An annotated catalogue of shells of the genus *Partula* in the Carnegie Museum. Ann. Carnegie Mus. i, pp. 422–485.

499. SOELNER, G. W. H. *Vitrea draparnaldi* Beck, in Washington, D. C. Nautilus xvi, pp. 94 & 95.

500. SOLGER, F. Ueber den Zusammenhang zwischen der Lobenbildung und der Lebensweise bei einigen Ammoniten. Congr. Zool. 1901, pp. 786–793, 11 figg.

501. *——. Die Lebensweise der Ammoniten. Naturw. Wochenschr. xvii, pp. 89–94. [Fide Bibl. Zool. vii, p. 214.]

502. Somerville, A. The Conchology of the Clyde: geographical and biographical. J. Conch. x, pp. 137–141.

503. Sowerby, G. B. Note on the Opercula of *Turbo pulcher* Reeve and *T. ticaonicus* Reeve. P. Malac. Soc. London v, p. 12.

504. ——. Mollusca of South Africa. In Marine Investigations in South Africa, Cape Town, 1902, pp. 93–100, pl. ii.

505. Springer, A. On some living and fossil snails of the Genus *Physa*, found at Las Vegas, New Mexico. P. Ac. Philad. 1902, pp. 513–516.

506. Stanton, T. W. *Chondrodonta*, a new genus of Ostreiform Mollusks from the Cretaceous, with Descriptions of the Genotype and a New Species. P. U. S. Mus. xxiv, pp. 301–307, pls. xxv & xxvi.

507. Stearns, R. E. C. *Helix* var. *circumcarinata* and *Pyramidula elrodi*. Nautilus xvi, pp. 61 & 62.

508. ——. "*Pyramidula*" *elrodi* and *Epiphragmophora circumcarinata*. T. c. pp. 83 & 84.

509. ——. The Fossil Fresh-Water Shells of the Colorado Desert, their Distribution, Environment, and Variation. P. U. S. Mus. xxiv, pp. 271–299, pls. xix–xxiv.

510. ——. Fossil shells of the John Day Region. Science xv, pp. 153 & 154.

511. ——. *Unio condoni* in the John Day Beds. T. c. p. 392.

512. Stefani, C. de. Molluschi pliocenici di Viterbo. Atti Soc. Toscana xviii, pp. 22–33, pl. ii.

513. —— & Dainelli, G. I terreni eocenici presso Bribir in Croazia. Rend. Acc. Lincei xi, pp. 154–157.

514. Stefano, G. de. I molluschi degli strati di Gallina (Reggio Cal.), e la loro età. Riv. ital. Pal. viii, pp. 27–32.

515. ——. I fossili e la geologia di capo Milazzo in Sicilia. Atti Acc. Gioen. xiv, No. x, 23 pp.

516. Steinach, E. Studien über die Hautfärbung und über den Farbenwechsel der Cephalopoden. Arch. ges. Physiol. lxxxvii, pp. 1–37, pls. i & ii.

517. ——. Ueber die locomotorische Function des Lichtes bei Cephalopoden. T. c. pp. 38–41.

518. Stenta, M. Zur Kenntniss der Strömungen im Mantelraume der Lamellibranchiaten. Arb. Inst. Wien xiv, pp. 211–240, figg.

519. Sterki, V. *Pisidium strengii*, n. sp. [United States]. Nautilus xv, p. 126.

520. ——. Some notes on the North-American *Calyculinæ*, with new species. Op. cit. xvi, pp. 89–93.

521. ——. Some additions and corrections to the list of land and fresh-water Mollusca of Tuscarawas Co., Ohio. Ohio Natural. ii, pp. 286 & 287.

522. Steuer, A. *Mytilicola intestinalis*, n. gen. n. sp. aus dem Darme von *Mytilus galloprovincialis* Lam. Zool. Anz. xxv, pp. 635–637, 2 figg.

523. Steusloff, U. Xerophile Heliceen im Osten Mecklenburgs. Arch. Ver. Mecklenb. lv, pp. 176–179.

524. Straub, W. Zur Physiologie des Aplysienherzens. Arch. ges. Physiol. lxxxvi, pp. 504–532, pls. v & vi, figg.

525. Sturany, R. Ueber die Verbreitung von *Cylindrus obtusus* Drap. Nachrbl. Deutsch. malak. Ges. 1902, pp. 9–13.

526. ——. Ueber einer neue Höhlenschnecke [*Spelaeoconcha paganettii*]. Verh. Ges. Wien li, pp. 761 & 762, figg.: reprinted in Nachrbl. Deutsch. malak. Ges. 1902, pp. 13–15.

527. ——. Mittheilungen über Gehäuseschnecken aus dem Peloponnes. Op. cit. lii, pp. 402–409, figg.

528. ——. Diagnosen neuer Landschnecken aus der Hercegovina. Ann. Hofmus. Wien xvi, notizen, pp. 65–67.

529. ——. Neue Inselformen dalmatinischer Landschnecken. T. c. notizen, pp. 68 & 69, figg.

530. ——. Über eine neue *Ennea* [*premnodes*] aus Südafrika. T. c. notizen, pp. 69–71, fig.

531. Sturm, F. Der Sandstein von Kieslingswalde in der Grafschaft Glatz und seine Fauna. Jahrb. geol. Landesanst. Berlin xxi, Abh. Auss. pp. 39–98, pls. ii–xi.

532. Suter, H. Description of a new species of *Separatista* [*benhami*] from New Zealand. J. Malac. ix, pp. 65 & 66, fig.

533. ——. On the systematic position of *Patella kermadecensis* Pilsbry. T. c. p. 111, pl. viii. [1903.]

534. ——. Observations concernant les "Considérations sur les faunes malacologiques des parties australes du globe," par M. C. F. Ancey. J. Conchyl. xlix, pp. 316–321.

535. ——. Further contributions to the Geographical Distribution of the New Zealand non-marine Mollusca. Tr. N. Zealand Inst. xxxiii, pp. 151 & 152. [1901.]

536. ——. On the Land Mollusca of Little Barrier Island. Op. cit. xxxiv, pp. 204–206.

537. ——. List of the Species described in F. W. Hutton's Manual of the New Zealand Mollusca, with the corresponding names used at the present time. T. c. pp. 207–224.

538. Swanton, E. W. South African notes. J. Conch. x, pp. 194 & 195.

539. ——. South African Jottings. Natural. J. xi, pp. 155–158.

540. Sykes, E. R. On *Helicina pterophora*, n. sp., from Guatemala. P. Malac. Soc. London v, p. 20, fig.

541. ——. Notes on Tonkinese *Clausiliæ*, with illustrations of some unfigured forms, and the description of a new species. T. c. pp. 189–194, pl. iii.

542. ——. Description of *Chætopleura destituta*, n. sp., from South Africa. T. c. p. 195, fig.

543. ——. On a collection of non-marine shells, formed by Mr J. J. Walker, in the New Hebrides. T. c. pp. 196–200, figg.

544. ——. Descriptions of six new land shells from the Malay Peninsula. J. Malac. ix, pp. 22 & 23.

545. ——. On a collection of land and freshwater shells from Kelantan, Malay Peninsula. T. c. pp. 60–63, pl. iii.

546. TAGLIARINI, F. P. Monografia sui Nautili del Dogger inferiore di Monte San Giuliano (Erice). Giorn. Sci. Napoli xxiii, pp. 186–203, 6 pls.

547. TAYLOR, J. W. Monograph of the Land and Freshwater Mollusca of the British Isles. Pt. VIII. (Vol. ii, pp. 1–52, 5 pls., figg.) Leeds, 8vo, 1902.

548. THIELE, E. O. & GRANT, F. E. On the Fossil contents of the Eocene Clays of the Altona Coal Shaft. P. Soc. Victoria xiv, pp. 145–152.

——. [See also GRANT & THIELE (203).]

549. THIELE, J. *Proneomenia thulensis*, nov. spec. Fauna Arctica i, pp. 111–116, pl. v. [1900.]

550. ——. Die systematische Stellung der Solenogastren und die Phylogenie der Mollusken. Zeitschr. wiss. Zool. lxxii, pp. 249–466, 10 pls., 21 figg.

551. ——. *Proneomenia valdiviæ*, n. sp. In Wiss. Ergebn. Deutschen Tiefsee-Exped. 'Valdivia,' 1898–1899, Bd. iii, pp. 169–174, pl. xxiii.

552. THOMPSON, B. The Junction Beds of the Upper Lias and Inferior Oolite in Northamptonshire. J. Northampt. Soc. xi, pp. 197–216, 235–244.

TODD, R. A. [See ALLEN & TODD (3).]

553. TOMMASI, A. Due nuovi *Dinarites* nel Trias inferiore della Val de Dezzo. Boll. Soc. geol. Ital. xxi, pp. 344–348, pl. xiii.

554. TOTZAUER, R. J. Nieren- und Gonadenverhältnisse von *Haliotis*. Zool. Anz. xxv, pp. 487 & 488.

555. TOUCAS, —. Sur l'origine et classification des *Hippurites*. Bull. Soc. geol. France ii, pp. 337–339.

556. TRYON'S Manual of Conchology..... Continuation by H. A. PILSBRY, Second Series. Vol. xiv (Pt. 56), pp. 193–302, pls. xxxvii–lxii; xv (Pts. 57 & 58), pp. 1–128, pls. i–xxxiv; Index to Vols. x–xiv, xcix pp. *Bulimulidæ*, *Cerion*, and *Urocoptidæ*.

557. TUNIOT, A. Sur un nouveau gisement fossilifère de la Marne. Bull. Soc. Reims xi, pp. 7–12, figg.

558. VANATTA, E. G. List of land shells collected in the Sacramento Mts., New Mexico. Nautilus xvi, pp. 57 & 58.

——. [See also PILSBRY & VANATTA (423).]

VAUGHAN, A. [See REYNOLDS & VAUGHAN (448).]

559. VAYSSIÈRE, A. Sur les Opisthobranches recueillis en 1883 par l'expédition du Talisman. C.R. Ac. Sci. cxxxiv, pp. 296 & 297.

560. ——. Expéditions scientifiques du "Travailleur" et du "Talisman." Paris, 4to, 1902. Opistobranches, pp. 221–280, pls. ix–xi.

561. VENDRYES, H. A new species [*vacillans*] and subspecies of Jamaican *Pleurodonte*. Nautilus xv, pp. 101 & 102, pl. vi.

562. VIGNAL, L. Descriptions de Cerithidés nouveaux. J. Conchyl. xlix, pp. 303–305, pl. viii.

563. VIGNON, P. Recherches de cytologie générale sur les épithéliums. Arch. Zool. exp. ix, pp. 381–715, pls. xx–xxv.

564. *VINASSA DE REGNY, P. Paleontologia, Manuali Hœpli. Milan, 1902, 510 pp., 356 figg. [Fide Rev. paleozool. vi, p. 158].

565. VINCENT, E. Contribution à la Paléontologie de l'Eocène Belge. *Amplosipho.* Ann. Soc. malac. Belgique xxxvii, Bull. pp. xxii–xxv, figg.

566. VOELTZKOW, A. Die von Aldabra bis jetzt bekannte Flora und Fauna. Abh. Senckenb. Ges. xxvi, pp. 539–565.

567. VOGEL, F. Neue Mollusken aus dem Jura von Borneo. Jaarb. Mijn. Ned. Oost.-Ind. xxix [? 1899], pp. 53–89, 5 pls.

568. ——. Beiträge zur Kenntnis der Mesozoischen Formationen in Borneo. Samm. Geol. Mus. Leiden vii, pp. 208–220.

569. WAGNER, A. Neue Formen und Fundorte des Genus *Pomatias* Studer. Ann. Hofmus. Wien xvi, notizen, pp. 63–65.

570. WALKER, B. A revision of the carinate Valvatas of the United States. Nautilus xv, pp. 121–125, figg.

571. ——. Surface sculpture in *Ancylus.* Op. cit. xvi, pp. 85–88.

572. —— & PILSBRY, H. A. The Mollusca of the Mt. Mitchell Region, North Carolina. P. Ac. Philad. 1902, pp. 413–442, pls. xxiv & xxv.

——. [See also WRIGHT & WALKER (610).]

573. WALLACE, A. R. Island Life..... London, 1902, 3rd ed., xx + 563 pp.

574. WEBB, W. M. Land-shells used as Models by ancient Peruvian Potters. P. Malac. Soc. London v, pp. 160 & 161, figg.

575. ——. The pairing of *Limax maximus.* Sci. Gossip viii, p. 240.

576. ——. Pleistocene non-marine Mollusca from Clacton-on-Sea, Essex. Essex Natural. xi, pp. 225–227.

577. ——. Pleistocene shells from Copford, Essex. T. c. pp. 227–229.

578. WEEKS, F. W. Bibliography of North-American Geology, Paleontology, Petrology, and Mineralogy for the years 1892–1900, inclusive. Bull. U. S. Geol. Surv. No. 188, 717 pp.

579. ——. Index to North-American Geology, Paleontology, Petrology, and Mineralogy for the years 1892–1900, inclusive. Op. cit. No. 189, 337 pp.

580. WELCH, R. Scalariform *Helix nemoralis.* J. Conch. x, pp. 243–246, pl. ii.

581. WELLER, S. Kinderhook Faunal Studies. I. The fauna of the vermicular sandstone at Northview, Webster County, Missouri. Tr. Ac. St. Louis ix, pp. 9–51, pls. ii–vi. [1899.]

582. ——. Kinderhook Faunal Studies. II. The fauna of the *Chonopectus* sandstone at Burlington, Iowa. Op. cit. x, pp. 57–129, pls. i–ix. [1900.]

583. ——. Kinderhook Faunal Studies. III. The faunas of Beds No. 3 to No. 7 at Burlington, Iowa. Op. cit. xi, pp. 147–214, pls. xii–xx. [1901.]

584. WESTERLUND, C. A. Malacologische Bemerkungen und Beschreibungen. Nachrbl. Deutsch. malak. Ges. 1902, pp. 19–26, 35–47.

585. ——. Descripciones de Moluscos nuevos de España. Bol. Soc. espan. ii, pp. 236–239.
Extracted and reprinted from Nachrbl. Deutsch. malak. Ges. 1902.

586. WHITEAVES, J. F. Notes on some freshwater and land shells from Keewatin, Northern Ontario and British Columbia. Ottawa Natural. xvi, pp. 91–93.

587. WHITFIELD, R. P. Description of a new form of *Myalina* from the Coal Measures of Texas. Bull. Amer. Mus. xvi, pp. 63–66, figg.

588. ——. Observations on and amended description of *Heteroceras simplicostatum* Whitfield. T. c. pp. 67–72, pls. xxiii–xxvii.

589. ——. Description of a new *Teredo*-like shell from the Laramie Group. T. c. pp. 72–76, pls. xxviii & xxix.

590. *WIEDERMAYR, L. Die Conchylien des Thales Kartitsch. Zeitschr. Ferd. Tirol, iii Folge, Heft 44. [See GREDLER (204).]

591. WILLEY, A. Contribution to the Natural History of the Pearly *Nautilus*. Zool. Results, Pt. VI, pp. 691–826, pls. lxxv–lxxxiii, 15 figg.

592. WILLIAMS, L. W. The vascular system of the Common Squid, *Loligo pealii*. Amer. Natural. xxxvi, pp. 787–794, figg.

593. WILLIAMSON, M. B. A Monograph on *Pecten æquisulcatus* Cpr. Bull. South. Calif. Ac. i, pp. 51–61, pl. iv, figg.

594. WINKLEY, H. W. New England marine collecting. Nautilus xvi, pp. 14 & 15.

595. WIŚNIOWSKI, T. *Scaphites constrictus* Sow. sp. aus den Ibstener Schichten. Verh. Geol. Reichsanst. 1902, pp. 301 & 302.

596. WITTICH, E. Diluviale und recente Conchylienfaunen der Darmstädter Gegend. Nachrbl. Deutsch. malak. Ges. 1902, pp. 113–122.

597. ——. Beiträge zur Kenntniss der unteren Diluviums in Rheinhessen. T. c. pp. 122–130 [from Notizbl. Ver. geol. Landesanst. Darmstadt, 1901].

598. ——. Beitrag zur Kenntnis des unteren Diluviums und seiner Fauna in Rheinhessen. Notizbl. Ver. geol. Landesanst. Darmstadt xxi, pp. 30–42.

599. WOLFF, W. Fauna aus einer Tiefböhrung in jungen Küstenbildungen zu Dar-es-Salâm. Jahrb. Geol. Landesanst. Berlin xxi, Abh. mitarb. pp. 148–157.

600. WOLLEMANN, A. Das Senon von Biewende. Jahresber. Ver. Braunschweig xii, pp. 56–59.

601. ——. Aufschlüsse und Versteinerungen im Turon des Kreises Braunschweig und Wolfenbüttel einschlusslich des Oderwaldes. T. c. pp. 87–94.

602. ——. Einige Bemerkungen über die Versteinerungen aus der Kreide von Misburg bei Hannover. Zeitschr. Deutsch. geol. Ges. liv, Mitth. pp. 30–33.

603. ——. Die Fauna des Senons von Biewende bie Wolfenbüttel. Jahrb. geol. Landesanst. Berlin xxi, Abh. Auss. pp. 1–30, figg.

604. WOOD, E. *Marcellus* (Stafford) Limestones of Lancaster, Erie Co. N. Y. Bull. N. York Mus. x, pp. 139–181, pl. ix.

605. WOODRUFFE-PEACOCK, E. A. Drift shells from the River Ancholme, in Cadney Parish, Linc. Naturalist 1902, p. 138.

606. Woods, H. A Monograph of the Cretaceous Lamellibranchiata of England. Pt. iv, pp. 145–196, pls. xxvii–xxxviii. [Pal. Soc. Mon. 1902.]

607. Woodward, B. B. *Acanthinula lamellata* (Jeff.) in Buckinghamshire and Berkshire. P. Malac. Soc. London v, p. 11.

608. ——. *Clausilia biplicata* (Mont.) in Hertfordshire. T. c. p. 11.

609. ——. A final note on *Tapes geographicus*. J. Conch. x, p. 167.

——. [See also Kennard & Woodward (269–272).]

610. Wright, B. H. & Walker, B. Check List of North American *Naiades*. Detroit, 8vo, 1902, 19 pp.

611. Wüst, E. Beiträge zur Kenntniss des pleistocänen Kalktuffes von Schwanebeck bei Halberstadt. Zeitschr. Deutsch. geol. Ges. liv, Mitth. pp. 14–26.

Biographies, Obituary Notes, etc. (arranged alphabetically).

Collett, O.; W. E. C[ollinge], J. Malac. ix, pp. 137 & 138.

Cooper, J. G.; W. E. C[ollinge], J. Malac. ix, p. 138: Raymond, Nautilus xvi, pp. 73–75, port.: Dall, Science xvi, pp. 268 & 269.

Daly, W. M.; Anon., P. Malac. Soc. London v, pp. 158 & 159.

Hyatt, A.; C. W. J., Nautilus xv, pp. 142–144.

Kowalewsky, A.; Vayssière, J. Conchyl. l, pp. 110–112.

Lacaze-Duthiers, H. de; Vayssière, J. Conchyl. l, pp. 112–114.

Legrand, W.; Hedley, Nautilus xvi, p. 60.

Rogers, T.; Melvill (356).

Simpson, G. B.; J. M. C., Nautilus xv, p. 107.

Tate, R.; Anon., P. Malac. Soc. London v, pp. 157 & 158: J. F. B., Geol. Mag. 1902, pp. 87–95.

Wetherby, A. G.; Harper, Nautilus xvi, pp. 10–12, port.

Wiegmann, C. A. F.; Moellendorff, J. Malac. ix, p. 24: Ko[belt], Nachrbl. Deutsch. malak. Ges. 1902, pp. 33–35: Fischer, J. Conchyl. l, p. 115.

Woodward, M. F.; B. B. W., P. Malac. Soc. London v, pp. 1–7, port.: Fischer, J. Conchyl. l, pp. 115 & 116.

II. BIOLOGY.

A.—*ANATOMY, PHYSIOLOGY*, &c.

1. Morphology.

A brief general account of the Mollusca; Goette (196).—Survey of Mollusca; Pelseneer (394).—A brief illustrated account of the structure and anatomy of Mollusca; Houssay (232).—Review of recent work on Morphology; Howes (233).—Histology of Olfactory Nerve Centres; Burne (63).—Comparative histology of Mollusca; Schneider (475).

Cephalopoda:—Brief survey of Cephalopoda; Blake (45).—Anatomy of *Nautilus pompilius*; Griffin (208).—Statocysts of Cephalopods; Hamlyn-Harris (214).—Luminous organs of *Pterygioteuthis margaritifera*; Hoyle (234).—An intrapallial luminous organ present in *Pterygioteuthis*; Hoyle (237).—The so-called gizzard of Cephalopods is really the homologue of

the style-sac of the Gastropods and Lamellibranchs; MOORE & RANDLES (363).—Structure and development of chromatophores in Cephalopods; RABL, Anz. Ak. Wien 1900, p. 60.—Anatomy of *Nautilus*; WILLEY (591).

Gastropoda:—Anatomy of *Limnæa emarginata*; BAKER (28).—Anatomy of several Tectibranchs and Nudibranchs; BERGH (41).—Anatomy of *Helix aspersa* and *pomatia*; BOURNE (54).—On primitive Gastropods, with special reference to *Pleurotomaria*; BOUVIER & FISCHER (56).—Account of Gastropoda continued by SIMROTH in BRONN (58).—Anatomy of *Hemiplecta humphreysiana*, *Amphidromus perversus*, and *Atopos*; COLLINGE (92).—Anatomy of *Myotesta*; COLLINGE (89).—Anatomy of *Chytra kirkii* and *Limnotrochus thomsoni*; DIGBY (138).—*Crosslandia viridis* and *Melibe fimbriata*, anatomy; ELIOT (160).—Animal of *Madrella ferruginosa*; ELIOT (160).—Anatomy of *Helix basileus*; GODWIN-AUSTEN (197).—On the "Trophospongien" of the epididymis and the hepatic duct cells in *Helix pomatia*; HOLMGREN (231).—Note on anatomy of *Solaropsis*; IHERING (241).—Anatomy of *Lucapina crenulata*; ILLINGWORTH (244).—*Vaginula chilensis*, anatomy; KELLER (266).—Notes on several Tectibranchs; MAZZARELLI (348).—Anatomy of *Pteroceanis*, a new deep-sea Pteropod; MEISENHEIMER (349).—*Neothauma*, partial anatomy; MOORE (362).—Anatomy of the *Volutidæ*; PACE (384).—Anatomy of many forms of Pulmonata; PELSENEER (395).—Anatomy of many genera of *Arionidæ* and *Limacidæ*; SIMROTH (484).—Anatomy of *Polygyra albolabris* and *Limax maximus*; SIMPSON (483).—Animal of *Bullia annulata* and *Euthria papillosa*; SOWERBY (504).—Animal of *Patella kermadecensis*; SUTER (533).—Anatomy of some *Bulimidæ*, *Bulimulidæ*, and *Urocoptidæ*; PILSBRY in TRYON (556).—Researches on the general cytology of the epithelium; VIGNON (563).

Pelecypoda:—Anatomy of British species of *Solen*; BLOOMER (48).—On the structure and anatomy of *Anodonta cygnea*; BOURNE (54).—Histology of the Pelecypoda; CARAZZI (66).—Anatomy of *Sphærium sulcatum*; DREW (147).—Morphology and anatomy of *Meleagrina*; GROBBEN, Anz. Ak. Wien 1900, p. 268.—Anatomy of *Tridacna* and *Hippopus*; LACAZE-DUTHIERS (295).—Anatomy of *Mytilidæ*; LIST (305).—Morphology of the Pelecypoda; NOETLING (372).—Anatomy of *Pecten æquisulcatus*; WILLIAMSON (593).

Amphineura:—Anatomy of *Proneomenia valdiviæ*, n. sp.; THIELE (551).

Mantle:—Nervous centres in mantle of *Pecten*; BOUTAN (55).—The structure of the mantle in pearl-oyster; JAMESON (246).

Shell:—Sections of the Gastropod and Cephalopod shell; BÉNARD (38).—On the protoconch in Gastropods; GRABAU (200).—Biometrical study of band variation in *Helix nemoralis*; HENSGEN (223).—Structure of shell in pearl-oyster; JAMESON (246).—Protoconch in many species of *Lotorium*; KESTEVEN (280).—On the protoconchs of several Gastropods; KESTEVEN (278).—Structure of the Bivalve Hinge; REIS (444).—Shell sculpture in *Ancylus*; WALKER (571).

Eye:—On the structure of the eye in certain Gastropoda; BÄCKER (25, 26).

Alimentary canal and glands, etc.:—Albumen gland in snails; CAVALIÉ & BEYLOT (70): CAVALIÉ (69).—On the structure and the function of the salivary glands in the Gastropoda; LANGE (297).—A crystalline style is present in *Turritella communis*; RANDLES (435).—On the structure of the salivary glands in various Molluscs: *Aplysia*, *Cassidaria*, *Dolium*, *Oscanius*, *Pleurobranchæa*, *Tritonium*, *Umbrella*; SAINT-HILAIRE (461).

Radula:—*Trichotropis* and *Cuthonella*; FRIELE (180).—*Vermetus caperatus* Tate & May; HEDLEY (221), p. 19.—*Buccinum*; JOHANSEN (255).—*Fossarina varia* Hutton; KESTEVEN (276).—*Chætoderma*; NIERSTRASZ (371).—*Newnesia antarctica*, n. gen. & sp.; SMITH (496).—*Patella kermadecensis*; SUTER (533).

Muscular:—Variation in position of adductor muscles in *Anodonta*; DOWNING (144).—Muscular structure in *Anomia*; JOBERT (253).—Muscular structure in *Sepia*; LAFITE-DUPONT (296).

Circulatory and Respiratory:—Malformed gills of *Anodonta cygnea*; BLOOMER (49).—Blood of marine Gastropods; COUVREUR (105).—On the respiratory organs, etc., of Mollusca; CUÉNOT (111).—Circulatory system of Pelecypods; DREW (148).—Structure of gills in Pelecypoda; RIDEWOOD (449).—On the currents in the pallial cavity of the Pelecypoda; STENTA (518).—Vascular system of *Loligo pealii*; WILLIAMS (592).

Excretory and Secretory:—Torsion and urinogenital organs in *Paludina*; DRUMMOND (149, 150).—On the liver and its functions; ENRIQUES (162).—Kidneys in *Haliotis tuberculata*; FLEURE (173).—On the kidneys and gonads in *Haliotis*; TOTZAUER (554).

Nervous and Sensory:—On the intraepithelial free nerve-endings in *Helix* and their relationship to sensory cells and glands; SMIDT (488).

Generative organs:—On the so-called worm-shaped seminal threads in *Paludina* and on their development; MEVES (352).—Genitalia of *Helix aspersa*; SANCHEZ (464).—Hermaphroditism as illustrated by genitalia of slugs; SCHAPIRO (470).—Genitalia of *Helix pomatia*; SCROFANI (477).

Cœlom:—On the cerebral cavities in the *Pulmonata*; PELSENEER (398).

Sexual dimorphism:—*Lacuna pallidula*; PELSENEER (396).—*Fulgur*; SMITH (489).

2. PHYSIOLOGY.

Effect of light on integument of *Eledone*; BECK (33).—Vibration in the muscles; BOHN (52).—Histology and physiology of the Pelecypoda; CARAZZI (66).—Blood of marine Gastropods; COUVREUR (105).—Hæmoglobin found in *Pectunculus violascens*, but not in *P. glycimeris*; CUÉNOT (112).—On the functions of the liver in Molluscs; DEFLANDRE (133, 134).—'Urobiline' in Gastropods; DOR (142).—Secretion of purple dye in *Murex*; DUBOIS (154).—On the functions of the liver; ENRIQUES (162).—Reactions of *Limax maximus* to directive stimuli; FRANDSEN (174).—Rate of nervous impulse in Mollusca; JENKINS & CARLSON (250).—Muscular contraction in Molluscs; JOLYET & SELLIER (259).—Time of sexual maturity in *Unio*; KELLY (268).—On the process of the formation of the purple in *Purpura lapillus*; LETELLIER (300).—On the pupillary reaction in *Octopus*; MAGNUS (319).—Physiology of *Polygyra albolabris* and *Limax maximus*; SIMPSON (483).—On the colour of the skin and the changes in coloration in Cephalopods; STEINACH (516).—On the locomotive action of light in Cephalopods; STEINACH (517).—The physiology of the heart in *Aplysia*; STRAUB (524).

3. DEVELOPMENT (Embryology and Life-History).

Development of *Helix*; ANCEL (9).—On the numerical reduction of the chromosomes in the spermatogenesis of *Helix pomatia*; ANCEL (12).—On the cyto-sexual determinism of the sexual elements in *Helix pomatia* without ovicell; ANCEL (7A).—On the movements of the chromatine and nucleoles during the growth of the ovicell in *Helix*; ANCEL (7).—On glandular accidental hermaphroditism and the cyto-sexual determinism of the sexual elements; ANCEL (8).—On the first cellular differentiations in the hermaphrodite gland in *Helix pomatia*; ANCEL (11).—On the first phases in the development of the genital gland and of the hermaphrodite canal in *Helix pomatia*; ANCEL (10).—On the Nebenkern of the spermatocytes of *Helix pomatia*; ANCEL (13).—On the histogenesis of the tissues in *Mollusca*; BABOR (23).—On the development of the cephalic

cartilage in *Eledone moschata*; BABOR (24).—Development of the egg in *Cephalopoda*; BERGMANN (42).—On the breeding of *Limnæa truncatula* from the spawn of *L. palustris*; BROCKMEIER (57).—Note on evolution of landshells; COCKERELL, Nature lxvi, p. 56.—Nepionic young found in *Neocorbicula*; DALL (117).—On the relationship of the cycloplasm and of the nucleus in the egg of *Cytherea chione*; DUMEZ (155).—On the nourishment and development of the embryo of *Nassa mutabilis*; HOFFMANN (230).—Comparative development of Mollusca; KORSCHELT & HEIDER (290).—Development of *Mactra*; KOSTANECKI (291).—Structure of the larval Opisthobranch; MAZZARELLI (347).—On oligopyrene and apyrene sperm and on its genesis, from observations on *Paludina* and *Pygæra*; MEVES (351).—On the so-called worm-shaped seminal threads in *Paludina* and on their development; MEVES (352).—Embryology of *Limax maximus*; SIMPSON (483).—Eggs of *Arion hortensis*; WELCH, Irish Natural. xi, p. 46.—Life history of *Nautilus*; WILLEY (591).

4. ETHOLOGY (Habits, Relation to Environment, &c.)

Agriolimax agrestis devouring earthworms; CARTER, Naturalist 1902, p. 292.—Pairing of *Vitrea lucida* with *Pyramidula rotundata*; CAZIOT (71).—Variation of shell of *Nassa* due to environment; DIMON (139).—Formation of pearls in *Mytilus*; DUBOIS (153).—On the parasitism of the *Anodonta*-larva (*Glochidium*); FAUSSEK (168).—Pearls, their origin due to Trematode larvæ, notes on their structure and development; JAMESON (246).—*Serridens oblongus* found under mantle or clinging to shell of *Ischnochiton*; KELSEY, Nautilus xv, p. 144.—Mucus-threads of land-slugs; KEW (281).—On the action of calcium sulphate on living Oysters; OKU, ITO & FUJITA (377).—On the mode of feeding in certain Molluscs; SIMROTH (487).—On the relationship between the formation of the internal lobes of the shells and the mode of life in certain *Ammonites*; SOLGER (500).—*Mytilicola intestinalis*, a new Crustacean found in the intestines of *Mytilus*; STEUER (522).—Pairing of *Limax maximus*; WEBB (575).

5 VARIATION AND TERATOLOGY.

Monstrosities of *Unionidæ*; BAKER (31).—Malformed gills of *Anodonta cygnea*; BLOOMER (49).—Distorted shells of *Helix*; BUCHNER (60).—Variation of *Pecten*; DAVENPORT (131).—Variation of shell of *Nassa* due to environment; DIMON (139).—Variation in position of adductor muscles in *Anodonta*; DOWNING (144).—Biometrical study of band variation in *Helix nemoralis*; HENSGEN (223).—Monstrosity of *Limnæa pereger*; OVERTON (383).—Variation of freshwater shells from Colorado Desert; STEARNS (509).—Scalariform *Helix memoralis*; WELCH (580).—Variation in *Partula*; MAYER (343).

6. TAXONOMY (Phylogeny and Classification).

General:—On nomenclature; BERNARD (43): GARDINER (191).—Phylogeny of Mollusca; PARAVICINI (391).

Cephalopoda:—Evolution and retrogression in *Ammonites*; PONTIER (426).

Gastropoda:—Note on evolution of landshells; COCKERELL, Nature lxvi, p. 56.—Classification of *Streptaxidæ*; GUDE (210).—Phylogeny and classification of *Arionidæ* and *Limacidæ*; SIMROTH (484).—Phylogeny of *Fulgur*; SMITH (489).

Pelecypoda:—Classification of the Pelecypoda; NOETLING (372).

Amphineura:—Phylogeny of Aplacophora; NIERSTRASZ (371).—Classification of Aplacophora; PRUVOT (433).—On the classification and phylogeny of the Polyplacophora and Aplacophora; THIELE (550).

7. METHODS OF RESEARCH, BIBLIOGRAPHIES, MUSEUMS, &c.

Collecting:—*Chitonidæ* should be pressed flat, cleaned, and dried; EDWARDS, J. Conch. x, p. 253.

Museums:—Hartman collection has been purchased for the Carnegie Museum, Pittsburg, Pa.; ANON., Nautilus xv, p. 120.—List of type and figured fossils in Norwich Castle Museum; LENEY (299).—Catalogue of Mollusca in Technical Institute of Livorno; MANTOVANI (320).—List of Say's Tertiary 'types' in the British Museum; NEWTON (370).—Catalogue of P. A. van Rees' collection; REES (441).

Bibliographies: Bibliography of Canadian Palæontology for 1900; AMI (5).—Bibliography of J. W. Dawson; AMI (4).—Critical and Bibliographical notes on 'Annales de Malacologie' and 'Bull. Soc. Malac. France'; DOLLFUS, J. Conchyl. xlix, pp. 324–340.—Critical notes on Perry's Australian shells; HEDLEY (221).—Critical notes on Mollusca of Rumpf's 'Raritätkamer'; MARTENS (329).—Palæontology of North of England for 1899; SHEPPARD (478).—Bibliography of North American Palæontology for 1892–1900; WEEKS (578): Index to same; WEEKS (579).—Bibliography of Canadian Zoology for 1900; WHITEAVES, Tr. R. Soc. Canada vii, sect. iv, p. 87.

8. ECONOMICS.

Manufacture of buttons from *Unionidæ*; ANON., Nautilus xvi, pp. 70–72.—Pearls, their origin due to Trematode larvæ, notes on their structure and formation; JAMESON (246).—Clam and scallop industries of New York State; KELLOGG (267).—On the edible oysters and oyster culture in France; POTTIER (427).

9. STRAY NOTES.

Hybrid between *Margaritana marginata* and *Anodonta undulata*; AMES, Nautilus xvi, p. 96.—Popular notes; BENNEY (39).—Medicinal uses of slugs; CLAPP, Nautilus xvi, p. 84.—Bite of *Conus geographus* is poisonous; CORNEY (96).—*Ostrea*, marks in valves of attachment to other shells; DAY (132): E. T. N., Nature lxvi, p. 607.—Pearls in living *Unio* may be detected by X Rays; DUBOIS, Ann. Soc. Linn. Lyon xlviii, p. 205.—Transport of bivalves by waterfowl; FINN (170).—Large pearl from *Unio multiplicatus*; HODGSON, Nautilus xvi, p. 60.—Noise made by Mollusca; JOURDAIN (263).—Boring of *Ostrea* by *Polydora*; MCINTOSH (318).—Train stopped by snails on the metals; PALLARY, J. Conchyl. l, p. 387.—Duration of life in *Helix pomatia*; ROPE (453).—Loss of weight by æstivating *Helicidæ*; SABRAZÈS (459).—Land-shells used as models by Peruvian potters; WEBB (574).

B.—*DISTRIBUTION.*

Geographical.

N.B.—The numbers in brackets refer to the "Titles." A reference is thus given to each memoir containing any notice affecting the Molluscan fauna of the several geographical divisions here adopted. Synonymic notes and changes of systematic position are, however, not noticed here. References to minor notes, which are not included in the "List of Titles," but which contain faunistic facts of any value, are given to the work direct.

NON-MARINE MOLLUSCA. [For *Marine* see p. 46.]

On the supposed Antarctic continent as explaining the distribution of landshells; Suter (534).

Distribution of Gastropoda; Simroth (485).

On Island faunas; Wallace (573).

a. Palæarctic Zone.

1. *Septentrional Region.*

Distribution of *Pomatias septemspiralis*; Martens (333).—Distribution of *Helix obvia*; Martens (331).

British Isles:—Distribution of land and freshwater Molluscs; Adams (1).—Distribution of British slug fauna, illustrated by maps; Taylor (547).—Notes on possible importations of molluscs: Green (206).—Possible existence of *Amalia carinata* Risso; Collinge (91).—Occurrence of *Amalia carinata*; Collinge (94).—Notes on Thames freshwater shells; Cornish (97).

England and Wales:—Dorset: Notes on landshells of Stour Provost; Swanton, Natural. J. xi, p. 47.—North Somerset: Land and freshwater shells; Knight, The Sea-board of Mendip, p. 479.—Buckinghamshire and Berkshire: Occurrence of *Acanthinula lamellata*; Woodward (607).—Bucks: Shells from Aston Clinton; Leicester, J. Conch. x, p. 216.—Kent: *Turricola terrestris* still exists at Dover; Horsley, J. Conch. x, p. 144.—Surrey: Land and freshwater mollusca; Pannell (390).—Hertfordshire: Occurrence of *Clausilia biplicata*; Woodward (608).—Suffolk: Mollusca of Mendlesham parish; Mayfield (346): Occurrence of *Helix carthusiana* at Needham Market; Anon., East Anglian Daily Times, Nov. 1, 1902.—Lincoln: *Clausilia rolphii* near Kenwick Bar; Carter, Naturalist 1902, p. 228: Variation of *Helix nemoralis* near Grimsby; Smith, t. c. p. 139: *Pyramidula rupestris* at Grantham; Carter, t. c. p. 270: Drift shells from River Ancholme; Woodruffe-Peacock (605): Mollusca from South Kelsey Parish; Woodruffe-Peacock, Naturalist 1902, p. 139: Occurrence of *Anodonta cygnea* in North-West Lindsey; Woodruffe-Peacock, t. c. p. 139: Shells from Louth District; Carter, t. c. p. 176: *Cyclostoma elegans* at Oxcombe; Carter, t. c. p. 292: *Pisidium subtruncatum* near Louth; Carter, t. c. p. 292: *Hyalinia lucida* near Alford; Carter, t. c. p. 270: Occurrence of *Paludestrina jenkinsi*; Kew, t. c. p. 270: *Pupa secale* near Grantham; Carter, t. c. p. 270: *Pisidium henslowanum* near Brigg; Carter, t. c. p. 271: *Pisidium henslowanum*; Kew, t. c. p. 271: Mollusca from Grantham; Carter, t. c. p. 271: Molluscs from Scunthorpe; Woodruffe-Peacock, t. c. p. 378: Non-marine Mollusca; Kew (282).—Staffordshire: Land and freshwater fauna; Masefield (338).—Lancashire: Freshwater shells from Guide Bridge; Taylor,

Sci. Gossip viii, p. 318: Shells from Hope and Castleton; JACKSON, J. Conch. x, pp. 141, 216: *Limax cinereoniger*; PETTY, Naturalist 1902, p. 366: Freshwater shells from Guide Bridge and Dukinfield; JACKSON, J. Conch. x, p. 179.—Cheshire: Landshells from Marple; STANDEN, t. c. p. 182.—Yorkshire: Decollated *Limnæa peregra* at Rossington; CORBETT, Naturalist 1902, p. 176: Freshwater Molluscs of Tag Lock, Elland; CROWTHER (110): Occurrence of *Paludestrina jenkinsi* at Hull; PETCH (401): List of landshells from Doncaster; CORBETT (95): *Pupa ringens* at Flamborough Head; HEY, Naturalist 1902, p. 271: Mollusca from North Grimston; SHEPPARD, t. c. p. 296: *Valvata cristata* in Upper Airedale; RHODES, t. c. p. 292.—Westmoreland: *Ancylus fluviatilis* in Lake Windermere; BURTON, Naturalist 1902, p. 176.

Scotland:—Land and freshwater Mollusca, Clyde Area; SCOTT (476).—West Lothian: *Helix hortensis* and *Vertigo pygmæa*; GODFREY, Ann. Scott. Nat. Hist. xi, p. 123.—Midlothian: *Pupa anglica*; EVANS, t. c. p. 254.

Ireland:—Land and freshwater shells of County Clare; GRIERSON (207).—Occurrence of *Cæcilianella acicula* in Kilkenny; GRIERSON, Irish Natural. xi, p. 250.—*Cæcilianella acicula* in Co. Dublin; MASSY, t. c. p. 324.—Belfast: Occurrence of *Vertigo edentula* on furze bushes; ORR, t. c. p. 173.—Land and freshwater shells from Longford; WELCH, t. c. p. 174.—Additions to the list of Mollusca of Clonbrook; WELCH, t. c. p. 20.

Sweden:—On some freshwater forms; NORDENSKIÖLD (373).

Denmark:—New species of *Planorbis*; WESTERLUND (584).—Notes on Mollusca from near Copenhagen; JOHANSEN (254).

Germany:—On the fauna of Hamburg; KRÄEPELIN (292).—Darmstadt: Notes on recent fauna; WITTICH (596).—Species of *Xerophila* in New Meckenburg; STEUSLOFF (523).—Occurrence of *Physa acuta* in Brandenburg; MARTENS (335).

Finland:—An apparently new, but unnamed, *Clausilia*; LUTHER (317): *Planorbis pupillus*, n. sp.; WESTERLUND (584).

Russia, European and Asiatic:—Review of slugs, with n. spp. of *Agriolimax*, *Arion*, *Gigantomilax*, *Hyrcanolestes* (n. gen.), *Lytopelte*, *Metalimax*, *Monochroma*, *Paralimax*, *Parmacella*, *Phrixolestes* (n. gen.), *Pseudomilax*, and *Trigonochlamys*; SIMROTH (484).

Russia:—Notes on molluscs of the St Petersburg District; LINDHOLM (304).

Central Asia and Caucasus:—Notes on shells, with n. spp. of *Buliminus*, *Cæcilianella*, *Clausilia*, *Helix*, *Hyalinia*, and *Pseudamnicola*; ROSEN (454).

Muchalatka:—*Lithoglyphus acutus*, n. sp.; WESTERLUND (584).

Siberia:—List of Helicoid landshells; GUDE (211).

Corea:—List of Helicoid landshells; GUDE (211).

2. *Circum-Mediterranean Region.*

France:—*Bythinella padiraci*, n. sp.; LOCARD (310): *Helix deplanata*, n. sp.; WESTERLUND (584).—Tarentaise, Savoy: List of species: COUTAGNE (104).

Spain:—New species of *Helix*; WESTERLUND (585): New species of *Helix*, *Pupa*, and *Vitrea*; WESTERLUND (584).

Corsica and Sardinia:—Comparison of Non-marine fauna; CAZIOT (72).

Italy:—*Lartetia virei*, n. sp.; LOCARD (310): *Vitrea placenta*, n. sp.; WESTERLUND (584).—Lugano: Occurrence of *Campylæa cingulata*; KOBELT (287).

Tirol:—*Clausilia wiedermayri*, n. sp., Kartitsch Valley; GREDLER (204).

S. Central Europe:—Distribution of *Cylindrus obtusus*; STURANY (525).—Land and freshwater shells from Ilfov, &c.; LICHERDOPOL (302).

Moravia:—Land and freshwater fauna; SCHIERL (472).

Dalmatia :—*Spalaeoconcha paganettii*, n. gen. & sp., I. of Curzola; STURANY (526): New species of *Buliminus*; STURANY (529).

Hertzgovina :—New species of *Campylæa*, *Clausilia*, and *Xerophila*; STURANY (528): *Pomatias roseoli*, n. sp.; WAGNER (569).

Macedonia :—*Hydrobia sturanyi*, n. sp.; WESTERLUND (584).

Greece :—*Helix* (*Codringtonia*) *acarnanica*, *arcadica*, *cyllenica*, n. spp.; KOBELT in MARTINI & CHEMNITZ (337): New species of *Buliminus* and *Helix*; WESTERLUND (584): Landshells from the Peloponnesus; STURANY (527).

Cyprus :—New species of *Buliminus* and *Vitrea*; WESTERLUND (584).

Asia Minor :—Notes on non-marine shells with n. spp. of *Buliminus* and *Clausilia*; NAEGELE (366): *Helix karagolica*, n. sp.; WESTERLUND (584): Some new names but no diagnoses; STURANY, Anz. Ak. Wien 1902, p. 88: List of Helicoid landshells; GUDE (211).

Islands off Asia Minor :—Lists of Helicoid landshells; GUDE (211).

Syria :—List of Helicoid landshells; GUDE (211): *Helix vernicata*, n. sp.; WESTERLUND (584).

Persia, Arabia, &c. :—Lists of Helicoid landshells; GUDE (211).

Persia :—*Parmacella persica*, n. sp.; SIMROTH (484).

3. *Central Asiatic Region.*

Central Asiatic Region :—Slug fauna; SIMROTH (484) : Lists of Helicoid landshells; GUDE (211).

Russian Turkestan :—List of Helicoid landshells, with *Macrochlamys coeligena*, n. sp.; GUDE (211).

Turkestan :—New species of *Buliminus*; ANCEY (16).

4. *Chinese Region.*

China :—List of Helicoid landshells; GUDE (211).

Lake Baikal :—New species of *Pisidium* and *Sphærium*; DYBOWSKI (158).

Formosa :—List of Helicoid landshells ; GUDE (211).

Hong Kong :—List of Helicoid landshells; GUDE (211).

Hainan :—List of Helicoid landshells; GUDE (211).

5. *Japanese Region.*

Japanese Empire :—New species of *Chloritis* and *Pupisoma*; PILSBRY (407): New species of *Alycæus*, *Buliminus*, *Carychium*, *Kaliella*, *Macrochlamys*, *Microcystina*, *Situla*, *Tornatellina*, and *Zonitoides*; PILSBRY (411): New species of *Eulota* and *Hirasea*; PILSBRY (409): New species of *Hirasea*, *Kaliella*, *Microcystina*, and *Punctum*; PILSBRY (406): New species of *Chloritis*, *Eulota*, *Ganesella*, *Hirasea* (n. gen.), *Macrochlamys*, *Mandarina*, and *Microcystina*; PILSBRY (403): New species of *Diplommatina*, *Hirasea*, *Hirasiella* (n. gen.), and *Mandarina*; PILSBRY (405): List of Mollusca from Yesso; PILSBRY & GULICK (421): New species of *Chloritis*, *Eulota*, *Kaliella*, *Macrochlamys*, *Microcystina*, and *Pyramidula*; PILSBRY & HIRASE (422): Notes on *Clausiliæ*, with n. spp.; PILSBRY (418): Critical notes on *Clausiliæ*, with n. spp.; PILSBRY (416): New species of *Alycæus*, *Cyclophorus*, *Diplommatina*, *Helicina*, *Hirasea*, *Kaliella*, and *Nesopupa*; PILSBRY (413): Notes on *Viviparidæ* and *Melaniidæ*; PILSBRY (414): Localities of *Helicidæ*, etc., described by A. Adams; PILSBRY (415): *Eulota gereti*, n. sp.; GUDE (213).

6. *Atlantidean Region.*

[None.]

b. Palæotropical African Zone.

7. *Central African Region.*

Somaliland:—*Achatina erlangeri*, n. sp.; Moellendorff & Kobelt (360).

Lake Tanganyika:—Discussion of the Molluscan fauna; Moore (362).

Massai-land:—*Buliminus* (*Cerastus*) *arctistrius*, n. sp.; Kobelt in Martini & Chemnitz (337).

Uganda:—List of land and freshwater shells; Smith (497).

Zanzibar:—*Ennea affectata*, n. sp.; Fulton (185).

8. *West African Region.*

Cameroons:—*Pseudachatina perelongata*, n. sp.; Rolle (451).

9. *South African Region.*

South Africa:—Notes on fauna, with *Ennea premnodes*, n. sp.; Sturany (530): *Helix pisana* abundant; Swanton (538).—Natal: *Onchidium burnupi*, n. sp.; Collinge (90).

Basutoland:—*Achatina machachensis*, n. sp.; Smith (492).

10. *Malagasy Region.*

Madagascar:—New species of *Ampelita* and *Tropidophora*; Fulton (189): Notes on non-marine Molluscs, with n. spp. of *Clavator*, *Cyclostoma*, *Euplecta*, *Helicarion* (?), *Helicophanta*, *Hemiplecta*, *Leucotænius*, and *Macrochlamys*; Ancey (17): A few species recorded; Dautzenberg (129).

11. *Afro-Arabian Region.*

[None.]

c. Palæotropical Oriental Zone.

12. *Indian Region.*

N. India:—*Buliminus* (*Subzebrinus*) *kuluensis* and *tandjanensis*, n. spp.; Kobelt in Martini & Chemnitz (337).

Nilghiri Mountains:—*Buliminus* (*Ena*) *hanleyanus*, n. sp.; Kobelt in Martini & Chemnitz (337).

Ceylon:—Landshells from Ambagamuwa; Collett (87).

13. *Indo-Chinese Region.*

Laos:—*Bensonia laotica*, n. sp.; Moellendorff (358).

Siam:—New species of *Amphidromus*, *Chloritis*, *Cyclotus*, *Durgella*, *Lagochilus*, *Macrochlamys*, *Pupina*, *Plectotropis*, *Trochomorpha*, *Xestina*, and *Wattebledia*; Moellendorff (357): New species of *Rhiostoma* and *Sesara*; Blanford (47).

Tonkin:—*Xestina tongkingensis*, n. sp.; Moellendorff (358): New species of *Anodonta*, *Nodularia*, and *Pseudodon*; Martens (330): Review of *Clausiliæ*, with *C. chiemhoaensis*, n. sp.; Sykes (541): *Ganesella procera*, n. sp.; Gude (213).

Annam:—*Quadrula resupinatum*, n. sp.; MARTENS (330).

? Cambodia:—*Xestina cardiostoma*, n. sp.; MOELLENDORFF (358).

Kelantan:—Notes on shells with n. spp. of *Cyclotus*, *Diplommatina*, *Ennea*, *Lagochilus*, *Pupina*, *Sitala*, and *Trochomorpha*; MOELLENDORFF (357): New species of *Clausilia*, *Opisthoporus*, *Opisthostoma*, *Platyrhaphe*, *Rhodina* (?), and *Streptaxis*; SYKES (544): List of land and freshwater shells, with n. spp. of *Alycœus* and *Boysidia*; SYKES (545): On a collection of land and freshwater shells with n. spp. of *Apoparmarion* (n. gen.), *Atopos*, *Cryptosemelus* (n. gen.), *Hypselostoma*, *Paraparmarion* (n. gen.), and *Streptaxis*; COLLINGE (92).

Perak:—*Alycœus conformis*, n. sp.; FULTON (187): List of a small collection with *Trochomorpha grubaueri*, n. sp.; MOELLENDORFF (357).

14. *Indo-Malay Region.*

Borneo:—Note on landshells, with n. spp. of *Diplommatina*, *Georissa*, *Opisthoporus*, and *Opisthostoma*; GREDLER (205).

15. *Philippine Region.*

Philippines:—Supplement to Semper's work continued, with some, apparently, new varieties; MOELLENDORFF (355).

d. AUSTRALIAN ZONE.

16. *Austro-Malayan Region.*

New Guinea:—*Chloritis* (*Sulcobasis*) *prestoni*, n. sp.; GUDE (212): *Prisma smithi*, n. sp.; COLLINGE (93).

British New Guinea:—New species of *Chloritis* and *Macrochlamys*; PRESTON (430): New species of *Ganesella*, *Paryphanta*, and *Papuina*; FULTON (188).

German New Guinea:—*Papuina jucunda*, n. sp.; FULTON (190).

Dutch New Guinea:—New species of *Chloritis* and *Papuina*; PRESTON (430).

New Mecklenburg I.:—New species of *Chloritis*, *Cristigibba*, and *Papuina*; FULTON (190).

Obi Is.:—Notes on shells with new species of *Adelomorpha*, *Chloritis*, *Diancta*, *Helicina*, *Lagochilus*, *Leptopoma*, *Macrochlamys*, *Otesia*, *Papuina* *Planispira*, *Porocallia*, and *Xesta*; MOELLENDORFF (359): New species of *Albersia*, *Leptopoma*, *Papuina*, *Trochomorpha*; DAUTZENBERG (130).

Kaledupa (Tukan-Bessi Is.):—Notes on shells with new species of *Amphidromus*, *Cyclotus*, *Hemiplecta*, and *Xesta*; MOELLENDORFF (359).

Buru I.:—Note on shells with new species of *Chloritis*, *Helicarion* *Leptopoma*, *Macrochlamys*, *Microcystina*, *Omphalotropis*, *Otesia*, and *Tro chomorpha*; MOELLENDORFF (359).

Tomia (Tukan-Bessi Is.):—Notes on shells with new species of *Cyclotus* *Helicina*, and *Xesta*; MOELLENDORFF (359).

Celebes:—Notes on some non-marine shells; GREDLER (205).

17. *Australian Region.*

N.-W. Australia:—*Thersites woodwardi*, n. sp.; FULTON (186).

Australia (?):—*Bothriembryon durus*, n. sp.; KOBELT in MARTINI & CHEMNITZ (337).

18. *Austro-Polynesian Region.*

New Caledonia:—New species of *Placostylus* and *Rhytida*; DAUTZENBERG (125).

New Hebrides:—Collection of non-marine shells, with n. spp. of *Dendrotrochus*, *Draparnaudia*, and *Omphalotropis*; SYKES (543).

19. *Polynesian Region.*

Hawaiian Is.:—Occurrence of *Limax maximus*; COLLINGE, J. Malac. ix, p. 138.

Polynesia:—Review of *Partula*; SMITH (498).

20. *Neozelanian Region.*

New Zealand:—Correct nomenclature of species described in Hutton's Manual of the New Zealand Mollusca; SUTER (537): *Diplodon websteri*, n. sp.; SIMPSON (482): Land Mollusca of Little Barrier Island; SUTER (536): Freshwater shells from Hawke's Bay; HUTCHINSON (239): Geographical distribution of some non-marine Molluscs; SUTER (535).

e. NEANTARCTIC ZONE.

21. *Patagonian Region.*

[None.]

22. *Chilian Region.*

[None.]

f. NEOTROPICAL ZONE.

23. *Peruvian Region.*

Peru:—New species of *Ampullaria*, *Bulimulus*, *Drymæus*, and *Helix*; DAUTZENBERG (126).

24. *Colombian Region.*

Colombia:—New species of *Aperostoma*, *Circinaria*, *Glandina*, and *Helicina*; PILSBRY & CLAPP (420).

25. *Brazilian Region.*

Bolivia:—*Bulimulus compactus*, n. sp.; FULTON (187): *Bulimulus bonneti*, n. sp.; ANCEY (14).

26. *Mexican Region.*

Mexico:—New species of *Cœlocentrum* and *Holospira*; PILSBRY in TRYON (556): Fauna completed, with general summary and notes; FISCHER & CROSSE (172).

New Mexico:—Landshells from the Sacramento Mts.; VANATTA (558): Notes on *Physæ*; SPRINGER (505): Occurrence of *Unio popei*; COCKERELL (84).

Guatemala:—*Cœlocentrum dispar*, n. sp.; PILSBRY in TRYON (556): *Helicina pterophora*, n. sp.; SYKES (540).

Cocos Is. (Costa Rica):—Notes on fauna with *Tornatellina hopkinsi*, n. sp.; MARTENS (332).

27. *Caribbean Region.*

Jamaica:—*Urocoptis hendersoni*, n. sp.; PILSBRY in TRYON (556): Distribution of *Pleurodonte sinuata* group; JARVIS (249): *Pleurodonte vacillans*, n. sp.; VENDRYES (561): Distribution of the *Pleurodonte acuta* group; JARVIS (248).

Haiti:—*Chondropoma superbum*, n. sp.; HENDERSON & SIMPSON (222).

Cuba:—*Cerion longidens*, n. sp.; PILSBRY in TRYON (556).

Grand Cayman Is.:—*Cerion caymanense*, n. sp.; PILSBRY in TRYON (556).

g. NEARCTIC ZONE.

28. *American Region.*

United States:—Critical notes on some *Valvatidæ*; WALKER (570): Notes on landshells of South-western States; PILSBRY (417): Notes on *Calyculina*, with n. spp.; STERKI (520): Notes on *Limnæa*; COCKERELL, Nautilus xvi, p. 95: *Pisidium strengii*, n. sp.; STERKI (519): Check-list of *Unionidæ*; WRIGHT & WALKER (610).

Alabama:—*Polygyra alabamensis*; PILSBRY (408).—Arizona: *Sonorella granulatissima*, n. sp.; PILSBRY (408).—Washington, D. C.: Occurrence of *Vitrea draparnaldi*; SOELNER (499).—Florida: *Helicina tantilla*, n. sp.; PILSBRY (410).—Idaho: *Pristiloma idahoense*, n. sp.; PILSBRY (419).—Illinois: *Calyculina hodgsonii*, n. sp.; STERKI (520).—Indiana: Occurrence of *Angitrema verrucosa* at Lawrenceburg; BILLUPS, Nautilus xvi, p. 72: *Lampsilis blatchleyi*, n. sp.; DANIELS (124).—Louisiana: Notes on *Unionidæ*; FRIERSON (181).—Maine: Notes on the fauna of Mud Lake; NYLANDER (376).—Montana: Notes on fauna; ELROD (161).—New York: Occurrence of *Limnæa auricularia* in Brooklyn; CALL (65): Squids supposed to be found in Onondaga Lake; CLARKE (80): A list of the Mollusca of Lake Chautauqua; EVERMANN & GOLDSBOROUGH (167).—North Carolina: On a collection from the Mount Mitchell Region, with n. spp. of *Vitrea*, and n. varr.; WALKER & PILSBRY (572).—Ohio: Notes on shells; STERKI (521).—Tennessee: *Unio andrewsii*, n. sp.; MARSH (324): *Unio beauchampi*, n. sp.; MARSH (325).—Texas: Notes on *Unionidæ*; FRIERSON (181): *Polygyra texasensis*, n. sp.; PILSBRY (408).

29. *Californian Region.*

Western North America:—Notes on freshwater shells; ORCUTT (380): Notes on shells; ORCUTT (379).

California:—Notes on *Helix aspersa*; KEEP, Nautilus xv, p. 119.

30. *Canadian Region.*

Northern Ontario and British Columbia:—Notes on a few non-marine shells; WHITEAVES (586).

MARINE MOLLUSCA.

Study of Fauna of European Seas continued ; KOBELT (286).

1. *Arctic Province.*

Arctic:—On the supposed similarity between Arctic and Antarctic Mollusca; SMITH (490): Mollusca from cruise of 'Michael Sars,' with n. spp. of *Coryphella*, *Cuthonella*, and *Trichotropis*; FRIELE (180): Review of Mollusca collected by Italian Expedition; POLLONERA (424).

Spitzbergen:—On a large collection of Mollusca, with illustrations of several species and n. spp. of *Montacuta* and *Philine*; KNIPOVITSCH (284): *Proneomenia thulensis*, n. sp.; THIELE (549).

Jan Mayen and Iceland:—Notes on a few Molluscs; JENSEN (252).

Iceland:—On littoral Mollusca; JOHANSEN (256).

Greenland:—*Boreotrophon maclaini*, n. sp.; DALL (118).

2. *Boreal Province.*

North Atlantic:—Range in depth of many Mollusca; JOHANSEN (257).

East Finmark:—Review of fauna; NORMAN (374).

3. *Celtic Province.*

Norway and Denmark:—On the fauna; JOHANSEN (255).

Belgium:—Mollusca off the Belgian coast; GILSON (195): Occurrence of *Petricola pholadiformis*; DUPUIS & PUTZEYS (156); LOPPENS (314).

British Isles:—Notes on species of *Buccinum* and *Fusus*, with *F. consimilis*, n. sp.; MARSHALL (328): Critical notes on nomenclature; ANON., J. Conch. x, pp. 180–182: Notes on additions to fauna; MARSHALL (327): Classification of Cephalopoda; HOYLE (235).—North Somerset: Few marine shells mentioned; KNIGHT, The Sea-board of Mendip, p. 480.—Fauna of the Exe Estuary; ALLEN & TODD (3).—Essex and Kent: Occurrence of *Petricola pholadiformis*; COLE (86).—Yorkshire: Marine fauna of Sandsend; LEBOUR (298).—Firth of Forth: Notes on Mollusca and their distribution; PEARCEY (393).—Ireland: *Cardium norvegicum* at Portmarnock; PRAEGER, Irish Natural. xi, p. 103.—N.-W. Ireland: Notes on Molluscs; WELCH, Irish Natural. xi, p. 174.

4. *Lusitanian Province.*

European Seas:—On the Pteropod fauna; LOCARD (309).

Channel Ids.:—Marine Fauna of Guernsey and lesser Islands; MARQUAND (323).

France:—Review of Gastropods of Mediterranean Coasts; GRANGER (202).—St Raphaël: List of fauna; CLAUDON (82).

S. Europe:—Notes on Opisthobranchs of Talisman Expedition; VAYSSIÈRE (559, 560).

Corsica:—Notes on fauna; LOCARD (306).

Gulf of Gascony:—*Phyllidiopsis berghi*, n. sp.; VAYSSIÈRE (560).

Gulf of Triest:—List of the Mollusca; GRAEFFE (201).

Gulf of Naples:—Notes on Tectibranchs; MAZZARELLI (348): Monograph of the *Mytilidæ*; LIST (305).

Capri:—Review of fauna; BELLINI (37).

Venice:—On Marine Mollusca; NALATO (367).

Sicily:—Notes on fauna; SAITTA (462).

Tangier:—New species of *Fusus*, *Gibbula*, and *Mesalia*; PALLARY (388): Review of Fauna, with notes, and *Trochocochlea blainvillei*, n. sp.; PALLARY (389).

Morocco:—*Discodoris edwardsi* and *Pterotrachæa talismani*, n. spp.; VAYSSIÈRE (560).

Azores:—*Rossia caroli*, n. sp.; JOUBIN (261).

5. *Aralo-Caspian Province.*

Caspian Sea:—New species of *Clessinia*, *Micromelania*, and *Nematurella*; WESTERLUND (584).

Sea of Azov:—Catalogue of molluscs collected; OSTROUMOV (382).

6. *West African Province.*

West Africa:—*Turbonilla lanceolata*, n. sp.; CLESSIN in MARTINI & CHEMNITZ (337).

Gulf of Guinea:—*Pteroceanis diaphana*, n. gen. & sp., and type of *Pteroceanidæ*, n. fam. of Pteropods; MEISENHEIMER (349).

7. *South African Province.*

South Africa:—New species of *Assiminea*, *Astralium*, *Columbella*, *Latirus*, *Natica*, *Tornatina*, and *Turbinella*; SMITH (495): Notes on a few shells; SWANTON (539): *Chætopleura destituta*, n. sp.; SYKES (542): Notes on shells, with n. spp. of *Fusus*, *Latirus*, *Lotorium*, *Nassa*, *Nassaria*, *Pleurotoma*, and *Volutilithes*; SOWERBY (504): *Collonia bicarinata*, n. sp.; MARTENS (336).

S.-W. Africa:—*Pleurotoma subspirata*, n. sp.; MARTENS (336).

8. *Indo-Pacific Province.*

Aldabra I.:—List of fauna; VOELTZKOW (566).

East Africa:—New species of *Actæon*, *Puncturella*, *Solariella*, and *Typhis*; MARTENS (336): *Proneomenia valdiviæ*, n. sp.; THIELE (551).

Zanzibar:—New species of *Crosslandia* (n. gen.), *Dunga* (n. gen.), and *Zatteria* (n. gen.); ELIOT (160).

N.-E. Africa:—New species of *Pleurotoma*, *Ringicula*, *Solariella*, and *Voluta*; MARTENS (336).

Red Sea:—*Pteroceanis diaphana*, n. gen. & n. sp. and type of *Pteroceanidæ*, n. fam. of Pteropods; MEISENHEIMER (349): On the deep-sea Fauna; FUCHS (182).

Aden:—List of fauna; SHOPLAND (481).

Indian Ocean:—Deep-sea fauna, some species mentioned and figured; ALCOCK (2).

Nicobars:—New species of *Nassaria* and *Scalaria*; MARTENS (336).

Sumatra:—New species of *Pleurotoma* and *Scaphander*; MARTENS (336).

Java Sea:—*Heteroteuthis weberi*, n. sp.; JOUBIN (262).

Java:—*Nerita junghuhni*, n. sp.; SCHEPMAN (471).

East Indian Archipelago:—Aplacophora collected by the 'Siboga' Expedition, with n. spp. of *Chætoderma*, *Cyclomenia* (n. gen.), *Dinomenia* (n. gen.), *Dondersia*, *Hemimenia* (n. gen.), *Proneomenia*, *Proparamenia* (n. gen.), and *Rhopalomenia*; NIERSTRASZ (371).

Singapore:—*Dunkeria martensi*, n. sp.; CLESSIN in MARTINI & CHEMNITZ (337).

Gulf of Siam:—Opisthobranchs with n. spp. of *Aclesia*, *Aplysia*, *Aplysiella*, *Doriopsilla*, *Idalia*, *Marionia*, *Melibe*, and *Nossis* (n. gen.); BERGH (40).

Hong Kong:—*Turbonilla adamsi*, n. sp.; CLESSIN in MARTINI & CHEMNITZ (337).

Pacific Ocean:—*Aplysiella pallida*, n. sp.; BERGH (41).

Philippines:—*Aclesia impexa*, and *Aplysia punctatella*, n. spp.; BERGH (41).

New Caledonia:—New species of *Cerithium*; VIGNAL (562): Revision of *Cypræidæ*, with n. varr.; DAUTZENBERG (128).

Fiji:—*Oscaniella obscurella*, n. sp.; BERGH (41).

Torres Straits:—New species of *Crossea*, *Ctiloceras*, *Liotia*, and *Teinostoma*; HEDLEY (221): *Puncturella galerita*, n. sp.; HEDLEY (220).

Great Barrier Reef:—Popular notes on fauna; HEDLEY (216).

9. *Australo-Zealandic Province.*

Australia:—Critical notes on many species especially on shells described by Perry; HEDLEY (221): Notes on species described by Perry; GATLIFF (192).

Queensland:—New species of *Congeria*, *Ctiloceras*, *Mecoliotia*, and *Pyrgulina*; HEDLEY (221): *Voluta perplicata*, n. sp.; HEDLEY (218).

New South Wales:—Pelecypoda trawled by 'Thetis' with illustrations of some previously known species and n. spp. of *Amusium*, *Bathyarca*, *Cardita*, *Condylocardia*, *Crassatellites*, *Cuna* (n. gen.), *Cyclopecten*, *Cyrilla*, *Dimya*, *Erycina*, *Leda*, *Philobrya*, *Pronucula* (n. gen.), and *Rochefortia*; HEDLEY (219): Notes on shells, with n. spp. of *Columbella* and *Philine*; HEDLEY (220): Notes on shells, with n. spp. of *Bornia* and *Mactra*; HEDLEY (221).

Victoria:—Catalogue of fauna continued; PRITCHARD & GATLIFF (431): New species of *Calliostoma*, *Haliotis*, *Leptothyra*, *Mangilia* (?), and *Terebra*; PRITCHARD & GATLIFF (432): *Nautilus pompilius* in Port Phillip; KERSHAW (275).

Tasmania:—Several species described by Woods are really West Indian shells; HEDLEY (217).

New Zealand:—*Gomphina maorum*, n. sp.; SMITH (494): *Separatista benhami*, n. sp.; SUTER (532): Correct nomenclature of species described in Hutton's manual of the New Zealand Mollusca; SUTER (537).

Auckland Is.:—New species of *Calliostoma*, *Euthria*, and *Lissarca*; SMITH (496).

Campbell Is.:—*Polypus campbelli*, n. sp.; SMITH (496).

10. *Japonic Province.*

[None.]

11. *Aleutian Province.*

Kamchatka:—*Boreotrophon kamchatkanus*, n. sp.; DALL (118).

Alaska:—*Boreotrophon alaskanus*, n. sp.; DALL (118): New species of *Venericardia*; DALL (120).

Bering Sea:—New species of *Boreotrophon*, *Pleurotoma*, *Tritonofusus*, and *Volutopsius*; DALL (118).

Western Aleutians:—*Litorina atkana*, n. sp.; DALL (118).

Queen Charlotte Is.:—New species of *Lepidopleurus* and *Solariella*; DALL (118).

W. America:—*Volutomitra alaskana*; DALL (113).

12. *Californian Province.*

Western Coast of N. America:—Review of *Veneridæ*; DALL (119): *Cypræidæ*; BUTTON (64): Notes on shells; ORCUTT (380): *Boreotrophon pacificus*, n. sp.; DALL (118).

California:—New species of *Cytherea* and *Psephidia*; DALL (119): New species of *Actæon*, *Boreotrophon*, *Ischnochiton*, *Lepidopleurus*, *Pleurotoma*, *Trophon*, and *Typhis*; DALL (118): *Rissoina bakeri*, n. sp.; BARTSCH (32): *Rissoa kelseyi*, n. sp.; DALL & BARTSCH (123): New species of *Chromodoris*; COCKERELL (83): *Venericardia gouldii*, n. sp.; DALL (119): Occurrence of *Serridens oblongus*; KELSEY, Nautilus xv, p. 144.

Gulf of California:—*Cyclinella singleyi*, n. gen. and sp.; DALL (116).

Lower California:—List of shells collected on San Martin Island; BAKER (30): Popular notes; BAKER (29).

13. *Panamic Province.*

South America:—*Cypræidæ*; BUTTON (64).

Mexico:—New species of *Boreotrophon*, *Lepidopleurus*, and *Pleurotoma*; DALL (118): New species of *Clementia*, *Cyclinella*, and *Cytherea*; DALL (119).

Panama:—New species of *Callocardia*, *Chione*, and *Pitaria*; DALL (119): New species of *Boreotrophon*, *Crenella*, *Ganesa* (?), *Lepidopleurus*, and *Limopsis*; DALL (118): *Cardita sulcosa*, n. sp.; DALL (120).

W. Panama:—New species of *Cypræa* and *Erato*; DALL (116).

Gulf of Panama:—*Lima agassizi*, n. sp.; DALL (115).

Colombia:—*Tivela nasuta*, n. sp.; DALL (119).

Cocos I. (Costa Rica):—Notes on fauna, with list of shells; MARTENS (334): Few marine shells noted; PILSBRY & VANATTA (423).

Galapagos:—Collection of marine shells, with n. spp. of *Cerithidea*, *Chlorostoma*, *Drillia*, *Lima*, and *Lutricola*; PILSBRY & VANATTA (423): *Chione pertincta*, n. sp.; DALL (119).

14. *Peruvian Province.*

Chile:—*Pitaria tomeana*, n. sp.; DALL (119).

15. *Antarctic Province.*

Antarctic Ocean:—Species of *Paramenia* and *Proneomenia*; PELSENEER (397): On the supposed similarity between Arctic and Antarctic Mollusca; SMITH (490): Lists of shells, principally from Cape Adare, with n. spp. of *Clione*, *Eatoniella*, *Lamellaria*, *Natica*, *Newnesia* (n. gen.), *Paludestrina*, *Pecten*, *Philine*, and *Rissoa*; SMITH (496).

Straits of Magellan, etc.:—Notes on species of *Photinula*, with *P. lahillei*, n. sp., Patagonia; IHERING (240): New species of *Antistreptus* and *Toledonia*, n. genn.; DALL (118).

Patagonia:—*Trophon pelecetus*, n. sp.; DALL (118): *Lima patagonica*, n. sp.; DALL (115).

Kerguelen:—*Puncturella analoga*, n. sp.; MARTENS (336).

16. *Argentine Province.*

[None.]

17. *Caribbean Province.*

Brazil:—*Venericardia moniliata*, n. sp.; DALL (120): *Tivela braziliana*, n. sp.; DALL (119).

Gulf of Mexico:—*Venericardia armilla*, n. sp.; DALL (120).

Cuba:—*Daphnella eugrammata*, n. sp.; DALL (118): *Turbonilla pfeifferi*, n. sp.; CLESSIN in MARTINI & CHEMNITZ (337).

Haiti:—*Turbonilla verkruzeni*, n. sp.; CLESSIN in MARTINI & CHEMNITZ (337).

Jamaica:—*Miralda jamaicensis*, n. sp.; CLESSIN in MARTINI & CHEMNITZ (337).

Barbados:—*Cytherea callimorpha*, n. sp.; DALL (119).

18. *Transatlantic Province.*

Eastern Coast of N. America:—Review of *Veneridæ*; DALL (119).

Bahamas:—*Tivela abaconis*, n. sp.; DALL (119).

Florida:—New species of *Cytherea* and *Transennella*; DALL (119): *Conus stimpsoni*, n. sp.; DALL (118).

New England:—Notes on shells; WINKLEY (594).

Rhode Island:—Fauna continued; CARPENTER (67).

Washington and Oregon:—*Boreotrophon tripherus*, n. sp.; DALL (118).

Massachusetts:—*Pholas truncata* in Salem Harbour; MORSE (364).

North Carolina:—New species of *Callocardia* and *Chione*; DALL (119).

GEOLOGICAL.

N.B.—The remarks given at the beginning of the preceding section, p. 39, also apply here.

Manual of Palæontology; VINASSA DE REGNY (564).

Many changes in Ammonite nomenclature; BUCKMAN (61).—Deceptive fossilization of Pelecypods; SARDESON, Amer. Geol. xxx, p. 39.—Critical note on *Nautilus pennatula*, Batsch; FORNASINI, Riv. ital. Pal. viii, p. 48. —*Pleuronectes* does not belong to *Aviculidæ*; SALOMON (463).—Note on *Ammonites calcar*; CRICK (107).—Several changes in specific nomenclature; COSSMANN (101).

British Isles:—Fossils from Oxfordshire; WALFORD, Quart. J. Geol. Soc. lviii, p. 267.

Germany:—List of fossils from Sehnde; HOYER, Zeitschr. Deutsch. geol. Ges. liv, p. 84.

France:—Fossils from varying formations and localities in the Alpes of Dauphiny and Savoy; MATTE (340).

Italy:—Fauna of the district of Friuli with n. spp.; MARINELLI (322).

Asia:—Ammonites from Echizen Province, Japan; YOKOYAMA, J. geol. Soc. Tokyo ix, p. 387.

1. POST-TERTIARY.

British Isles:—Holocene Mollusca from London Wall and Westminster; KENNARD & WOODWARD (269).—Holocene Mollusca from North Cornwall; BULLEN (62).—Note on deposit at Castle Cary; KENNARD & WOODWARD, Geol. Mag. 1902, p. 87.—Shells from Hornsea Mere, Yorks.; SHEPPARD, Naturalist 1902, p. 366.—Shells from Uphill Brickyard, Ilford; JOHNSON of Ilford; KENNARD & WOODWARD (270).—Non-(258).—Molluscan fauna acton-on-Sea; WEBB (576).—Shells from Copford; marine Mollusca from Cl

WEBB (577).—Fossils from East Barry Dock; WOTTON, Rep. Cardiff Soc. xxviii, p. 90.—Mollusca from Galway and Down; WELCH, Irish Natural. xi, p. 46.—Fossils from various localities in County Dublin; HINCH (225).

Belgium:—Few land molluscs from Chat Sous-Uccle; ANON., Ann. Soc. malac. Belgique xxxvii, Bull. p. xxxiv.

Norway:—Glacial and post-glacial fossils; JOHANSEN (255).

Germany:—Diluvial freshwater shells from Tarbeck; GAGEL, Zeitschr. Deutsch. geol. Ges. liii, Verh. p. 99.—Notes on diluvial fauna of Rheinhessen; WITTICH (597).—Post-Tertiary fossils from Hagenow, Mecklenburg; GEINITZ, Arch. Ver. Mecklenb. lv, p. 165.—Post-pliocene fossils from Munich; AMMON (6).—*Paludina diluviana* in West Prussia; MAAS, Zeitschr. Deutsch. geol. Ges. liv, Verh. p. 4.—Pleistocene shells from near Halberstadt; WÜST (611).—Interglacial non-marine fossils from Benkendorf; WÜST, Centrbl. Mineral. 1902, p. 107.—Mollusca from Westhofen and Weisenau; WITTICH (598).—Diluvial non-marine molluscs from Darmstadt; WITTICH (596).—Interglacial freshwater shells from Rouen; MILTHERS & NORDMANN (353).

France:—Fossils from Hérault with *Cerithium capestangi*, n. sp.; LOCARD (307).

Italy:—Few fossils from Capri; BELLINI, Bol. Soc. geol. Ital. xxi, p. 7.—Post-pliocene fossils from S. Paolo; SCALIA (468).—Post-pliocene shells from Catania; SCALIA (467).—Mollusca from Cannizzaro; SCALIA (466).

Russia:—On the Aralo-Caspian formations of the Volga delta; PRAVOSLAVLEV (428).—Few fossils from the right bank of the Volga (near the Caspian); PRAVOSLAVLEV (429).

North America:—Loess fossils of Natchez, Miss.; SHIMEK (480).—New species of *Helix* and *Pyramidula* from the John Day Region; STEARNS (510).—Post-tertiary shells from Colorado Desert; STEARNS (509).—Occurrence of *Pandora grandis* in California; RIVERS (450).—Occurrence of *Unio condoni* in John Day Beds; STEARNS (511).—Notes on Loess fossils of Iowa; SHIMEK (479).—Pleistocene *Physa* from New Mexico; SPRINGER (505).—New variety of *Planorbis bicarinatus* from Wisconsin; BAKER, Nautilus xv, p. 120.—Fossil land shells of the old forest bed of the Ohio River; BILLUPS (44).—*Ashmunella antiqua*, n. sp., New Mexico; COCKERELL & COOPER, Science xiv, p. 1009: is a synonym of *A. porteræ*; ED., Nautilus xvi, p. 110.

Australia:—Post-tertiary fossils from Williamstown, Vic.; GRANT & THIELE (203).—Few Post-tertiary shells from Melbourne; KITSON, P. Soc. Victoria xv, p. 41.

2. TERTIARY.

Review of Neogene *Pectinidæ* of Europe, with n. spp.; DEPERET & ROMAN (136).—List of Say's Maryland 'types' in the British Museum; NEWTON (370).—Catalogue of Paris Basin fauna continued; CHÉDEVILLE (75).—New names for forms of the *Clava bidentata* group; HOERNES, Anz. Ak. Wien 1901, p. 220.—Appendix to Catalogue of Paris Basin fossils with new genera and species; COSSMANN (98).—*Columbella mariæ*, Depont., re-named *C. depontailleri*; COSSMANN, Rev. paleozool. vi, p. 203.—On the hinge in *Venericardia*; COSSMANN (102).—*Kerunia cornuta* is a Hydrozoan; OPPENHEIM, Centrbl. Mineral. 1902, p. 44.—*Kerunia cornuta* is a *Hydractinia*; VINASSA DE REGNY, Centrbl. Mineral. 1902, p. 137.—On the age of the strata with *Helix sylvana*; ROLLIER (452).

British Isles:—Notes on East Anglian fossils; HARMER (215).—Lists of fossils from neighbourhood of Southampton; REID (443).—Few fossils from Creechbarrow, Dorset; HUDLESTON, P. Dorset Club xxiii, p. 186.—Fauna of Walton-on-Naze; JOHNSON, Essex Natural. xi, p. 284.—Non-marine fauna of Walton Crag; KENNARD & WOODWARD (271).

Belgium:—New species of *Amplosipho*; VINCENT (565).—Few fossils from various localities; ERTBORN, Bull. Soc. Belge Geol. xvi, Mem., p. 39.

Germany:—Landshells from Lower Miocene of Oppeln, with n. spp. of *Clausilia*, *Cyclostoma*, *Daudibardia*, and *Helix*; ANDREAE (18).—Miocene fossils from Oppeln, with several new species and *Gyralina*, n. subgen. of *Hyalinia*; ANDREAE (19).—Few fossils from Leobersdorf; RZEHAK, Verh. geol. Reichsanst. 1902, p. 265.—Upper Miocene land fauna of Steinheim, with n. spp. of *Limax* and *Pomatias*; JOOSS (260).—Lower Oligocene fossils from Einbeck; SCHMIDT (474).—Fossils from Bavarian Alps, with n. spp.; DENINGER (135).—Upper Oligocene fossils from Hannover; KOERT (288).

France:—*Helix ramondi*, etc., from Aquitanien of Gard; CHATELET, Bull. Soc. geol. France ii, p. 329.—Pelecypod fauna of Middle Miocene of Loire Basin; DOLLFUS & DAUTZENBERG (140).—Many n. spp. of Gastropods, with notes on some known forms, from Cotentin; COSSMANN & PISSARRO (103).—Non-marine Molluscs from Miocene of S. of France; BOISTEL (53).—Review of fauna from brackish and freshwater deposits of Mid-France, with many n. spp.; REPELIN (447): See also MATHERON (339).—Fossils from deposit near Reims; TUNIOT (557).—Eocene Gastropods of 'Loire-Inférieure', with new genera, sections, and many n. spp.; COSSMANN (99).—New species of *Fastigiella* and *Pithocerithium*; COSSMANN (100).

Italy:—Pliocene fossils from Gallina; STEFANO (514).—Helvetian Molluscs from near Turin; BELLINI (36).—Molluscs from Viterbo, with n. spp. of Pelecypoda; STEFANI (512).—Lists of fossils from near Vicentin with *Trochus taramelli*, n. sp.; PATRINI (392).—Tertiary fossils from province of Rome; STEFANI, Rend. Acc. Lincei xi, p. 508; Sem. 2, pp. 40, 75.—Fossils from Cannizzaro; SCALIA (466).—List of Tertiary Mollusca of Piedmont and Liguria; SACCO (400).—Miocene and Pliocene fossils from Chieri; AUDENINO, Boll. Soc. geol. Ital. xxi, p. 78.—Pliocene fossils from Sicily, with n. varr.; STEFANO (515).

Austro-Hungary:—Notes on *Limnocardium* from upper Pontic of Königsnad with n. spp.; HOERNES (228).—On upper Pontic fauna of Königsnad with n. spp. of *Congeria*; HOERNES (229).—Note on *Limnocardium semseyi* and allies from Königsnad; HOERNES, Anz. Ak. Wien 1901, p. 97.—Note on *Congeria oppenheimi* and *hilberi* from Königsnad; HOERNES, t. c. p. 137.—Notes on fauna of Eggenburg; FUCHS, op. cit. 1900, p. 288.—Pannonian fauna of Budapest, with *Pannona*, n. subgen. of *Hydrobia*, and many n. spp.; LÖRENTHEY (315).—Gastropoda from Middle Miocene of Kostej, with many n. spp., and *Microliotia*, *Pseudonoba*, n. genn.; BOETTGER (51).—Miocene deposits near Cracow with new species of *Pomatias* and *Tudora*; ŁOMNICKI (311).—Lists of Eocene fossils from Croatia; STEFANI & DAINELLI (513).—Notes on fossils of Dalmatia and Hertzgovina; STEFANI & MARTELLI, Rend. Ist. Lombardo xi, Sem. 2, p. 112.—Fauna of Mt. Promina, Dalmatia, with several n. spp.; OPPENHEIM (378).—A new species of Pteropod from Mähren; FUCHS, Anz. Ak. Wien 1902, p. 167: also FUCHS (183).

Russia:—Tertiary fossils from Kanew; RADKEWITSCH (434).—Fossils from Daghestan with new names; GOLOUBIATNIKOW (198).—Neogene fossils from Caspian Region, with n. spp.; ANDRUSSOV (20).

Asia Minor:—Miocene fauna of Cilicia; SCHAFFER (469).

Asia:—Fossils from Borneo, with n. spp. and *Tœniodomus*, n. gen.; KRAUSE (293).

Africa:—Fossils from deep boring at Dar-es-Salâm; WOLFF (599).—New species of Gastropods from Lower Tertiary of Egypt; MAYER-EYMAR (344).—Critical notes on synonymy of *Natica conomphalus*, Sandb., from Tongrian of Egypt; MAYER-EYMAR (345).—Fossils from Constantine; BLAYAC, Bull. Soc. geol. France ii, p. 42.—Notes on Algerian and Tunisian fossils; PERVINQUIÈRE, Bull. Soc. geol. France ii, p. 40.

North America:—Oligocene fauna of Southern United States, with n. spp.; MAURY, Bull. Amer. Pal. 15.—Eocene fossils from Georgia; HARRIS, Bull. Amer. Pal. 16.—*Ptereulima elegans*, n. gen. and sp., Louisiana; CASEY (68).

Patagonia:—Invertebrata collected by Princeton University Expedition, with n. spp.; ORTMANN (381).—New species of *Nautilus* and *Neoinoceramus*, n. gen.; IHERING (243).—Notes on Tertiary Invertebrates; ORTMANN, Science xvi, p. 472.

Australasia:—Eocene fauna of Altona Coal Shaft, Victoria; THIELE & GRANT (548).—Few Tertiary fossils from Mount Mary, Victoria; KITSON, P. Soc. Victoria xiv, p. 153.—Few newer Pliocene fossils from Moorabool River strata, Victoria; MULDER (365).—*Pecten dendyi*, n. sp., Chatham Islands; HUTTON (238).

3. SECONDARY.

Fauna of the 'Nesselsdorfer Schichten' of Stramberg; REMEŠ (445): Few fossils from Carinthia; MOJSISOVICS, Verh. geol. Reichsanst. 1902, p. 66.—New species of *Gervilleia*; FRECH (178).—Note on *Harpoceras oncavum* zone in Lorraine; AUTHELIN (22).—Few fossils from Lüneburg; MÜLLER, Jahresh. Ver. Luneburg xv, p. 45.—New species of *Gryphæa* and *Ostrea* from Patagonia; IHERING (242).—Mesozoic fossils from Borneo; VOGEL (568).

Cretaceous:—

British Isles:—Review of English species of *Pecten*, with n. spp.; WOODS (606).—Fossils from Brighton; MCPHERSON, Rep. Brighton Soc. 1902, p. 19.

Denmark:—Senonian and Danian Pelecypoda, with n. spp. of *Avicula*, *Thama*, *Crassatella*, *Lima*, *Ostrea*, *Pecten*, *Pectunculus*, *Spondylus*, and *Veniella*; RAVN (436).

Germany:—Fauna of Glatz, with many new spp.; STURM (531).—Review of Ammonites from Saxony, with n. spp. of *Mammites* and *Muniericeras*; PETRASCHEK (402).—List of fossils from Misburg near Hannover; WOLLEMANN (602).—Fossils from Angoumian of Teutoburger Wald; ELBERT (159).—Senonian fossils from Wolfenbüttel, with n. spp. of *Arca*, *Pecten*, and *Tudicla*; WOLLEMANN (603).—Fossils from Senonian of Brunswick; WOLLEMANN (600).—Fossils from Turonian of Brunswick; WOLLEMANN (601).

France:—Fossils from Alpes-Maritimes; PERON (399).—*Hippurites* from Santonian and Campanian of Aquitaine; TOUCAS, Bull. Soc. geol. France ii, p. 321.—Cenomanian fossils from Toulon; MICHALET, Bull. Soc. geol. France i, p. 574.

Portugal:—On new or little-known fossils from Portugal; CHOFFAT (77).—New or little-known Senonian fossils from Portugal; CHOFFAT (76).

Switzerland:—Albian fossils from near Bienne; ROLLIER & JUILLERAT, Arch. Sci. Nat. xiv, p. 59.—Ammonite fauna of Châtel St. Denis with n. spp.; SARASIN & SCHÖNDELMAYER (465).—Few fossils from Switzerland; BITTNER, Beitr. geol. Karte Schweiz xiii.

Italy:—New species of *Natica* from Calloneghe; LONGHI (312).—New species of *Ammonites* from Tuscany; FUCINI (184).—Occurrence of *Exogyra columba* near Crespano; OPPENHEIM, Centrbl. Mineral. 1902, p. 500.

Austro-Hungary:—Fossils from Carpathians, with n. sp. of *Baculites*; LIEBUS (303).—Fossils from Transylvania, with many n. spp.; PÁLFY (387).—Occurrence of *Scaphites constrictus* in the Carpathians; WIŚNIOWSKI (595).

Russia:—Fossils from the Crimea, with *Holcostephanus wilfridi*, n. sp.; KARAKASCH (264).—Fossils from Lake Baskuntschak, with n. spp.; REHBINDER (442).

Asia:—Fossils from Chalk of West Borneo, with *Knemoceras pinax*, n. sp.; KRAUSE (293).—Fossils from Borneo; KRAUSE (294).

Africa:—On some Ammonites from the Cameroons; SOLGER, Zeitschr. Deutsch. geol. Ges. liii, Verh. p. 35.—Aptian fossils from South Africa; KILIAN, Centrbl. Mineral. 1902, p. 465.—Aptian fossils from Delagoa Bay; KILIAN, Bull. Soc. geol. France ii, p. 358.—Cretaceous fossils from Galla Land; NEUMANN, Zeitschr. Deutsch. geol. Ges. liii, Verh. p. 99.

North America:—*Xylophomya laramiensis*, n. g. & sp., South Dakota; WHITFIELD (589).—Fossils from Texas; HILL (224).—*Chondrodonta*, n. gen., with n. sp. from Texas; STANTON (506).—Occurrence of, with notes on, *Heteroceras simplicostatum* in South Dakota; WHITFIELD (588).

Queensland:—New species of *Pholadomya* and *Teredo*; ETHERIDGE (164).

South Australia and the Northern Territory:—Fauna, with many n. spp.; ETHERIDGE (166).

Jurassic:—

British Isles:—Fossils from between Wootton Basset and Filton; REYNOLDS & VAUGHAN (448).

Germany:—Jura fossils from near Regensburg; POMPECKJ (425).—*Nerineidæ* of the Schwabian Jura, with many n. spp.; GEIGER (194).—Fossils from various localities in Schwabian Jura; HAIZMANN, N. Jahrb. Min. B.B. xv, p. 473.—Species of *Acanthoteuthis* in the lithographic Stone of Solenhofen; ANGERMANN (21).—Fauna of Franken and Oberpfalz, with n. spp. of Gastropoda; SCHLOSSER (473).—Jura fauna of Elsass, with n. spp.; JANENSCH (247).—Few fossils from Hannover; WUNSTORF, Jahrb. geol. Landesanst. Berlin xxi, Abh. Mitarb. p. 26.

France:—Notes on *Nerineidæ*, with *N. præjollyana*, n. sp.; PERON (400).

Switzerland:—*Ctenostreon burckhardti*, n. sp., from Middle Oolites; NEWTON (368).—Few fossils from Switzerland; RITTENER, Beitr. geol. Karte Schweiz xiii.—First supplement to Oxfordian fauna of Bernese Jura, with *Kobya*, n. gen., and many n. spp.; LORIOL (316).

Austro-Hungary:—Fauna of the Chalk of Skalička; REMEŠ (446).

Asia:—Fossils from Rikuzen Province, Japan; YOKOYAMA, J. geol. Soc. Tokyo ix, p. 405.—On fossils from Borneo, with n. spp. of *Actæonina* (?), *Astarte*, *Corbula*, *Mytilus*, and *Neæra*; VOGEL (567).

Africa:—Jurassic fossils from Galla Land; NEUMANN, Zeitschr. Deutsch. geol. Ges. liii, Verh. p. 99.

North America:—Cephalopods from Durango, Mexico; JOHNSON, Amer. Geol. xxx, p. 370.—Few fossils from Jurassic of Black Hills; LOOMIS, Bull. Amer. Mus. xvi, p. 401.

Lias:—Note on *Nautilus robustus*; CRICK (109).

British Isles:—Local fossils in Rugby Museum; ANON., Rep. Rugby Soc. 1901, p. 38.—Note on type-specimen of *Belemnoteuthis montefiorei*, Dorset; CRICK (106).—Fossils from Junction Beds of Lias and Oolite in Northamptonshire; THOMPSON (552).

Germany:—Fossils from Empelde near Hannover; HOYER, Centrbl. Mineral. 1902, pp. 33–44.—Fauna of Franken and Oberpfalz, with n. spp. of Gastropoda; SCHLOSSER (473).

France:—Rhetian and Lias fossils in the Val d'Illiez; PREISWERK, Bull. Soc. geol. France i, p. 721.—Description of new genera and species from la Vendée; CHARTRON & COSSMANN (74).

Italy:—Few fossils from Castel del Monte (Umbria); ANGELIS D'OSSAT, Boll. Soc. geol. Ital. xxi, p. 30.—Fauna of the Alps of Corfino, with n. spp.; LEVI (301).

Trias:—New species of *Physocardia* from the Alps; FRECH (175).—Few fossils from Bären Islands; ANDERSSON, Geol. Foren. Stockholm Forh. xxiii, p. 219.

Italy:—Review of *Nautili* from the lower Dogger of Sicily; TAGLIARINI (546).—New species of Raiblian fossils from Carnia; GORTANI (199).—New species of *Gymnites* and *Proarcestes* from near Lorenzago; LONGHI (313).—New species of *Dinarites* from Val de Dezzo; TOMMASI (553).—Note on fossils from Lombardy, with *Arpadites paronai*, n. sp.; MARIANI, Rend. Ist. Lombardo xxxiv, p. 1259.

Austro-Hungary:—Cephalopoda of Upper Trias, with new genera, subgenera, and species; MOJSISOVIČS (361).

Asia:—New species of Ammonites from Kashmir; FRECH (176).

North America:—On some North American Pelecypoda; SMITH, Centrbl. Mineral. 1902, p. 689.

4. PRIMARY.

Fossils from Pendleside series in Staffordshire; HIND (227).

Palæozoic:—Comparison between *Hyolithes* and *Acrothyra*; MATTHEW (341).

Africa:—Notes on fossils from Algeria; GAUTIER (193).

North America:—Fossils from Crown Point Section; RAYMOND (437).—Fauna of limestones of Central and Western New York, with n. spp.; CLARKE (78). — Fauna of *Marcellus*-limestone of Lancaster, New York, with n. spp.; WOOD (604).

Permian:—

North America:—Few fossils from Upper Permian of Western Texas; GIRTY, Amer. J. Sci. xiv, p. 363.

Australasia:—New species of *Keeneia* (n. gen.) and *Straparollus* from New South Wales; ETHERIDGE (163).

Carboniferous:—

British Isles—Fossils from the Pennine area; HIND, etc., Rep. Brit. Ass. 1901, p. 289.—New marine bed in North Staffordshire; STOBBS, Rep. North Staffordsh. Club xxxvi, p. 86.—Fossils of the Pennine System; HIND (226).

North America:—Carboniferous fossils from Kansas; BEEDE & ROGERS (35).—New Mollusca from Upper Carboniferous of Kansas; BEEDE (34).—Lists of fossils from near Morgantown, Virginia, with notes; WHITE, Amer. Geol. xxx, p. 211.—Fossils from Humboldt, Iowa; SARDESON, Amer. Geol. xxx, p. 300.—Fauna of vermicular sandstone in Missouri, with n. spp.; WELLER (581).—Fauna of various beds at Burlington, Iowa, with n. spp.; WELLER (583).—Fauna of *Chonopectus*-sandstone at Burlington, with n. spp.; WELLER (582).—Vertical range of fossils at Louisiana; KEYES & ROWLEY (283).—*Myalina copei*, n. sp., Texas; WHITFIELD (587).

Devonian:—*Amnigenia* as an indicator of freshwater deposits; CLARKE (79).

Spitzbergen:—New species from Grey Hook; KAYSER (265).

Germany:—New species of *Tornoceras* and *Epitornoceras*, n. gen.; FRECH (177).—Fauna of the 'Untercoblenzschichten' of Oberstadtfel, with n. spp.; DREVERMANN (145).—*Goniatites* from Smerland; DENCKMANN, Zeitschr. Deutsch. geol. Ges. liv, Verh. pp. 15, 54: also from Letmathe; DENCKMANN, l. c. p. 16.—Upper Devonian fossils from Langenaubach, with n. spp.; DREVERMANN (146).

Austro-Hungary:—Devonian Ammonites of Austro-Hungary, with new genera and species; FRECH (179).

North America:—Fossils of Appalachian Province; WELLER, J. Geol. x, p. 423.

South America:—Devonian Mollusca from Brazil; CLARKE (81).

Silurian:—

British Isles:—Diagnoses of Salter's undescribed species; REED (438–440).—On some British species of *Murchisoniidæ* and *Pleurotomariidæ*, with n. genn.; DONALD (141).

North Europe:—*Lithobia atava*, n. sp., Baltic; KOKEN (289).

Spain:—Fossils from Camprodon Valley; FONT Y SAGUÉ, Bol. Soc. espan. ii, p. 102.

Austro-Hungary:—Few Bohemian fossils; ŽELÍSKO, Verh. geol. Reichsanst. 1902, p. 61.

North America:—Fauna of Trenton conglomerate of Rysedorph Hill, N. Y., with n. spp.; RUEDEMANN (458).—Fossils of Hudson River Beds near Albany, with *Technophorus cancellatus*, n. sp.; RUEDEMANN (457).

Cambrian:—

British Isles:—Fossils from Malvern Hills; GROOM, Quart. J. Geol. Soc. lviii, p. 89.

North America:—Notes on *Hyolithes* from Canada; MATTHEW (342).

Australasia:—New species of Pelecypoda from New South Wales; ETHERIDGE (165).

III. SYSTEMATIC.†

MOLLUSCA IN GENERAL.

Mollusca, general account of; GOETTE (196).
On nomenclature; BERNARD (43): GARDINER (191).
Brief survey of Mollusca; PELSENEER (394).

I. CEPHALOPODA.

On the development of the egg; BERGMANN (42).
Brief notes on Cephalopods; BAIL (27).
Organisation of fossil Cephalopods; JAEKEL, Zeitschr. Deutsch. geol. Ges. liv, pp. 7, 67.
Classification of British species; HOYLE (235).
Statocysts of Cephalopoda; HAMLYN-HARRIS (214).
Brief survey of Cephalopoda; BLAKE (45).

DIBRANCHIATA.

Abralia andamanica, Goodrich, figd.; ALCOCK (2), p. 280.
Argonauta expansa, figd.; DALL, P. U. S. Mus. xxiv, p. 511.
Chiroteuthis veranyi, larva is *Doratopsis vermicularis*; FICALBI, Monit. Zool. ital. xiii, p. 37: *C. pellucida*, Goodrich, figd.; ALCOCK (2), p. 280.
†*Dictyoconites*, n. gen. for *Orthoceras reticulatum* and others, Trias, Austria; MOJSISOVICS, Abh. geol. Reichsanst. vi, Abth. i, p. 182.
Eledone moschata, its cephalic cartilage: BABOR, Congr. Zool. 1901, pp. 799–803.
Heteroteuthis weberi, Java Sea; JOUBIN, Mem. Soc. zool. France xv, p. 113: n. sp.
Loligo pealii, vascular system; WILLIAMS (592).
Polypus campbelli, Campbell Is.; SMITH (496), p. 201, fig.: n. sp.
Pterygioteuthis margaritifera, luminous organs; HOYLE (234): also HOYLE, Congr. Zool. 1901, p. 774.

† This sign is prefixed in the case of fossil forms.

Rossia caroli, Azores ; JOUBIN, Bull. Soc. zool. France xxvii, p. 138, fig. : n. sp.
Sepia, muscular structure ; LAFITE-DUPONT (296).
Sepiolidæ, revision of ; JOUBIN, Mem. Soc. zool. France xv, pp. 80–144, 38 figg.
Taonius abyssicola, Goodrich, figd. ; ALCOCK (2), p. 279

AMMONEA.

Relationship between the formation of the internal lobes and the mode of life in certain species ; SOLGER, Congr. Zool. 1901, pp. 786–793, figg.
'Lebensweise' of *Ammonites* ; SOLGER (501) ; see also BLANCKENHORN (46).

†*Braunsia*, n, gen. for *B. lenis*, n. sp. ; BUCKMAN (61), p. 3.
†*Braunsina*, n. gen. for *B.* (*!*) *angulifera* and *futilis*, n. spp. ; BUCKMAN (61), p. 3.
†*Canavaria*, n. gen. for *C. foleata* and *venustula*, n. spp. ; BUCKMAN (61), p. 3.
†*Cotteswoldia*, n. gen. for *C. costulatum* (Ziet.) and others ; BUCKMAN (61), p. 3.
†*Deltoceras*, n. gen. for *D. subsectum*, n. sp. ; BUCKMAN (61), p. 3.
†*Deltoidoceras*, n. gen. for *Hyperl. subdiscoideum* ; BUCKMAN (61), p. 3.
†*Depaoceras*, n. gen. for *Lioceras fallax* ; BUCKMAN (61), p. 3.
†*Dessoroceras*, n. gen. for *D. tabulatum*, n. sp. ; BUCKMAN (61), p. 3.
†*Epitornoceras*, n. subgen. of *Tornoceras*, type *E. mithracoides*, Frech, Devonian ; FRECH, Beitr. Pal. Oesterr.-Ung. xiv, p. 51 : also FRECH, Centrbl. Mineral. 1902, p. 173.
†*Fontannesia*, n. gen. for *Dum. grammoceroides* (Haug.) ; BUCKMAN (61), p. 6.
†*Hyattites*, n. gen., type *Pinacoceras præfloridus*, Trias, Austria ; MOJSISOVICS, Abh. geol. Reichsanst. vi, Abth. 1, p. 306.
†*Lucya*, n. gen. for *L. caducifera*, n. sp. ; BUCKMAN (61), p. 4.
†*Ludwigella*, n. gen. for *S. arcitenens*, n. sp. ; BUCKMAN (61), p. 4.
†*Paralobites*, n. subgen. of *Lobites*, type *L. pisum*, Trias, Austria ; MOJSISOVICS, Abh. geol. Reichsanst. vi, Abth. 1, p. 287.
†*Paralytoceras*, n. subgen. of *Sporadoceras* for *Clymenia crispa*, Devonian ; FRECH, Beitr. Pal. Oesterr.-Ung. xiv, p. 83.
†*Phenococeras*, n. gen., type *Clymenia planorbiformis*, Mnstr., Devonian ; FRECH, t. c. p. 62.
†*Phlyseogrammoceras*, n. gen. for *G. metallarium*, and others ; BUCKMAN (61), p. 4.
†*Platygraphoceras*, n. gen. for *Lioc. apertum* ; BUCKMAN (61), p. 4.
†*Platytes*, n. gen., type *P. neglectus*, Trias, Austria ; MOJSISOVICS, Abh. geol. Reichsanst. vi, Abth. 1, p. 332.
†*Pompeckjites*, n. subgen. of *Pinacoceras*, type *P. lageri*, Trias, Austria ; MOJSISOVICS, t. c. p. 293.
†*Pseudarietites*, n. gen., type *P. silesiacus*, n. sp., Devonian ; FRECH, Beitr. Pal. Oesterr.-Ung. xiv, p. 62.
†*Pseudogrammoceras*, n. gen. for *P. bingmanni* and others ; BUCKMAN (61), p. 4.
†*Reynesella*, n. gen. for *R. piodes*, n. sp. ; BUCKMAN (61), p. 5.
†*Reynesia*, n. gen. for *R. coela*, n. sp., and others ; BUCKMAN (61), p. 5.
†*Tmægoceras*, notes on ; CRICK (108).
†*Toxolioceras*, n. gen. for *H. walkeri* ; BUCKMAN (61), p. 5.
†*Walkeria*, n. gen. for *W. arcuata*, n. sp., and others ; BUCKMAN (61), p. 5.
†*Zigzagiceras*, n. gen., type *Am. zigzag*, D'Orb. ; BUCKMAN (61), p. 7.

TETRABRANCHIATA.

†*Germanonautilus*, n. gen., type *Nautilus bidorsatus*, Trias, Austria; MOJSISOVICS, Abh. geol. Reichsanst. vi, Abth. 1, p. 235.
†*Gonionautilus*, n. gen., type *Nautilus securis*, Trias, Austria; MOJSISOVICS, t. c. p. 207.
†*Gryphonautilus*, n. subgen. of *Gryphoceras* for *Nautilus galeatus* and others, Trias, Austria; MOJSISOVICS, t. c. p. 227.
†*Holconautilus*, n. subgen. of *Pleuronautilus* for *Nautilus ramsaueri* and others, Trias, Austria; MOJSISOVICS, t. c. p. 238.
†*Indonautilus*, n. gen., type *I. kraffti*, Trias, Austria; MOJSISOVICS, t. c. p. 205.
†*Juvavionautilus*, n. gen. for *Nautilus heterophyllus* and others, Trias, Austria; MOJSISOVICS, t. c. p. 222.
Nautilus, anatomy and life-history; WILLEY, Zool. Results vi, pp. 691–826, figg.: Section of the shell; BÉNARD (38): *N. pompilius*, anatomy; GRIFFIN (208).
†*Oxynautilus*, n. subgen. of *Juvavionautilus*, type *Nautilus acutus*, Trias, Austria; MOJSISOVICS, Abh. geol. Reichsanst. vi, Abth. 1, p. 223.
†*Paranautilus*, n. gen., type *Nautilus simonyi*, Trias, Austria; MOJSISOVICS, t. c. p. 205.
†*Proclydonautilus*, n. subgen. of *Clydonautilus*, type *Nautilus noricus*, Trias, Austria; MOJSISOVICS, t. c. p. 207.
†*Styrionautilus*, n. gen., type *Nautilus syriacus*, Trias, Austria; MOJSISOVICS, t. c. p. 206.
†*Syringonautilus*, n. gen., type *Nautilus bullatus*, Trias, Austria; MOJSISOVICS, t. c. p. 220.
†*Tainionautilus*, n. gen. for *Nautilus transitorius* and others, Trias, Austria; MOJSISOVICS, t. c. p. 232.
†*Thuringionautilus*, n. gen., type *Nautilus jugatonodosus*, Trias, Austria; MOJSISOVICS, t. c. p. 236.
†*Tirolonautilus*, n. gen. for *T. seledinus* and others, Trias, Austria; MOJSISOVICS, t. c. p. 233.
†*Trachynautilus*, n. subgen. of *Pleuronautilus* for *Nautilus subgemmatus* and others, Trias, Austria; MOJSISOVICS, t. c. p. 239.

II. GASTROPODA.

Sections of the Gastropod shell; BÉNARD (38).
On the protoconch in the Gastropods; GRABAU (200).
Gastropoda, account continued by SIMROTH in BRONN (58).
General notes; SIMROTH (485).

PULMONATA.

Pulmonata, anatomy of many forms; PELSENEER (395).

STYLOMMATOPHORA.

TESTACELLIDÆ and SELENITIDÆ.

Circinaria ponsonbyi, Colombia; PILSBRY & CLAPP, Nautilus xv, p. 134, fig.: n. sp.
Ennea affectata, Zanzibar; FULTON, P. Malac. Soc. London v, p. 32, fig.: *E. premnodes*, South Africa; STURANY, Ann. Hofmus. Wien xvi,

p. 69, fig. : *E.* (*Microstrophia*) *malaccana*, Kelantan; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902, p. 136 : n. spp.

Glandina callista, Colombia; PILSBRY & CLAPP, Nautilus xv, p. 133, fig. : n. sp.

Paryphanta striata, *elegans*, British New Guinea; FULTON, Ann. Nat. Hist. ix, p. 182 : n. spp.

Rhytida bernieri, New Caledonia; DAUTZENBERG, J. Conchyl. xlix, p. 299, fig. : n. sp.

Streptaxis, review of group with references, figg. of several spp., and *S. marconi*, n. n. for *Marconia gibbosa*, Bourg., p. 205; GUDE (210): *S. siamensis*, n. subspp.; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902, p. 153: *S. siamensis* v. *subbulbulus*, Mlldff., is a species; GUDE, P. Malac. Soc. London v, p. 203.

Streptaxis collingei, Kelantan; SYKES, J. Malac. ix, pp. 22, 60, fig.: *S. sykesi*, p. 72, *striatula*, p. 73, Malay Peninsula; COLLINGE, J. Malac. ix, figg. : n. spp.

LIMACIDÆ and ZONITIDÆ.

Zonitidæ, Asiatic species; GUDE (211).

Agriolimax lævis, p. 143, *agrestis*, p. 149, *subagrestis*, p. 158, n. varr.; SIMROTH (484).

Agriolimax tauricus, p. 153, *transcaucasicus*, p. 155, *caspius*, p. 157, *ilius*, *ananowi*, p. 159, *osseticus*, p. 161, Russia; SIMROTH (484), figg. : n. spp.

Apoparmarion, n. gen. for *A. partridgii*, n. sp., Malay Peninsula; COLLINGE, J. Malac. ix, p. 73, fig.

Bensonia (*Oxytes*) *laotica*, Laos; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902, p. 178: n. sp. [Not new; cf. Zool. Rec. 1899, p. 61.]

Cryptosemelus, n. gen. for *C. gracilis*, n. sp., Malay Peninsula; COLLINGE, J. Malac. ix, p. 76, fig.

Dendrotrochus stramineus, New Hebrides; SYKES, P. Malac. Soc. London v, p. 197, fig. : n. sp.

Durgella siamensis, Siam; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902, p. 155: n. sp.

Euplecta oxyacme, Madagascar; ANCEY, Nautilus xvi, p. 64: n. sp.

Fametesta, n. subgen. of *Hirasea*, type *H. mirabilis*, n. sp.; PILSBRY, P. Ac. Philad. 1902, p. 30.

Gastrodonta gularis, n. subspp.; PILSBRY & WALKER, P. Ac. Philad. 1902, pp. 434–437, figg.

Gigantomilax brandti, n. var.; ROSEN (454), p. 7.

Gigantomilax robustus, Russia; SIMROTH (484), p. 182, fig.: n. sp.

Glyptobensonia, n. subgen. of *Bensonia*, for *B. exasperata*, Mlldff., etc.; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1894 [!], p. 93.

Guppya hopkinsi, n. var.; MARTENS, SB. Ges. naturf. Berlin 1902, p. 59.

†*Gyralina*, n. subgen. of *Hyalinia*, type *H. roemeri*, n. sp., Tertiary, Germany; ANDREAE, Mt. Mus. Hildesheim xviii, p. 8.

Helicarion (!) *dautzenbergianum*, Madagascar; ANCEY, Nautilus xvi, p. 64: *H. rollei*, Buru I.; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902, p. 196 : n. spp.

Hemiplecta humphreysiana, anatomy; COLLINGE, J. Malac. ix, p. 78.

Hemiplecta subsulcata (Rolle), Kaledupa; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902, p. 204: *H. oleata*, *profuga*, Madagascar; ANCEY, Nautilus xvi, p. 65 : n. spp.

Hirasea, n. gen., type *H. sinuosa*, n. sp.; PILSBRY, Nautilus xv, p. 118: Notes on genus; PILSBRY, P. Ac. Philad. 1902, p. 29: *H. diplomphalus*, n. var.; PILSBRY, Nautilus xvi, p. 47.

Hirasea sinuosa, p. 118, *nesiotica*, p. 119, Japan; PILSBRY, op. cit. xv:

H. mirabilis, Japanese Empire; PILSBRY, P. Ac. Philad. 1902, p. 31: *H. acuta*, Japan; PILSBRY, Nautilus xvi, p. 5: *H. major, profundispira*, Japan; PILSBRY, t. c. p. 47: *H. diplomphalus, goniobasis*, Japan; PILSBRY, op. cit. xv, p. 142 : n. spp.

Hirasiella, n. gen. for *H. clara*, n. sp., Japan; PILSBRY, Nautilus xv, p. 142.

Hyalinia (*Polita*) *stauropolitana*, p. 7, (*P.*) *retteri*, (*P.*) *maureri*, p. 8, Central Asia; ROSEN (454) : n. spp.

Hyrcanolestes valentini, n. gen. & sp.; SIMROTH, Naturwiss. Wochenschrift xvii, p. 111 [1901, nom. nud.]: *Hyrcanolestes*, n. gen., p. 212, for *H. valentini*, n. sp., Russia, p. 229, and others; SIMROTH (484), fig.

Kaliella kagöensis, gudei, Japan; PILSBRY & HIRASE, Nautilus xvi, p. 79: *K. ogasawarana*, Japanese Empire; PILSBRY, P. Ac. Philad. 1902, p. 31: *K. hachijoensis, pallida*, Japan; PILSBRY, Nautilus xvi, p. 55: *K. okiana*, p. 6, *hizenensis*, p. 7, Japan; PILSBRY, t. c. : n. spp.

Limacidæ, review of Russian species, with anatomy of several genera; SIMROTH (484).

Limax maximus, anatomy and embryology; SIMPSON (483): *L. ananowi*, p. 73, n. var., *ordubadensis*, n. n. for *colchicus*, Simr., p. 77; SIMROTH (484): *L. maximus*, reactions to directive stimuli; FRANDSEN (174): *L. maximus*, pairing; WEBB (575).

Liolytopelte, n. subgen. of *Lytopelte* for *L. caucasica, grusina*, n. spp.; SIMROTH (484), p. 174.

Lytopelte caucasica, p. 171, *grusina*, p. 173, Russia; SIMROTH (484), figg. : n. spp.

Macrochlamys clessini, n. n. for *M. schmidti*, Clessin nec Brancsik; WESTERLUND, Nachrbl. Deutsch. malak. Ges. 1902, p. 19: *M. hartwickei*, n. subsp.; MOELLENDORFF, t. c. p. 137.

Macrochlamys cerasina, Japan; PILSBRY, Nautilus xv, p. 117: *M. semisericata*, Japan; PILSBRY, op. cit. xvi, p. 54: *M. papuensis*, British New Guinea; PRESTON, P. Malac. Soc. London v, p. 17, fig.: *M. coeligena*, Russian Turkestan; GUDE, J. Malac. ix, p. 97, fig.: *M. kagöensis*, Japan; PILSBRY & HIRASE, Nautilus xvi, p. 78: *M. granosculpta*, p. 65, *humbloti*, p. 66, Madagascar; ANCEY, Nautilus xvi: *M. obiana* (Rolle), Obi Is., p. 186, *buruana*, Buru I., p. 196; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902: *M. ochtogyra*, p. 154, *heptagyra, brunnea*, p. 155, Siam; MOELLENDORFF, t. c. : n. spp.

Metalimax elegans, Russia; SIMROTH (484), p. 94, fig.: n. sp.

Microcystina circumdata, Japan; PILSBRY, Nautilus xv, p. 55: *M. hahajimana*, Japan; PILSBRY, t. c. p. 118: *M. yakuensis*, Japan; PILSBRY, op. cit. xvi, p. 6: *M. nuda*, Japan; PILSBRY & HIRASE, t. c. p. 79: *M. marginata, irregularis*, Buru I., MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902, p. 197 : n. spp.

Monochroma brunneum, Russia; SIMROTH (484), p. 96, fig.: n. sp.

Naninidæ, monograph continued; KOBELT in MARTINI & CHEMNITZ (337).

Nanina laotica, pharangensis, danaë, cardiostoma, denserugata, tenera, granulosa, tonkingensis, franciscanorum, figd.; KOBELT in MARTINI & CHEMNITZ (337): *N. diadema*, figd.; DALL, P. U. S. Mus. xxiv, p. 499.

Otesia bijuga, n. subsp.; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902, p. 137.

Otesia (*Coneuplecta*) *taeniolata*, Obi Is., p. 186, (*C.*) *buruana*, Buru I., p. 197; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902: n. spp.

Paralimax brandti, n. var.; SIMROTH (484), p. 116.

Paralimax marmoratus, p. 117, *niger*, p. 118, *nigerrimus*, p. 119, *albomaculatus, salamandroides*, p. 120, *gyratus*, p. 122, *gracilis*, p. 124, *ochraceus*, p. 125, *albocarinatus, raddei*, p. 126, *minutus*, p. 129, Russia; SIMROTH (484), figg. : n. spp.

Paraparmarion, n. gen. for *P. elongatus*, n. sp., Malay Peninsula; COLLINGE, J. Malac. ix, p. 75, fig.
Parmacella korschinskii, p. 202, *levanderi*, Russia, *persica*, Persia, p. 203; SIMROTH (484), figg. : n. spp.
Phrixolestes, n. gen., p. 212, for *P. adsharicus*, p. 224, *ponticus*, p. 225, Russia; SIMROTH (484), figg.
Pristiloma idahoense, Idaho; PILSBRY, P. Ac. Philad. 1902, p. 593 : n. sp.
Pseudomilax reibischi, *ananowi*, Russia; SIMROTH (484), p. 232, figg. : n. spp.
Sesara megalodon, Siam; BLANFORD, P. Malac. Soc. London v, p. 35, fig.: n. sp.
Sitala reedei (of which *S. maino* is a synonym), *nepeanensis*, p. 20, *darnleyensis*, *barnardensis*, p. 21, all of Brazier, figd.; HEDLEY, P. Linn. Soc. N. S. Wales xxvii.
Sitala latissima, Japan; PILSBRY, Nautilus xvi, p. 56: *S. carinifera*, *subscalaris*, p. 138, *sublineolata*, p. 139, Kelantan; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902 : n. spp.
Trichobensonia, n. subgen. of *Bensonia*, type *B. luzonica*, Mlldff.; MOELLENDORFF (355), p. 223.
Trigonochlamys minor, Russia ; SIMROTH (484), p. 221, fig.: n. sp.
Trochomorpha subternatana, Obi Is. ; DAUTZENBERG, Naturaliste 1902, p. 247, fig.: *T.* (*Sivella*) *discus*, Buru I.; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902, p. 198: *T.* (*Sivella*) *grubaueri*, pp. 138, 161, Kelantan and Perak, (*S.*) *kelantanensis*, p. 139, Kelantan; MOELLENDORFF, t. c. : n. spp.
Tropidolytopelte, n. subgen. of *Lytopelte* for *L. maculata*, Koch & Heyn.; SIMROTH (484), p. 174.
Turcomilax, n. subgen. of *Gigantomilax* for *G. nanus*, Simr.; SIMROTH (484), p. 176.
Vitrea raderi, figd.; DALL, P. U. S. Mus. xxiv, p. 500.
Vitrea cyprina, Cyprus, *lepta*, Spain, *placenta*, Italy; WESTERLUND, Nachrbl. Deutsch. malak. Ges. 1902, p. 22 : *V. approximata*, p. 431, *vanattai*, p. 432, North Carolina; WALKER & PILSBRY, P. Ac. Philad. 1902, figg. : n. spp.
Wiegmannia, *W. gigas* should be the type; T. D. A. C., Amer. Natural. xxxvi, p. 592.
Xesta butonensis, n. varr.; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902, p. 202.
Xesta obiana, Obi Is., p. 186, *kaledupana* (Rolle), p. 204, *perfragilis*, Kaledupa, *tomiana* (Rolle), Tomia, p. 205 ; MOELLENDORFF, t. c. : n. spp.
Xestina granulosa, Siam; MOELLENDORFF, t. c. p. 156: *X. cardiostoma*, Cambodia, p. 178, *tongkingensis*, p. 179, Tonkin; MOELLENDORFF, t. c. : n. spp.
Zonitidæ, notes on and figures of, many Philippine species; MOELLENDORFF (355).
Zonitoides pugetensis, figd.; DALL, P. U. S. Mus. xxiv, p. 500.
Zonitoides subarboreus, Japan ; PILSBRY, Nautilus xvi, p. 54 : n. sp.

ARIONIDÆ.

Anadenus, anatomy; SIMROTH (484).
Arion, anatomy; SIMROTH (484) : *A. subfuscus*, n. var.; SIMROTH (484), p. 50.
Arion sibiricus, Siberia; SIMROTH (484), p. 53, fig.: n. sp.
Myotesta, anatomy and figures of species; COLLINGE, J. Malac. ix, p. 11: *Myotesta*, Collinge = *Ostracolethe*, Simroth; SIMROTH, Zool. Anz. xxv, p. 355.
Ostracolethe, Simroth = *Myotesta*, Collinge; SIMROTH, t. c. p. 355.

Endodontidæ.

Flammulina spaldingi, Braz., figd.; Hedley, P. Linn. Soc. N. S. Wales xxvi, p. 705: *F.* (?) *grenvillei*, Braz., figd.; Hedley, op. cit. xxvii, p. 21.

Punctum randolphii, figd.; Dall, P. U. S. Mus. xxiv, p. 500.

Punctum morseanum, Japan; Pilsbry, Nautilus xvi, p. 5: n. sp.

Pyramidula elrodi is the same as *Epiphragmophora circumcarinata*; Stearns (507): Is distinct; Pilsbry (412): Stearns agrees; Stearns (508): *P. strigosa*, n. subsp.; Pilsbry, P. Ac. Philad. 1902, p. 511: *P. pauper*, n. var.; Pilsbry, Nautilus xvi, p. 56.

Pyramidula conica, Japan; Pilsbry & Hirase, Nautilus xvi, p. 77: n. sp.

Helicidæ.

Ampelita subnigra, Madagascar; Fulton, Ann. Nat. Hist. ix, p. 313: n. sp.

Ashmunella, notes on; Cockerell & Cooper, Nautilus xv, p. 109: *A. rhyssa*, *pseudodonta*, *ashmuni*, figd.; Dall, P. U. S. Mus. xxiv, p. 500.

Campylæa insolita, n. var.; Sturany, Ann. Hofmus. Wien xvi, notizen, p. 68, fig.

Campylæa apfelbecki, p. 65, *pentheri*, p. 66, Hertzgovina; Sturany, Ann. Hofmus. Wien xvi, notizen : n. spp.

Chloritis stirophora, n. var.; Preston, P. Malac. Soc. London v, p. 17, fig.

Chloritis bracteatus, Japan; Pilsbry, Nautilus xvi, p. 21: *C. albolabris*, Japan; Pilsbry & Hirase, Nautilus xvi, p. 76: *C. siamensis*, Siam; Moellendorff, Nachrbl. Deutsch. malak. Ges. 1902, p. 156: *C.* (*Albersia*) *waterstraati* (Rolle), p. 189, (*A.*) *obiana* (Rolle), p. 191, Obi Is., *kuhni* (Rolle), p. 198, (*Ptychochloritis*, n. subgen.) *buruana* (Rolle), (*P.*) *mirabilis* (Rolle), p. 199, Buru I.; Moellendorff, t. c. : *C. perpunctatus*, Japan; Pilsbry, Nautilus xv, p. 116: *C.* (*Sulcobasis*) *prestoni*, New Guinea; Gude, J. Malac. ix, p. 59, fig.: *C. multisetosa*, p. 315, *tenebrica*, p. 316, New Mecklenburg I.; Fulton, Ann. Nat. Hist. ix: *C.* (*Sulcobasis*) *globosa*, p. 17, British New Guinea, (*Austrochloritis*) *maforinsulæ*, p. 18, Dutch New Guinea; Preston, P. Malac. Soc. London v, figg. : n. spp.

Cristigibba wahnesi, New Mecklenburg I.; Fulton, Ann. Nat. Hist. ix, p. 315: n. sp.

Draparnaudia gassiesi, n. n. for *Bulimus turgidulus*, Gassies nec Desh.; Pilsbry in Tryon (556), Index, p. lxxi.

Draparnaudia walkeri, New Hebrides; Sykes, P. Malac. Soc. London v, p. 197, fig.: n. sp.

Epiphragmophora exarata, n. var.; Rowell, Nautilus xvi, p. 52.

Euhadra anceyi, n. n. for *E. pseudocampylæa*, Ancey nec Moellendorff; Gude, J. Malac. ix, p. 8.

Eulota blakeana, Newc., and *luna*, Pils., notes on; Gude, P. Malac. Soc. London v, p. 10: *E. despecta*, n. var.; Pilsbry, Nautilus xvi, p. 4: *E. aperta*, p. 45, *mackensii*, *submandarina*, p. 46, n. varr.; Pilsbry, t. c.: *E. senckenbergiana*, p. 31, *vulgivaga*, p. 32, n. varr.; Pilsbry, P. Ac. Philad. 1902: *E. hariola*, n. subsp.; Moellendorff, Nachrbl. Deutsch. malak. Ges. 1902, p. 158: *E. kobensis*, *omiensis*, n. varr.; Pilsbry & Hirase, Nautilus xvi, p. 76.

Eulota (*Cœlorus*) *caviconus*, Japan; Pilsbry, Nautilus xv, p. 117: *E.* (*Ægista*?) *intonsa*, Japan; Pilsbry & Hirase, Nautilus xvi, p. 77: *E.* (*Euhadra*) *gereti*, Japan; Gude, Ann. Nat. Hist. x, p. 332, fig.: *E.* (*Ægista*) *minima*, (*Plectotropis*) *hachijoensis*, Japan; Pilsbry, Nautilus xvi, p. 45 : n. spp.

Ganesella procera, Tonkin; GUDE, Ann. Nat. Hist. x, p. 333: *G.* (*Coliolus*) *weiskei*, British New Guinea; FULTON, Ann. Nat. Hist. ix, p. 184: *G. sororcula*, *optima*, Japan; PILSBRY, Nautilus xv, p. 116 : n. spp.

Glyptostoma newberryanum, n. var.; BRYANT, Nautilus xvi, p. 70.

Helicophanta alayeriana, Madagascar; ANCEY, Nautilus xvi, p. 66: n. sp.

Helicostyla fasciata, n. n. for *Bulimus effusus*, Pfr. nec Brug.; PILSBRY in TRYON (556), Index, p. lxxi.

Helix, monograph recommenced; KOBELT in MARTINI & CHEMNITZ (337): Notes on nomenclature; MOELLENDORFF (354): Localities of A. Adams' Japanese species; PILSBRY (415): *H. rufispira*, p. 8, *rubens*, p. 9, n. varr.; ROSEN (454): *H. pomatia*, note on anatomy; HOLMGREN (234): Asiatic species; GUDE (211): *H. pomatia*, duration of life; ROPE (453): *H. nemoralis*, study of band variation; HENSGEN (223): *H. basileus*, from anatomy, belongs to *Nilgiria*; GODWIN-AUSTEN, P. Malac. Soc. London v, p. 248: *H. nemoralis*, note on scalariform varieties; WELCH, Irish Natural. xi, p. 184: *H.* (*Levantina*) *masadæ*, Tristram, figd.; KOBELT in MARTINI & CHEMNITZ (337): *H. nemoralis*, scalariform; WELCH (580): *H. prunum*, Fer., notes on type; FISCHER, J. Conchyl. l, p. 385: *H. pomatia*, notes on anatomy; BOCHENEK (50): ANCEL (7–13): SCROFANI (477): Monstrosities; BUCHNER (60): Embryology; ANCEL (7–13): Anatomy; SMIDT (488): *H. cingulina*, *argentellei*, p. 23, *conemenosi*, *luteata*, p. 24, *meridionalis*, p. 25, *dantei*, p. 26, *variegata*, p. 36, *ledereri*, *companyoi*, p. 38, n. varr.; WESTERLUND, Nachrbl. Deutsch. malak. Ges. 1902: *H. gerstfeldii*, Dybowski, is a synonym of *H. sibirica*, West.; WESTERLUND, t. c. p. 22: *H. syrensis v. exserta*, Mtus., is a synonym of *Xerophila eminens*, West.; WESTERLUND, t. c. p. 20: *H. retteri*, Rosen, notes on with n. var.; WESTERLUND, t. c. p. 20: *H. aspersa*, genitalia; SANCHEZ (464): *H. omissa*, Dtz., *obiensis*, Dtz., are probably respectively synonyms of *obiensis*, Mart., and *piliscus*, Mart.; H. A. P., Nautilus xvi, p. 96: *H. porti*, Braz., may be a *Pupisoma*; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 21.

Helix (*Albersia*) *omissa*, (*Papuina*) *groulti*, (*P.*) *obiensis*, Obi Is.; DAUTZENBERG, Naturaliste 1902, p. 247, figg.: *H.* (*Xerophila*) *deplanata*, p. 24, France, (*X.*) *opalina*, Spain, (*X.*) *karagolica*, Asia Minor, p. 25, (*X.*) *omala*, Greece, p. 26, (*X.*) *strenua* (n. sp. ?), Spain, p. 35, (*X.*) *janinensis*, Greece, p. 36, (*X.*) *petasia*, Spain, p. 37, (*Turricula*) *vernicata*, Syria, p. 38, (*Pomatia*) *patruelis*, Epirus, p. 39; WESTERLUND, Nachrbl. Deutsch. malak. Ges. 1902: *H.* (*Labyrinthus*) *baeri*, Peru; DAUTZENBERG, J. Conchyl. xlix, p. 386, fig.: *H.* (*Eucampylæa*) *perlucens*, Central Asia; ROSEN (454), p. 9: *H.* (*Codringtonia*) *acarnanica*, Acarnania, p. 46, *arcadica*, Arcadia, p. 53, *cyllenica*, Cyllene, Greece, p. 54; KOBELT in MARTINI & CHEMNITZ (337) figg. : n. spp.

Mandarina mandarina, n. var.; PILSBRY, Nautilus xvi, p. 6: *M. exoptata*, *mandarina*, n. varr.; PILSBRY, P. Ac. Philad. 1902, p. 29.

Mandarina exoptata, Japan; PILSBRY, Nautilus xv, p. 117: *M. hirasei*, Japan, PILSBRY, t. c. p. 141 : n. spp.

Papuina zeno, n. var.; FULTON, Ann. Nat. Hist. ix, p. 184: *P. plæostoma*, n. varr.; ROLLE, Nachrbl. Deutsch. malak. Ges. 1902, p. 212: *P. lanceolata*, *rhynchostoma*, n. subspp.; MOELLENDORFF, t. c. p. 191.

Papuina pseudosatsuma, Obi Is.; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902, p. 192: *P. trochiformis*, Dutch New Guinea; PRESTON, P. Malac. Soc. London v, p. 18, fig.: *P. densestriata*, p. 316, *humilis*, New Mecklenburg I., *jucunda*, German New Guinea, p. 317, *spadicea*, New Mecklenburg I., p. 318; FULTON, Ann. Nat. Hist. ix: *P. gemina*, *cynthia*, British New Guinea; FULTON, t. c. p. 183 : n. spp.

Planispira spiriplana, p. 187, *pruinosa*, *liedtkei* (Rolle), p. 188, *kendigiana* (Rolle), *rollei*, p. 189, Obi Is.; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902 : n. spp.

Plectotropis diplogramme, Siam; MOELLENDORFF, t. c. p. 158: n. sp.
Pleurodonte acuta, distribution of the group; JARVIS (248): *P. sinuata*, notes on species and allies; JARVIS, Nautilus xvi, p. 1: *P. soror*, n. var.; VENDRYES, Nautilus xv, p. 102, fig.
Pleurodonte vacillans, Jamaica; VENDRYES, t. c. p. 101, fig.: n. sp.
Polygyra albolabris, anatomy; SIMPSON (483): *P. levettei* is, on anatomical grounds, an *Ashmunella*; PILSBRY, Nautilus xvi, p. 59: *P. indianorum*, n. var.; PILSBRY, P. Ac. Philad. 1902, p. 511: *P. tridentata*, p. 422, *andrewsæ*, p. 425, n. varr.; WALKER & PILSBRY, t. c.
Polygyra alabamensis, Alabama, p. 30, *texasensis*, Texas, p. 31; PILSBRY, Nautilus xvi : n. spp.
Ptychochloritis, n. subgen. of *Chloritis*, type *C. gruneri*, Pfr.; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902, p. 199.
Pupisoma japonicum, Japan; PILSBRY, Nautilus xvi, p. 21: n. sp.
Solaropsis, note on anatomy; IHERING (241).
Sonorella granulatissima, Arizona; PILSBRY, Nautilus xvi, p. 31: n. sp.
Thersites (*Rhagada*) *woodwardi*, N. W. Australia; FULTON, P. Malac. Soc. London v, p. 33, fig.: n. sp.
Xerophila rhabdota, Hertzgovina; STURANY, Ann. Hofmus. Wien xvi, notizen, p. 66: n. sp.

BULIMIDÆ and BULIMULIDÆ.

Amphidromus glaucolarynx, n. subsp.; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902, p. 157: *A. perversus*, anatomy; COLLINGE, J. Malac. ix, p. 81.
Amphidromus kobelti, Siam; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902, p. 157: *A. kuehni* (Rolle), Kaledupa; MOELLENDORFF, t. c. p. 205 : n. spp.
Bothriembryon durus, Australia?; KOBELT in MARTINI & CHEMNITZ (337), p. 930, fig.: n. sp.
Bulimidæ, classification of; PILSBRY in TRYON (556).
Bulimulidæ, classification of; PILSBRY in TRYON (556).
Bulimulus ischnus, n. n. for *B. terebralis*, Pfr. nec Brug.; PILSBRY in TRYON (556), Index, p. lxxi: *B. dealbatus*, n. subsp.; PILSBRY, Nautilus xvi, p. 31.
Bulimulus bonneti, Bolivia; ANCEY, J. Conchyl. l, p. 40, fig.: *B. compactus*, Bolivia; FULTON, Ann. Nat. Hist. ix, p. 69: *B.* (*Ataxus*) *huayaboensis*, Peru; DAUTZENBERG, J. Conchyl. xlix, p. 311, fig. : n. spp.
Clavator balstoni, n. var.; ANCEY, Nautilus xvi, p. 68.
Clavator humbloti, Madagascar; ANCEY, t. c. p. 80: n. sp.
Corona pfeifferi, n. var.; SMITH, P. Malac. Soc. London v, p. 170, fig.
Dentaxis, n. sect. of *Bulimulus* for *B. dentaxis*, Pils.; PILSBRY in TRYON (556), Index, p. xxxi.
Drymæus conus, n. n. for *Bul. coniformis*, Pfr. nec Brug.; PILSBRY in TRYON (556), Index, p. lxxi.
Drymæus jousseaumei, p. 308, *scoliodes*, p. 309, Peru; DAUTZENBERG, J. Conchyl. xlix, figg. : n. spp.
Leucocharis porphyrochila, n. var.; DAUTZENBERG, t. c. p. 301, fig.
Placostylus, notes on group; COLLIER (88).
Placostylus houailouensis, New Caledonia; DAUTZENBERG, J. Conchyl. xlix, p. 301, fig.: n. sp.
Porphyrobaphe grandis, Hab. incert.; ROLLE, Nachrbl. Deutsch. malak. Ges. 1902, p. 211: n. sp.
Strophocheilus martensianus, n. n. for *Bulimus grandis*, Martens nec Desh.; PILSBRY in TRYON (556), Index, p. lxxi.

Buliminidæ, Cylindrellidæ, and Pupidæ.

Apoecus, n. subg. of *Buliminus* for *B. colonus*, var. *tumida*, Mlldff.; Kobelt in Martini & Chemnitz (337).

Autocoptis, n. subgen. of *Urocoptis*, type *U. monilifera*; Pilsbry in Tryon (556), p. 112.

Bactrocoptis, n. sect. of *Urocoptis*, "type *U. rosea montana*"; Pilsbry in Tryon (556), p. 112.

Bifidaria macleayi, Braz., figd.; Hedley, P. Linn. Soc. N. S. Wales xxvii, p. 19.

Boysidia kelantanense, Kelantan; Sykes, J. Malac. ix, p. 61, fig.: n. sp.

Buliminus, monograph completed, with figures of several hitherto unfigured spp., and a classification of the group; Kobelt in Martini & Chemnitz (337): *B. otostomus*, *intumescens*, n. varr.; Rosen (454), p. 10: *B. luchuanus*, n. var.; Pilsbry, Nautilus xvi, p. 56: *B. limbodentatus*, n. varr.; Westerlund, Nachrbl. Deutsch. malak. Ges. 1902, p. 41.

Buliminus (*Petræus*) *egregius*, p. 3, (*Mastus*) *robustus*, p. 5, Cilicia, (*Pseudonapæus*) *scalaris*, p. 6, Urmia; Naegele, Nachrbl. Deutsch. malak. Ges. 1902: *B. maracandensis*, p. 9, (*Chondrulus*) *rennenkampfi*, p. 10, Central Asia; Rosen (454): *B.* (*Mastus*) *giuricus*, Greece, p. 40, (*Chondrulus*) *sodalis*, Cyprus, p. 41; Westerlund, Nachrbl. Deutsch, malak. Ges. 1902: *B. larvatus*, p. 47, *albocostatus*, p. 48, Turkestan; Ancey, Nautilus xvi: *B. hirascanus*, Japan, Pilsbry, Nautilus xvi, p. 56: *B. brusnicensis*, *pelagosanus*, Dalmatia; Sturany, Ann. Hofmus. Wien xvi, notizen, p. 68, figg.: *B.* (*Cerastus*) *arctistrius*, Massailand, p. 892, (*C.*) *tenuis*, Hab. – ?, p. 932, (*Ena*) *hanleyanus*, Nilghiris, p. 931, (*Subzebrinus*) *kuluensis*, p. 938, (*S.*) *tandjanensis*, Tandjani Mts., N. India, p. 939; Kobelt in Martini & Chemnitz (337), figg.: n. spp.

Cerion, monograph completed, with n. varr. of *C. cumingianum*, p. 198, *crassiusculum*, p. 202, *torrei*, p. 207, *iostomum*, p. 210, *mumia*, p. 225, *regina*, p. 232, *eximium*, p. 265, *bryanti*, p. 272, *rubicundum*, p. 274; Pilsbry in Tryon (556).

Cerion caymanense, Grand Cayman I., p. 196, *longidens*, Cuba, p. 212; Pilsbry in Tryon (556), figg.: n. spp.

Chondrula foveicollis, Bœttger, figd.; Kobelt in Martini & Chemnitz (337).

Clausilia, review of Japanese species, with figg., and n. varr. of *ducalis*, p. 361, *subulina*, p. 364, *caryostoma*, p. 366; Pilsbry (416): *C. heterochroa*, *arcadica*, *menelaos*, figd.; Sturany (527): *C. japonica*, n. var.; Pilsbry, Nautilus xvi, p. 6: Several Tonkinese species figd.; Sykes (541): Notes on Japanese species with n. varr. of *stereoma*, p. 520, *oostoma*, pp. 521 & 522, *variegata*, p. 528, *sieboldi*, p. 529; Pilsbry, (418).

Clausilia (*Pseudonenia*) *kelantanense*, Kelantan; Sykes, J. Malac. ix, pp. 22, 61, fig.: *C.* (*Medora*) *matulici*, Hertzgovina; Sturany, Ann. Hofmus. Wien xvi, notizen, p. 67: *C.* (*Euxina*) *cilicica*, Cilicia; Naegele, Nachrbl. Deutsch. malak. Ges. 1902, p. 7: *C. wiedermayri*, Tirol; Gredler, Nachrbl. Deutsch. malak. Ges. 1902, p. 17: *C. chiemhoaensis*, Tonkin; Sykes, P. Malac. Soc. London v, p. 194, fig.: *C. pachyspira*, p. 517, *kurozuensis*, p. 518, *plagioptyx*, p. 519, *subaculus*, p. 525, *rowlandi*, p. 526, *neniopsis*, p. 530, Japanese Empire; Pilsbry, P. Ac. Philad. 1902, figg.: *C. heteroptyx*, p. 362, *gracile*, p. 367, *pigra*, p. 368, *agna*, p. 371, *caloptyx*, p. 372, *dæmonorum*, p. 381, Japanese Empire; Pilsbry, t. c., figg.: *C.* (*Acrotoma*) *narzanensis*, p. 10, (*Euxina*) *stauropolitana*, p. 11, Central Asia; Rosen (454): n. spp.

Cœlocentrum arctispira, n. var.; Pilsbry in Tryon (556), p. 42.

Cœlocentrum dispar, Guatemala, p. 44, *exlex*, Mexico, p. 50 ; PILSBRY in TRYON (556), figg. : n. spp.
Cylindrus obtusus, distribution ; STURANY, Nachrbl. Deutsch. malak. Ges. 1902, p. 9.
Elasmocentrum, n. sect. of *Cœlocentrum* for *C. exlex*, n. sp. ; PILSBRY in TRYON (556), p. 50.
Haplocion, n. subgen. of *Holospira*, type *H. pasonis*, Dall ; PILSBRY in TRYON (556), p. 89.
Hypselostoma laidlawi, Malay Peninsula; COLLINGE, J. Malac. ix, p. 83, fig. : n. sp.
Holospira hamiltoni, figd. ; DALL, P. U. S. Mus. xxiv, p. 501 : *H. tetrelasmus*, n. n. for *H. pilocerei*, Pfr., 1848 nec. 1841 ; PILSBRY in TRYON (556), p. 73.
Holospira nelsoni, p. 79, *dalli*, p. 100, *strebeliana*, p. 101, Mexico ; PILSBRY in TRYON (556), figg. : n. spp.
Leucotœnius ellipticus, Madagascar ; ANCEY, Nautilus xvi, p. 67 : n. sp.
Liocentrum, n. sect. of *Cœlocentrum*, type *C. filicosta* ; PILSBRY in TRYON (556), p. 46.
Macaronapœus, n. sect. of *Buliminus* ; KOBELT in MARTINI & CHEMNITZ (337), p. 449 [as synonym of *Napœus*, post p. 1028].
Mauronapœus, n. sect. of *Buliminus*, type of *B. jeannotii*, Terv. ; KOBELT in MARTINI & CHEMNITZ (337), pp. 449, 1021.
Nesopupa dedecora, Japanese Empire ; PILSBRY, P. Ac. Philad. 1902, p. 31 : n. sp.
Ovella dahamisensis, *fusco-apicata*, *homhilensis*, Smith, figd. ; KOBELT in MARTINI & CHEMNITZ (337).
Partula, catalogue and review ; SMITH (498) : Variation in certain species ; MAYER, Mem. Mus. Harvard xxvi, pp. 117–135.
Petrœocerastus, n. sect. of *Buliminus*, type *B. labiosus*, Mull. ; KOBELT in MARTINI & CHEMNITZ (337), pp. 890, 1021.
Petrœus rarus, n. n. for *P. eliæ*, Naegele ; NAEGELE, Nachrbl. Deutsch. malak. Ges. 1902, p. 9.
Pupa (*Lauria*) *cylindracea*, Da Costa, note on ; MARGIER, Feuille Natural. Ann. 32, p. 49 : *P. concinnula* stands, not *P. ingersolli* ; PILSBRY, Nautilus xvi, p. 58 : *P. vergniesiana*, n. var. ; WESTERLUND, Nachrbl. Deutsch. malak. Ges. 1902, p. 39.
Pupa (*Torquilla*) *cadica* (Fagot MS), p. 39, (*T.*) *tuxensis* (Fagot MS), p. 40, Spain ; WESTERLUND, Nachrbl. Deutsch. malak. Ges. 1902 : n. spp.
Rhabdoena, apparently n. sect. of *Buliminus*, type *B. cœsius*, Bttg. ; KOBELT & MOELLENDORFF in MARTINI & CHEMNITZ (337), p. 1021.
Spaniodonta, apparently n. sect. of *Chondrula*, type *C. diodon*, Ret. ; KOBELT & MOELLENDORFF in MARTINI & CHEMNITZ (337), p. 1022.
Spelaeoconcha, n. gen. for *S. paganettii*, n. sp., Dalmatia ; STURANY, Verh. Ges. Wien li, p. 761, fig. : also in Nachrbl. Deutsch. malak. Ges. 1902, p. 14.
Spirocoptis, n. sect. of *Urocoptis*, type *U. sanguinea*, Pfr. ; PILSBRY in TRYON (556), p. 112.
Urocoptidæ, monograph commenced ; PILSBRY in TRYON (556) : *U. lata*, p. 114, *ovata*, p. 126, n. varr. ; PILSBRY in TRYON (556), figg.
Urocoptis hendersoni, Jamaica ; PILSBRY in TRYON (556), p. 127, fig. : n. sp.
Xerocerastus, n. sect. of *Cerastus*, type *C. damarensis*, Ad. ; KOBELT & MOELLENDORFF in MARTINI & CHEMNITZ (337), p. 1021.

STENOGYRIDÆ and ACHATINELLIDÆ.

Achatina, notes on several spp., with figg. of *lhotellieri*, p. 273, *mariei*, p. 275, *fulminatrix*, p. 276, *craveni*, p. 277, *fragilis*, *albopicta*, p. 278, *bisculpta*, p. 279 ; ANCEY, J. Conchyl. l.

Achatina erlangeri, Somaliland; MOELLENDORFF & KOBELT, Nachrbl. Deutsch. malak. Ges. 1902, p. 180: *A. machachensis*, Basutoland; SMITH, P. Malac. Soc. London v, p. 169, fig.: n. sp.
Cæcilianella retteri, Central Asia; ROSEN (454), p. 11: n. sp.
Cochlicopa lubrica, n. var.; PILSBRY, Nautilus xvi, p. 57.
†*Cylindrogyra*, n. gen. for *C. varians*, n. sp., Cenomanian, France; REPELIN, Ann. Mus. Marseille vii, p. 63. [Replacing *Pyrgulina*, Matheron, q. v.]
†*Nisopsis*, n. gen.; MATHERON, Ann. Mus. Marseille vii, p. 16: Diagnosed with type *N. fluviatilis*, n. sp., Cenomanian, France; REPELIN, t. c. p. 64.
Pseudachatina perelongata, Cameroons; ROLLE, Nachrbl. Deutsch. malak. Ges. 1902, p. 211: n. sp.
†*Pyrgulina*, n. gen.; MATHERON, Ann. Mus. Marseille vii, p. 16. [Renamed *Cylindrogyra*, q. v.]
Rhodina (?) *mirabilis*, Kelantan; SYKES, J. Malac. ix, pp. 22, 61, fig.: n. sp.
Tornatellina mastersi, *lucharis*, Braz., figd.; HEDLEY, P. Linn. Soc. N. S. Wales xxvi, p. 705: *T. pittieri* and *martensi* are one species; MARTENS, SB. Ges. naturf. Berlin 1902, p. 60.
Tornatellina biplicata, Japan; PILSBRY, Nautilus xvi, p. 57: *T. biolleyi*, Cocos Is.; MARTENS, SB. Ges. naturf. Berlin 1902, p. 60: n. spp.

SUCCINEIDÆ, ONCIDIIDÆ and VERONICELLIDÆ.

Atopos sarasini, p. 87, *harmeri*, p. 89, *rugosus*, *punctata*, *laidlawi*, Malay Peninsula; COLLINGE, J. Malac. ix, figg.: n. spp.
Neohyalimax, anatomy; PELSENEER (395).
Oncidiella, anatomy; PELSENEER (395).
Onchidium burnupi, Natal; COLLINGE, J. Malac. ix, p. 17, fig.: n. sp.
Prisma, notes on genus with figures; COLLINGE, t. c. p. 129.
Prisma smithi, New Guinea; COLLINGE, t. c. p. 130, fig.: n. sp.
Rathouisia, notes on genus and allies; COLLINGE, t. c. p. 84.
Vaginula, anatomy; PELSENEER (395): *V. gayi*, anatomy; KELLER (266).

BASOMMATOPHORA.

AURICULIDÆ, OTINIDÆ, LIMNÆIDÆ and PHYSIDÆ.

Ancylus, surface sculpture in; WALKER, Nautilus xvi, p. 85.
Carychium hachijoensis, Japan; PILSBRY, Nautilus xvi, p. 57: n. sp.
Gundlachia, anatomy; PELSENEER (295).
Latia, anatomy; PELSENEER (395).
Limnæa, notes on N. American species, of which *L. woodruffi* probably equals *L. peregra*; COCKERELL, Nautilus xvi, p. 95: *L. emarginata*, on shell and anatomy; BAKER (28): *L. truncatula* bred from spawn of *L. palustris*; BROCKMEIER (57): *L. pereger*, monstrosity; OVERTON, J. Malac. ix, p. 64.
Marinula patula, figd.; HEDLEY, P. Linn. Soc. N. S. Wales xxvi, p. 704.
Otina, anatomy; PELSENEER (395).
Physa, notes on Pleistocene and recent species; SPRINGER (505): *P. virgata*, n. var.; COCKERELL, J. Malac. ix, p. 138.
Planorbis parvus, n. var.; VANATTA, Nautilus xvi, p. 58.
Planorbis (*Gyraulus*) *pupillus*, Finland, p. 43, (*G.*) *mutatus*, (*G.*) *pristinus*, Denmark, p. 44; WESTERLUND, Nachrbl. Deutsch. malak. Ges. 1902: n. spp.

Amphibolidæ and Siphonariidæ.

Amphibola, anatomy ; Pelseneer (395).
Siphonaria, anatomy; Pelseneer (395): *S. lineolata*, *alternata*, figd.; Dall, P. U. S. Mus. xxiv, p. 501.

OPISTHOBRANCHIATA.

Structure of the larval Opisthobranch ; Mazzarelli (347).

NUDIBRANCHIATA.

On forms collected by Danish Expedition in Gulf of Siam ; Bergh (40).
Ancylodoris baikalensis, notes on ; Dybowski, Nachrbl. Deutsch. malak. Ges. 1902, p. 18.
Antiopa renamed *Antiopella*, q. v.
Antiopella, n. n. for *Antiopa*, Alder & Hancock nec Meigen; Hoyle, J. Conch. x, p. 214.
Chromodoris universitatis, p. 19, *porteræ*, *mcfarlandi*, p. 20, California; Cockerell, Nautilus xvi : n. spp.
Coryphella sarsi, off N. of Norway; Friele, Bergens Mus. Aarbog 1902, No. 3, p. 12, fig.: n. sp.
Crosslandia, n. gen. for *C. viridis*, n. sp., Zanzibar; Eliot, P. Zool. Soc. London 1902, ii, p. 64, fig.
Cuthonella ferruginea, p. 10, *berghi*, p. 11, off Iceland; Friele, Bergens Mus. Aarbog 1902, No. 3, figg. : n. spp.
Discodoris edwardsi, Morocco; Vayssière, Expéd. Scient. Travailleur et Talisman, Opistobranches, p. 232, fig. : n. sp.
Doriopsilla pallida, Gulf of Siam; Bergh, Danske Selsk. Skr. xii, p. 193, fig. : n. sp.
Dunga, n. gen. for *D. nodulosa*, n. sp., Zanzibar; Eliot, P. Zool. Soc. London 1902, ii, p. 63.
Idalia plebeia, Gulf of Siam; Bergh, Danske Selsk. Skr. xii, p. 186, fig.: n. sp.
Marionia chloanthes, Gulf of Siam; Bergh, t. c. p. 196, fig.: n. sp.
Madrella ferruginosa, Ald. & Hanc., animal; Eliot, P. Zool. Soc. London 1902, ii, p. 71, figg.
Melibe fimbriata, Ald. & Hanc., partial anatomy; Eliot, t. c. p. 68, fig. 5.
Melibe bucephala, Gulf of Siam; Bergh, Danske Selsk. Skr. xii, p. 205, fig. : n. sp.
Nossis, n. gen. for *N. indica*, n. sp., Gulf of Siam; Bergh, t. c. p. 210, fig.
Phyllidiopsis berghi, Gulf of Gascony; Vayssière, Expéd. scient. Travailleur et Talisman, Opistobranches, p. 237, fig.: n. sp.
Zatteria, n. g. for *Z. browni*, n. sp., Zanzibar; Eliot, P. Zool. Soc. London 1902, ii, p. 62, fig.

TECTIBRANCHIATA.

Tectibranchs of Gulf of Naples; Mazzarelli (348).
On forms collected by Danish Expedition in Gulf of Siam; Bergh (40).
Aclesia impexa, Philippines; Bergh, Semper's Reisen im Archipel Philippinen vii, p. 360, fig.: *A. ocelligera*, Gulf of Siam; Bergh, Danske Selsk. Skr. xii, p. 169, fig. : n. spp.
Actæon pilsbryi, n. n. for *A. affinis*, Adams nec Sby.; Cossmann, Rev. paleozool. vi, p. 160.

Actæon (*Microglyphis*, n. subgen.) *breviculus*, California; DALL, P. U. S. Mus. xxiv, p. 512, fig.: *A.* (*Leucotina*) *æthiopicus*, E. Africa; MARTENS, SB. Ges. naturf. Berlin 1902, p. 243 : n. spp.
Aplysia punctatella, Philippines; BERGH, Semper's Reisen im Archipel Philippinen vii, p. 341, fig.: *A. immunda*, Gulf of Siam; BERGH, Danske Selsk. Skr. xii, p. 163, fig. : n. spp.
Aplysiella pallida, Pacific Ocean; BERGH, Semper's Reisen im Archipel Philippinen vii, p. 363, fig.: *A. incerta*, Gulf of Siam; BERGH, Denske Selsk. Skr. xii, p. 165, fig. : n. spp.
Clione antarctica, Cape Adare; SMITH (496), p. 210, fig. : n. sp.
Cylichna verrillii, figd.; DALL, P. U. S. Mus. xxiv, p. 502.
Diaphana brazieri, Ad., figd., belongs to *Aplustrum*; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 16.
Lamellaria mollis, p. 205, *conica*, p. 206, Cape Adare; SMITH (496), figg. : n. spp.
Microglyphis, n. subgen. of *Actæon* for *A. breviculus*, n. sp.; DALL, P. U. S. Mus. xxiv, p. 512.
Newnesia, n. gen. for *N. antarctica*, n. sp., Cape Adare; SMITH (496), p. 208, fig.
Oscaniella obscurella, Fiji; BERGH, Semper's Reisen im Archipel Philippinen vii, p. 378, fig.: n. sp.
Philine intermedia, Spitzbergen; KNIPOVITSCH, Annuaire Mus. St. Petersb. vi, p. 488, fig.: *P. trapezia*, New South Wales; HEDLEY, P. Linn. Soc. N. S. Wales xxvi, p. 704, fig.: *P. antarctica*, *apertissima*, Cape Adare; SMITH (496), p. 208, figg. : n. spp.
Pteroceanidæ, n. fam. for *Pteroceanis diaphana*, n. gen. and sp., Gulf of Guinea and Aden; MEISENHEIMER, Zool. Anz. xxvi, pp. 92–99, fig.
Retusa nitida, Ad., figd.; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 9: *R. mayoi*, figd.; DALL, P. U. S. Mus. xxiv, p. 502.
Ringicula æthiopica, N. E. Africa; MARTENS, SB. Ges. naturf. Berlin 1902, p. 243: n. sp.
Scaphander cancellatus, Sumatra; MARTENS, t. c. p. 244: n. sp.
Toledonia, n. gen. for *T. perplexa*, n. sp., Straits of Magellan; DALL, P. U. S. Mus. xxiv, p. 512, fig.
Tornatina meridionalis, South Africa; SMITH, J. Conch. x, p. 249, fig.: n. sp.
Umbraculum rushii, figd.; DALL, P. U. S. Mus. xxiv, p. 502.

NUCLEOBRANCHIATA.

Pterotrachæa talismani, W. coast of Morocco; VAYSSIÈRE, Expéd. Scient. Travailleur et Talisman, Opistobranches, p. 264, fig.: n. sp.

PROSOBRANCHIATA.

PECTINIBRANCHIATA.

TOXOGLOSSA.

TEREBRIDÆ, CONIDÆ, PLEUROTOMIDÆ, and CANCELLARIIDÆ.

Admete microscopica, figd.; DALL, P. U. S. Mus. xxiv, p. 504.
Antiplanes, n. sect. of *Pleurotoma*, type *Surcula perversa*, Gabb; DALL, t. c. p. 513, fig.
Cancellaria middendorffiana, figd.; DALL, t. c. p. 516.

Conus stimpsoni, Florida; DALL, t. c. p. 503, fig.: n. sp.
Daphnella eugrammata, Cuba; DALL, t. c. p. 503, fig.: n. sp.
Drillia empyrosia, figd.; DALL, t. c. p. 516.
Drillia roseobasis, albemarlensis, Galapagos; PILSBRY & VANATTA, P. Washington Ac. iv, p. 558, figg. : n. spp.
Mangilia (?) *incerta*, Victoria; PRITCHARD & GATLIFF, P. Soc. Washington xiv, p. 180, fig.: n. sp.
Pleurotoma symbiotes, Wood-Mason & Alcock, figd.; ALCOCK (2), p. 130: *P. perversa, vinosa, circinata*, figd.; DALL, P. U. S. Mus. xxiv, pp. 513–515: *P. weldiana*, Woods., equals *Drillia fucata*, Rve.; HEDLEY, Nautilus xvi, p. 49.
Pleurotoma gilchristi, South Africa; SOWERBY (504), p. 99, fig.: *P.* (*Antiplanes*, n. sect.) *piona*, Bering Sea, (*A.*) *thalæa*, p. 514, (*A.*) *santarosana*, California, *callicesta*, Mexico, p. 515; DALL, P. U. S. Mus. xxiv: *P.* (*Gemmula*) *gemmulina*, W. Sumatra, p. 238, (*G.*) *rotatilis*, (*Brachytoma*) *subsuturalis*, N.E. Africa, (*Perrona*) *subspirata*, p. 239, S.W. Africa, (*Leucosyrinx*) *vepallida*, N.E. Africa, p. 240; MARTENS, SB. Ges. naturf. Berlin 1902 : n. spp.
Terebra texana, floridana, rushii, figd.; DALL, P. U. S. Mus. xxiv, p. 502.
Terebra inconspicua, Victoria; PRITCHARD & GATLIFF, P. Soc. Victoria xiv, p. 181, fig.: n. sp.

RACHIGLOSSA.

MARGINELLIDÆ, MITRIDÆ, and VOLUTIDÆ.

Aurinia dubia, figd.; DALL, P. U. S. Mus. xxiv, p. 504.
Fusivoluta, n. subgen. of *Voluta*, for *V. anomala*, n. sp.; MARTENS, SB. Ges. naturf. Berlin 1902, p. 237.
Fusus pyrrhostomus, Watson, belongs to *Volutidæ*; MARTENS, t. c. p. 238.
Marginella subbulbulosa, Tate, figd.; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 18.
Scaphella stearnsii, figd.; DALL, P. U. S. Mus. xxiv, p. 517.
Volutidæ, anatomy of several species, especially of *V. musica*; PACE (384): *V. roadnightæ*, note on; KENYON, P. Malac. Soc. London v, p. 10.
Voluta (*Fusivoluta*, n. subgen.) *anomala*, N. East Africa; MARTENS, SB. Ges. naturf. Berlin 1902, p. 237: *V. perplicata*, Queensland; HEDLEY, Rec. Austral. Mus. iv, p. 309, fig. : n. spp.
Volutilithes gilchristi, South Africa; SOWERBY (504), p. 99, fig.: n. sp.
Volutomitra alaskana, W. America; DALL, Nautilus xv, p. 103: n. sp

FASCIOLARIIDÆ, TURBINELLIDÆ, BUCCINIDÆ, NASSIDÆ, COLUMBELLIDÆ and MURICIDÆ.

Actinotrophon, n. sect. of *Boreotrophon* for *Trophon actinophorus*, Dall; DALL, P. U. S. Mus. xxiv, p. 541.
Adansonia, n. n. for *Folinæa*, Monts., nec *Folinia*, Crosse; PALLARY, J. Conchyl. l, p. 23.
Agnewia is a synonym of *Trochia*; KESTEVEN, P. Linn. Soc. N. S. Wales xxvi, p. 538.
Antistreptus, n. gen. for *A. magellanicus*, n. sp., Straits of Magellan; DALL, P. U. S. Mus. xxiv, p. 532.
Astyris aurantiaca, figd.; DALL, t. c. p. 531.
Austrotrophon, n. sect. for *Trophon triangulatus*, Cptr. and others; DALL, t. c. p. 548.
Beringius crebricostatus, kennicotti, figd.; DALL, t. c. p. 530.

Boreotrophon maclaini, p. 538, Greenland, *kamchatkanus*, p. 541, Kamchatka, (*stuartiæ* var.?) *smithi*, p. 542, *peregrinus*, p. 543, California, *beringi*, Bering Sea, *pacificus*, N. W. America, p. 544, *tripherus*, Washington and Oregon, *alaskanus*, Alaska, p. 545, *mazatlanicus*, Mexico, *panamensis*, Panama, *avalonensis*, p. 547, *eucymatus*, California, *rotundatus*, Bering Sea, p. 547; DALL, P. U. S. Mus. xxiv : n. spp.

Boreotrophon, notes on several species and classification of group; DALL, t. c. pp. 536–548.

Buccinum undatum, *grœnlandicum*, n. varr.; NORMAN, Ann. Nat. Hist. x, p. 353 : *B. angulosum* and several other spp. figd., with notes; DALL, P. U. S. Mus. xxiv, pp. 517–520: *B. grœnlandicum* is a var. of *B. undatum*; JOHANSEN (256).

Bullia annulata, animal; SOWERBY (504), p. 95.

Chrysodominæ, notes on subdivisions and classification, with fig. of *C. tabulatus*; DALL, P. U. S. Mus. xxiv, pp. 520–524.

Columbellidæ, list of known species, with references, etc.; PACE (385): *C. semiconvexa*, *australis*, protoconchs; KESTEVEN, P. Linn. Soc. N. S. Wales xxvii, p. 6, figg.: *C. hidalgoi*, Monts., figd.; PALLARY, J. Conchyl. l, p. 11.

Columbella (*Anachis*) *leptalea*, South Africa; SMITH, J. Conch. x, p. 250, fig.: *C. plexa*, New South Wales; HEDLEY, P. Linn. Soc. N. S. Wales xxvi, p. 702, fig. : n. spp.

Donovania decorata, Monts., figd.; PALLARY, J. Conchyl. l, p. 13.

Euthria papillaris, animal; SOWERBY (504), p. 93.

Euthria aucklandica, Auckland Is.; SMITH (496), p. 203, fig.: n. sp.

Folinæa, Monts., renamed *Adansonia*, q.v.

Fulgur, phylogeny and sexual dimorphism; SMITH (489).

Fusus propinquus, n. var.; MARSHALL, J. Malac. ix, p. 45: *F. pyrrhostomus*, Watson, belongs, from the radula, to the *Volutidæ*; MARTENS, SB. Ges. naturf. Berlin 1902, p. 238: *F. roperi*, figd.; DALL, P. U. S. Mus. xxiv, p. 517.

Fusus consimilis, Shetland Faroe Channel; MARSHALL, J. Malac. ix, p. 49: *F. subcontractus*, South Africa; SOWERBY (504), p. 97, fig.: *F. crassus*, Tangier; PALLARY, J. Conchyl. xlix, p. 314 [Figd.; op. cit. l, p. 8] : n. spp.

Latirus cayohuesonicus, figd.; DALL, P. U. S. Mus. xxiv, p. 505.

Latirus alboapicata, South Africa; SMITH, J. Conch. x, p. 250, fig.: *L. imbricatus*, South Africa; SOWERBY (504), p. 96, fig. : n. spp.

Liomesus nux, *canaliculatus*, *oöides*, figd.; DALL, P. U. S. Mus. xxiv, p. 531.

Murex trunculus, n. var.; BELLINI, Boll. Soc. Napoli xv, p. 99: *M. carpenteri*, *petri*, figd.; DALL, P. U. S. Mus. xxiv, p. 532: *M. malabaricus*, Smith, figd.; ALCOCK (2), p. 172: *M. australis*, *angasi*, on the protoconch; KESTEVEN, P. Linn. Soc. N. S. Wales xxvi, p. 711.

Muricidea philippiana, *multangula*, *ostrearum*, figd.; DALL, P. U. S. Mus. xxiv, p. 504.

Nassa, variation in shell due to environment; DIMON (139): *N. tingitana*, Pallary, figd.; PALLARY, J. Conchyl. l, p. 10: *N. mutabilis*, larval stage; HOFFMANN (230).

Nassa cusulcata, South Africa; SOWERBY (504), p. 94, fig.: n. sp.

Nassaria gracilis, South Africa; SOWERBY (504), p. 94, fig.: *N. teres*, Nicobars; MARTENS, SB. Ges. naturf. Berlin 1902, p. 241: n. spp.

Ocinebrina edwardsi, Payr., n. var.; PALLARY, J. Conchyl. xlix, p. 314; l, p. 12.

Plicifusus, n. subgen. of *Tritonofusus*, type *Fusus kroyeri*, Moller; DALL, P. U. S. Mus. xxiv, p. 523.

Pseudamycla, n. gen. for *Buccinum dermestoideum*, Lam.; PACE, P. Malac. Soc. London v, p. 253.

Purpura, formation of purple dye; LETELLIER (300): *P. tritoniformis*, Blvlle., is a true *Purpura*, with n. var., p. 534; KESTEVEN (277).
Sistrum neglectum, protoconch; KESTEVEN, P. Linn. Soc. N. S. Wales xxvi, p. 714.
Tritonofusus, figures of several species; DALL, P. U. S. Mus. xxiv, pp. 525 & 526.
Tritonofusus (*Plicifusus*) *herendeeni*, Bering Sea; DALL, t. c. p. 527, fig.: n. sp.
Trophon crispus, *unicarinatus*, figd.; DALL, P. U. S. Mus. xxiv, pp. 535 & 536.
Trophon pinnatus, California; DALL, t. c. p. 549: *T. pelecetus*, Patagonia; DALL, t. c. p. 535 : n. spp.
Turbinella triangularis, South Africa; SMITH, J. Conch. x, p. 249, fig.: n. sp.
Typhis martyria, Gulf of California; DALL, P. U. S. Mus. xxiv, p. 550: *T. transcurrens*, Zanzibar; MARTENS, SB. Ges. naturf. Berlin 1902, p. 240 : n. spp.
Volutopsius castaneus, *attenuatus*, *regularis*, figd.; DALL, P. U. S. Mus. xxiv, p. 529.
Volutopsius trophonius, p. 527, (*beringii*, var.?) *kobelti*, p. 528, Bering Sea; DALL, t. c. figg. : n. spp.

TÆNIOGLOSSA.

TRITONIIDÆ, CYPRÆIDÆ, and STROMBIDÆ.

Cypræa microdon and allies, note on; SMITH, P. Malac. Soc. London v, p. 167: *C. argus*, greenish var.; BYNE, J. Conch. x, p. 193: *Cypræa*, several supposed new varr.; KENYON (274): Revision of New Caledonian species, with n. varr.; DAUTZENBERG (128).
Erato oligostata, W. Panama; DALL, Nautilus xvi, p. 44: n. sp.
Gyrineum australasia, protoconch; KESTEVEN, P. Linn. Soc. N. S. Wales xxvi, p. 713.
Lotorium, classification of the genus, with critical notes; KESTEVEN (280).
Lotorium nassariforme, South Africa; SOWERBY (504), p. 95, fig.: n. sp.
Pedicularia californica, figd.; DALL, P. U. S. Mus. xxiv, p. 550.
Rostellaria delicatula, Nevill, figd.; ALCOCK (2), p. 278.
Tritonium, protoconch of several species; KESTEVEN, P. Linn. Soc. N. S. Wales xxvi, p. 712.
Trivia atomaria, *panamensis*, W. Panama; DALL, Nautilus xvi, p. 43: n. spp.

CERITHIIDÆ, TRICHOTROPIDIDÆ, VERMETIDÆ, TURRITELLIDÆ, and CÆCIDÆ.

Alabina, n. n. for *Elachista*, Dall & Simpson nec Treitschke; DALL, Nautilus xv, p. 127.
Anaplocamus borealis, figd.; DALL, P. U. S. Mus. xxiv, p. 550.
Cæcidæ, monograph completed; CLESSIN in MARTINI & CHEMNITZ (337).
Cerithidea mutata, Galapagos; PILSBRY & VANATTA, P. Washington Ac. iv, p. 558, fig.: n. sp.
Cerithium muscarum, Say, n. var.; VIGNAL, J. Conchyl. xlix, p. 305.
Cerithium dautzenbergi, p. 303, *bavayi*, p. 304, New Caledonia; VIGNAL, t. c. figg. : n. spp.
Ctilocerus, notes on genus, with *C. clathratum*, Torres Straits, *striatum*, N. Queensland, n. spp.; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 22.

Elachista, Dall, renamed *Alabina*, q. v.
†*Endiatænia*, n. gen. for *E. terquemi*, n. sp., Lias, France ; COSSMANN in CHARTRON & COSSMANN, Bull. Soc. geol. France ii, p. 172.
Lippistes, notes on genus ; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 23.
Mesalia pulchella, Tangier ; PALLARY, J. Conchyl. xlix, p. 315 [Figd. ; op. cit. l, p. 16] : n. sp.
†*Paracerithium*, n. gen. for *P. acanthocolpum*, n. sp., Lias, France ; COSSMANN in CHARTRON & COSSMANN, Bull. Soc. geol. France ii, p. 173.
†*Procerithium*, n. gen. for *P. quinquegranosum*, n. sp., Lias, France ; COSSMANN in CHARTRON & COSSMANN, t. c. p. 177.
Separatista benhami, New Zealand ; SUTER, J. Malac. ix, p. 65, fig. : n. sp.
Thylacodes caperatus, Tate & May, is a *Vermetus* ; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 19.
Torellia vestita, n. var. ; FRIELE, Bergens Mus. Aarbog 1902, No. 3, p. 7, fig.
Trichotropis hjorti, Iceland ; FRIELE, t. c. p. 8, fig. : n. sp.
Turritella communis has a crystalline style and a style-sac ; RANDLES, Anat. Anz. xxi, pp. 200–203, figg.
Vermetidæ, monograph commenced ; CLESSIN in MARTINI & CHEMNITZ (337).

PSEUDOMELANIIDÆ, MELANIIDÆ, LITTORINIDÆ, and FOSSARIDÆ.

Chytra kirkii, anatomy ; DIGBY, J. Linn. Soc. xxviii, pp. 434–437, figg. [Cf. *Kytra*.]
†*Damasella*, n. gen. for *D. pretiosa*, n. sp., Tertiary, France ; COSSMANN, Bull. Soc. Ouest France ii, p. 146.
Fossarina, Ad. & Ang., belongs to *Trochidæ* ; KESTEVEN, Rec. Austral. Mus. iv, p. 317.
Kytra [= *Chytra*, q. v.] *kirki*, living animal figured ; MOORE, P. Zool. Soc. London 1901, ii, pl. xxvi, fig. 2.
Lacuna pallidula, males are much the smaller ; PELSENEER, J. Conchyl. l, p. 41.
Limnotrochus thomsoni, anatomy ; DIGBY, J. Linn. Soc. xxviii, pp. 437–440, figg.
Litorina aleutica, figd. ; DALL, P. U. S. Mus. xxiv, p. 551.
Litorina atkana, Western Aleutians ; DALL, t. c. p. 551, fig. : n. sp.
Melania reiniana, p. 119, *libertina*, p. 120, n. varr. ; PILSBRY, P. Ac. Philad. 1902.
Micromelania subulata, Caspian Sea ; WESTERLUND, Nachrbl. Deutsch. malak. Ges. 1902, p. 47 : n. sp.
Neothauma, points in the anatomy, and the shell figured ; MOORE, P. Zool. Soc. London 1901, ii, p. 466.
Risellopsis, n. gen. for *Fossarina varia*, Hutton ; KESTEVEN, Rec. Austral. Mus. iv, p. 319.
†*Taniodomus*, n. gen. for *T. gracilis*, *crassa*, n. spp., Tertiary, Borneo ; KRAUSE, Jaarb. Mijn. Ned. Oost.-Ind. xxix, p. 45. [Not new ; cf. Zool. Rec. XXXIV, p. 63.]
†*Transylvanites*, n. gen. for *T. semseyi*, n. sp., Cretaceous ; PALFY, Magyar Fold. int. evkon. xiii, p. 279.

Rissoiidæ, Hydrobiidæ, Paludinidæ, Valvatidæ, Ampullariidæ, and Assimineidæ.

Ampullaria baeri, Peru ; Dautzenberg, J. Conchyl. xlix, fig. : n. sp.
†*Ampullopsis*, n. gen. for *Ampullaria faujasi*, Cenomanian, France ; Repelin, Ann. Mus. Marseille vii, p. 90.
Assiminea umlaasiana, South Africa ; Smith, J. Conch. x, p. 248, fig. : n. sp.
Bythinella padiraci, France ; Locard, Bull. Mus. Paris viii, p. 608, fig. : n. sp.
Bythinia servainiana, n. var. ; Westerlund, Nachrbl. Deutsch. malak. Ges. 1902, p. 45 : *B. striatula* var. *japonica*, figd. ; Pilsbry, P. Ac. Philad. 1902, p. 121.
Clessinia ahngeri, Caspian Sea ; Westerlund, Nachrbl. Deutsch. malak. Ges. 1902, p. 45 : n. sp.
Eatoniella paludinoides, Cape Adare ; Smith (496), p. 205, fig. : n. sp.
Hydrobia sturanyi, Macedonia ; Westerlund, Nachrbl. Deutsch. malak. Ges. 1902, p. 46 : n. sp.
Lartetia virei, Italy ; Locard, Bull. Mus. Paris viii, p. 609, fig. : n. sp.
Lithoglyphus acutus, Muchalatka ; Westerlund, Nachrbl. Deutsch. malak. Ges. 1902, p. 47 : n. sp.
†*Microliotia*, n. gen. for *M. brandenburgi*, n. sp., Miocene, Kostej ; Boettger (51), p. 144.
Nematurella marginata, Caspian Sea ; Westerlund, Nachrbl. Deutsch. malak. Ges. 1902, p. 45 : n. sp.
Paludestrina jenkinsi, notes on ; Kennard & Woodward, Essex Natural. xi, p. 288 : *P. protea*, variation of ; Stearns (509).
Paludestrina antarctica, Cape Adare ; Smith (496), p. 204, fig. : n. sp.
Paludina, torsion and urinogenital organs ; Drummond (149, 150).
†*Pannona*, n. subgen. of *Hydrobia* for *H. minima*, Lör., Tertiary ; Lörenthey, Paleontogr. xlviii, p. 229.
Pseudamnicola prasina, Central Asia ; Rosen (454), p. 11 : n. sp.
†*Pseudonoba*, n. gen. for *P. peculiaris*, n. sp. ; Miocene, Kostej ; Boettger (51), p. 145.
Rissoia, classification of European species ; Locard (308) : *R. spinosa*, Monts., figd. ; Pallary, J. Conchyl. l, p. 19.
Rissoa adarensis, Cape Adare ; Smith (496), p. 205, fig. : *R. kelseyi*, California ; Dall & Bartsch, Nautilus xvi, p. 94 : n. spp.
Rissoina bakeri, California ; Bartsch, t. c. p. 9.
Valvata, notes on several United States species, with n. varr. ; Walker, Nautilus xv, pp. 121–125.
Viviparus, note on Japanese species, with n. var. of *V. japonicus* ; Pilsbry, P. Ac. Philad. 1902, p. 115.
Wattebledia siamensis, Siam ; Moellendorff, Nachrbl. Deutsch. malak. Ges. 1902, p. 160 : n. sp.

Cyclophoridæ and Cyclostomatidæ.

Adelomorpha brunnea, Obi Is. ; Moellendorff, Nachrbl. Deutsch. malak. Ges. 1902, p. 195 : n. sp.
Alycæus perakensis, n. subsp. ; Moellendorff, t. c. p. 144 : *A. pilsbryi*, n. n. for *A. reinhardti*, Pilsbry, nec *reinhardi*, Mörch ; Kobelt (285), p. 361.
Alycæus vinctus, Japan ; Pilsbry, Nautilus xvi, p. 54 : *A. conformis*, Perak ; Fulton, Ann. Nat. Hist. ix, p. 68 : *A. kelantanense*, Kelantan ;

SYKES, J. Malac. ix, p. 62, fig.: *A. biexcisus*, Japanese Empire; PILSBRY, P. Ac. Philad. 1902, p. 26 : n. spp.

Aperostoma sanctæmarthæ, p. 134, *smithi*, p. 135, Colombia; PILSBRY & CLAPP, Nautilus xv, figg. : n. spp.

Chondropoma superbum, Haiti; HENDERSON & SIMPSON, Nautilus xvi, p. 88, fig.: n. sp.

Cochlostoma löbbeckei, n. n. for *Pomatias laburdensis*, Fagot nec Folin & Berillon; KOBELT (285), p. 502.

Cyclophoridæ, monograph of family; KOBELT (285).

Cyclophorus cornutus, n. n. for *Cyclostoma cornuvenatorium*, Auct., p. 98, with n. varr. of *C. zebra*, p. 122, *zebrinus*, p. 123; KOBELT (285).

Cyclophorus kikaiensis, Japanese Empire; PILSBRY, P. Ac. Philad. 1902, p. 27 : n. sp.

Cyclostoma carnicolor [Cf. prior description by FULTON as *Tropidophora*], *alayerianum*, Madagascar; ANCEY, Nautilus xvi, p. 81 : n. spp.

Cyclotus dohrni, n. n. for *C. euryomphalus*, Kob., nec *Cyclostoma euryomphalum*, Pfr., p. 191, *smithi*, n. n. for *C. minor*, Smith, p. 202; KOBELT (285): *C. solutus*, n. subsp.; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902, p. 143: *C. guttatus*, n. subsp.; MOELLENDORFF, t. c. p. 194.

Cyclotus (*Opisthoporus*) *bialatus*, p. 142, Kelantan, (*Siphonocyclus*) *conoideus*, p. 159, Siam; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902: *C.* (*Pseudocyclophorus*) *pulchellus*, Tomia, (*P.*) *liratus*, Kaledupa; MOELLENDORFF, t. c. p. 206 : n. spp.

Diancta multiplicata, Obi Is.; MOELLENDORFF, t. c. p. 194: n. sp.

Diplommatina kobelti, n. var.; PILSBRY, P. Ac. Philad. 1902, p. 28.

Diplommatina (*Sinica*) *sinulabris*, Kelantan; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902, p. 143: *D. dormitor*, Japan; PILSBRY, Nautilus xv, p. 142: *D. kiiensis*, *pudica*, Japanese Empire; PILSBRY, P. Ac. Philad. 1902, p. 28: *D. niahensis* [nom. præocc.], p. 59, *pseudopomatias*, p. 60, Borneo; GREDLER, Nachrbl. Deutsch. malak. Ges. 1902 : n. spp.

Ditropis macleayi, Braz., figd.; HEDLEY, P. Linn. Soc. N. S. Wales xxvi, p. 706.

Entochilus, n. subgen. of *Leptopoma* for *L. cuticulare* and others; MOELLENDORFF & KOBELT, Nachrbl. Deutsch. malak. Ges. 1897, p. 82. [Omitted.]

Eucataulus, n. subgen. of *Tortulosa*, type *Cataulus templemani*, Pfr.; KOBELT (285), p. 281.

Japonia gouldi, n. n. for *Cyclostoma barbata*, Gould, nec *C. barbatum*, Pfr.; KOBELT (285), p. 60.

Lagochilus rollei, Kelantan, p. 141, *pachychilus*, *concavospirum*, p. 159, Siam; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902: *L. obianum*, Obi Is.; MOELLENDORFF, t. c. p. 193 : n. spp.

Leptopoma, monograph commenced; KOBELT in MARTINI & CHEMNITZ (337).

Leptopoma megalostoma, Obi Is., p. 192, *scabrum*, Buru I., p. 200; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902: *L. fulgurans*, *altius*, Obi Is.; DAUTZENBERG, Naturaliste 1902, p. 248, figg. : n. spp.

Megalomastoma bituberculatum, n. var.; KOBELT (285), p. 265.

Neopupina, n. subgen. of *Megalomastoma*, type *M. flavulum*, Swainson; KOBELT (285), p. 262.

Omphalotropis conella, New Hebrides; SYKES, P. Malac. Soc. London v, p. 200, fig.: *O.* (*Eurytropis*) *buruana*, (*E.*) *aurea*, Buru I.; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902, p. 201 : n. spp.

Opisthoporus dautzenbergi, Kelantan; SYKES, J. Malac. ix, pp. 23, 61, fig.: *O. rhiostoma*, Borneo; GREDLER, Nachrbl. Deutsch. malak. Ges. 1902, p. 54 : n. spp.

Opisthostoma laidlawi, Kelantan; SYKES, J. Malac. ix, pp. 22, 62, fig.: *O. sarawacense*, p. 57, *tiesenhauseni*, p. 58, Borneo; GREDLER, Nachrbl. Deutsch. malak. Ges. 1902 : n. spp.

Palaina semperi, n. n. for *Diplommatina wilsoni*, Pfr., nec *Palaina wilsoni*, Crosse; KOBELT (285), p. 404.

Pearsonia, n. gen., type *Spiraculum hispidum*, Pearson; KOBELT (285), p. 171.

Platyrhaphe chrysalis, Kelantan; SYKES, J. Malac. ix, pp. 23, 61, fig.: n. sp.

Pomatias gracilis, n. var.; WAGNER, Ann. Hofmus. Wien xvi, notizen, p. 64.

Pomatias (*Pleuropoma*) *roseoli*, Hertzgovina; WAGNER, t. c. p. 64, fig.: n. sp.

Porocallia moluccana, Obi Is.; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902, p. 194 : n. sp.

Pseudojerdonia, n. subgen. of *Cyathopoma* for *C. garoense* and others; KOBELT (285), p. 227.

Pseudospiraculum, n. n. for *Diplopterum*, Kob. & Mlldff., nec *Diplopteron*, Swainson; KOBELT (285), p. 175.

Pupina crossei, Braz., *nitida*, Braz., figd.; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 20.

Pupina (*Tylotœchus*) *excisa*, p. 143, Kelantan, (*T.*) *siamensis*, p. 160, Siam; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902 : n. spp.

Rhiostoma dalyi, Siam; BLANFORD, P. Malac. Soc. London v, p. 34, fig.: n. sp.

Schistoloma, n. n. for *Coptocheilus*, Gould, nec *Coptochilus*, Amyot & Serville; KOBELT (285), p. 278.

Theobaldius annulatus, n. var.; KOBELT (285), p. 91.

Tropidophora carnicolor, *crenulatum*, Madagascar; FULTON, Ann. Nat. Hist. ix, p. 314 : n. spp.

TRUNCATELLIDÆ.

Blanfordia, on Japanese spp., with n. varr.; PILSBRY, P. Ac. Philad. 1902, p. 26.

Truncatella subcylindrica, L., notes on; PILSBRY, Nautilus xv, p. 119.

CAPULIDÆ, XENOPHORIDÆ, NATICIDÆ, and ADEORBIIDÆ.

Adeorbis subcarinatus, n. var.; MARSHALL, J. Conch. x, p. 192 : *A. picta*, Woods, equals *Chlorostoma fasciatum*, Born.; HEDLEY, Nautilus xvi, p. 49.

Amauropsis moerchi, figd.; HEDLEY, P. Linn. Soc. N. S. Wales xxvi, p. 700 : *A. purpurea*, figd.; DALL, P. U. S. Mus. xxiv, p. 551.

Capulus violaceus, protoconch; KESTEVEN, P. Linn. Soc. N. S. Wales xxvi, p. 714.

Natica kraussi, South Africa; SMITH, J. Conch. x, p. 248, fig.: *N. delicatula*, Cape Adare; SMITH (496), p. 206, fig. : n. spp.

Xenophora pallidula, Reeve, figd.; ALCOCK (2), p. 278.

PTENOGLOSSA.

SCALIDÆ.

Boreoscala, n. sect. of *Scala*, type *S. grœnlandica*, Chemn.; KOBELT (286), p. 4.

†*Bouryiscala*, n. sect. of *Scala* for *S. microscopica*, n. sp., Tertiary, France; COSSMANN, Bull. Soc. Ouest France ii, p. 26.

Crossea biconica, p. 12, *gatliffi*, p. 13, Torres Straits; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, figg. : n. spp.
Scala nitidella, *scipio*, *mitchelli*, *cochlea*, *retifera*, figd.; DALL, P. U. S. Mus. xxiv, pp. 505 & 506.
Scalaria ballinensis, which is a synonym of *S. granosa*, figd.; HEDLEY, P. Linn. Soc. N. S. Wales xxvi, p. 701.
Scalaria unilateralis, Nicobars; MARTENS, SB. Ges. naturf. Berlin 1902, p. 241 : n. sp.

GYMNOGLOSSA.

EULIMIDÆ and PYRAMIDELLIDÆ.

Dunkeria martensi, Singapore; CLESSIN in MARTINI & CHEMNITZ (337), p. 254, fig. : n. sp.
Eulima bilineata, n. var.; MARSHALL, J. Conch. x, p. 190: *E. incurva*, Jeffreys, figd.; CLESSIN in MARTINI & CHEMNITZ (337), p. 263.
Eulimella tricincta, Tate, is a synonym of *E. pulchra*, Braz.; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 18.
Miralda diadema, A. Ad., *gemma*, A. Ad., p. 262, figd.; CLESSIN in MARTINI & CHEMNITZ (337).
Miralda jamaicensis, Jamaica; CLESSIN in MARTINI & CHEMNITZ (337), p. 262, fig. : n. sp.
Odostomia polito-fusca, A. Adams, MS., Hab. –?; CLESSIN in MARTINI & CHEMNITZ (337), p. 252, fig. : n. sp.
†*Ptereulima*, n. gen. for *P. elegans*, n. sp., Eocene, Louisiana; CASEY, Nautilus xvi, p. 18.
Pyramidellidæ, Monograph concluded; CLESSIN in MARTINI & CHEMNITZ (337).
Pyramidella nitidula, A. Adams, figd.; CLESSIN in MARTINI & CHEMNITZ (337), p. 70.
Pyrgulina perspectiva, *senex*, p. 10, *zea*, *umeralis*, p. 11, N. Queensland; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, figg. : n. spp.
Styliferidæ, Monograph completed; CLESSIN in MARTINI & CHEMNITZ (337).
Turbonilla cœlata, A. Ad., figd.; CLESSIN in MARTINI & CHEMNITZ (337).
Turbonilla adamsii, Hong Kong, *dunkeri*, Japan, p. 257, *lanceolata*, West Africa, *semiglabra*, Hab. ?, *cerkruzeni*, Haiti, p. 258, *pfeifferi*, Cuba, p. 260; CLESSIN in MARTINI & CHEMNITZ (337), figg. : n. spp.

SCUTIBRANCHIATA.

RHIPHIDOGLOSSA.

PROSERPINIDÆ, HELICINIDÆ, and HYDROCENIDÆ.

Ceres nelsoni, figd.; DALL, P. U. S. Mus. xxiv, p. 501.
Georissa kobelti [? = *niahensis*, Godwin-Austen], Borneo; GREDLER, Nachrbl. Deutsch. malak. Ges. 1902, p. 61 : n. sp.
Helicina pterophora, Guatemala; SYKES, P. Malac. Soc. London v, p. 20, fig.: *H. capsula*, *ogasawarana*, *hirasei*, p. 25, *yoshiwarana*, p. 26, Japanese Empire; PILSBRY, P. Ac. Philad. 1902: *H. sanctæmarthæ*, *cacaguelita*, Colombia; PILSBRY & CLAPP, Nautilus xv, p. 136, figg.: *H.* (*Pleuropoma*) *obiana*, Obi Is., p. 195, (*P.*) *sykesi* (Rolle), Tomia, p. 207; MOELLENDORFF, Nachrbl. Deutsch. malak. Ges. 1902: *H. tantilla*, Florida; PILSBRY, Nautilus xvi, p. 53 : n. spp.

NERITIDÆ, TURBINIDÆ, and TROCHIDÆ.

Adeorbis picta, Woods, equals *Chlorostoma fasciatum*, Born.; HEDLEY, Nautilus xvi, p. 49.

Astele turbinata, Woods, equals *Chlorostoma scalare*, Anton; HEDLEY, t. c. p. 49.

Astralium bathyraphe, Smith, figd.; ALCOCK (2), p. 279: *A. fimbriatum* and *tentoriforme* are distinct species; KESTEVEN, P. Linn. Soc. N. S. Wales xxvii, p. 2, figg.

Astralium (*Bolma*) *andersoni*, South Africa; SMITH, J. Conch. x, p. 248, fig.: n. sp.

Calliostoma variegatum, *turbinum*, *iridium*, figd.; DALL, P. U. S. Mus. xxiv, p. 552: *C. dubium*, figd.; PALLARY, J. Conchyl. l, p. 26.

Calliostoma hedleyi, Victoria; PRITCHARD & GATLIFF, P. Soc. Victoria xiv, p. 182, fig.: *C. aucklandicum*, Auckland Is.; SMITH (496), p. 207, fig.: n. spp.

Cantharidus peronii, Phil., note on name; PILSBRY, Nautilus xvi, p. 72.

†*Chartronella*, n. n. for *Chartronia*, Cossmann nec Buckman; COSSMANN, Rev. paleozool. vi, p. 223.

†*Chartronia*, n. gen. for *C. digoniata*, n. sp., Lias, France; COSSMANN in CHARTRON & COSSMANN, Bull. Soc. geol. France ii, p. 199 [cf. *Chartronella*].

Chlorostoma snodgrassi, Galapagos; PILSBRY & VANATTA, P. Washington Ac. iv, p. 557, fig.: n. sp.

†*Circulopsis*, n. sect. of *Collonia* for *C. megalomphalus*, n. sp., Tertiary, France; COSSMANN, Bull. Soc. Ouest France ii, p. 67.

Collonia bicarinata, S. Africa; MARTENS, SB. Ges. naturf. Berlin 1902, p. 241: n. sp.

†*Endianaulax*, n. subgen. of *Ataphrus*, for *E. planicallosum*, n. sp., Lias, France; COSSMANN in CHARTRON & COSSMANN, Bull. Soc. geol. France ii, p. 197.

Ethalia tasmanica, Woods, equals *Modulus modulus*, L.; HEDLEY, Nautilus xvi, p. 49.

Fossarina, Ad. & Ang., belongs to *Trochidæ*; KESTEVEN, Rec. Austral. Mus. iv, p. 317.

Ganesa (?) *panamensis*, Gulf of Panama; DALL, P. U. S. Mus. xxiv, p. 554: n. sp.

Gibbula canfieldi, figd.; DALL, t. c. p. 553.

Gibbula tingitana, Tangier; PALLARY, J. Conchyl. xlix, p. 315 [Figd.; op. cit. l, p. 25]: n. sp.

†*Houdasia*, n. gen. for *H. splendens*, n. sp., Tertiary, Paris Basin; COSSMANN, Ann. Soc. malac. Belgique xxxvi, p. 28.

Kingotrochus, n. subgen. of *Photinula*, type *P. cærulescens*, King; IHERING, Nachrbl. Deutsch. malak. Ges. 1902, p. 98.

Leptothyra arenacea, Victoria; PRITCHARD & GATLIFF, P. Soc. Victoria xiv, p. 181, fig.: n. sp.

Liotia clathrata, protoconch; KESTEVEN, P. Linn. Soc. N. S. Wales xxvi, p. 714.

Liotia corona, *incidata*, Torres Straits; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 14, figg.: n. spp.

Margarites vorticiferus, figd.; DALL, P. U. S. Mus. xxiv, p. 554: *M. aloysii-sabaudiæ*, figd.; POLLONERA (424), p. 623.

Mecoliotia spinosa, N. Queensland; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 15, fig.: n. sp.

Nerita junghuhni, Java; SCHEPMAN, Notes Leyden Mus. xxiii, p. 63, fig.: n. sp.

†*Otomphalus*, n. gen. for *O. dumasi*, n. sp., Tertiary, France; COSSMANN, Bull. Soc. Ouest France ii, p. 62.

†*Parvirota*, n. sect. of *Collonia* for *C. pissarroi*, n. sp., Tertiary, France; COSSMANN, t. c. p. 64.
Photinula, notes on several species; IHERING, Nachrbl. Deutsch. malak. Ges. 1902, p. 97.
Photinula lahillei, Patagonia; IHERING, Nachrbl. Deutsch. malak. Ges. 1902, p. 101: n. sp.
Solariella carlotta, Queen Charlotte Is.; DALL, P. U. S. Mus. xxiv, p. 553: *S. infralævis*, E. Africa, *biradiatula*, N. East Africa; MARTENS, SB. Ges. naturf. Berlin 1902, p. 242 : n. spp.
Teinostoma involuta, Torres Straits; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 13, fig.: n. sp.
Trochocochlea sagittifera, crassa, figd.; PALLARY, J. Conchyl. l, p. 23.
Trochocochlea blainvillei, Tangier; PALLARY, t. c. p. 24, fig.: n. sp.
Turbo pulcher, ticaonicus, notes on opercula; SOWERBY, P. Malac. Soc. London v, p. 12: *T. stamineus*, protoconch; KESTEVEN, P. Linn. Soc. N. S. Wales xxvi, p. 715: *T. exquisitus*, Ad. & Ang., note on; HEDLEY, P. Linn. Soc. N. S. Wales xxvi, p. 701.

HALIOTIDÆ, PLEUROTOMARIIDÆ and FISSURELLIDÆ.

†*Cyrtostropha*, n. gen., type *Murchisonia corallii*, Sby., Silurian; DONALD, Quart. J. Geol. Soc. lviii, p. 322.
†*Goniospira*, n. subgen. of *Hormotoma*, type *G. filosa*, n. sp., Silurian; DONALD, t. c. p. 328.
Haliotis, kidney, etc.; TOTZAUER (554): *H. tuberculata*, kidneys; FLEURE (173): *H. rufescens*, notes on; HEMPHILL, Nautilus xvi, p. 84.
Haliotis granti, Victoria; PRITCHARD & GATLIFF, P. Soc. Victoria xiv, p. 183, fig.: n. sp.
†*Keeneia*, n. gen. for *P. platyschismoides*, n. sp., Permo-Carboniferous, New South Wales; ETHERIDGE, Rec. Austral. Mus. iv, p. 198.
Lucapina crenulata, Gray, anatomy; ILLINGWORTH (244).
†*Palæoschisma*, n. subgen. of *Pleurotomaria*, type *P. girvanense*, n. sp., Silurian; DONALD, Quart. J. Geol. Soc. lviii, p. 335.
Pleurotomaria, monograph concluded; SCHMALZ in MARTINI & CHEMNITZ (337): Note on name; DALL, Nautilus xv, p. 127: *P. beyrichi*, anatomy; BOUVIER & FISCHER (56).
Puncturella galerita, Torres Straits; HEDLEY, P. Linn. Soc. N. S. Wales xxvi, p. 703, fig.: *P.* (*Cranopsis*) *æthiopica*, Zanzibar, p. 242, *analoga*, Kerguelen, p. 243; MARTENS, SB. Ges. naturf. Berlin 1902 : n. spp.
Subemarginula yatesi, figd.; DALL, P. U. S. Mus. xxiv, p. 555.
Zeidora flabellum, figd.; DALL, t. c. p. 555.

DOCOGLOSSA.

PATELLIDÆ.

Patella kermadecensis, systematic position; SUTER, J. Malac. ix, p. 111.

III. SCAPHOPODA.

Dentalium magnificum, Smith, figd.; ALCOCK (2), p. 279.

IV. PELECYPODA.

Mollusca trawled by 'Thetis' off New South Wales, with n. spp. and figures of some previously known species; HEDLEY (219).
Morphology and classification of the Pelecypoda; NOETLING (372).
Structure of the Bivalve Hinge; REIS (444).
Structure of gills in Pelecypoda; RIDEWOOD (449).

SEPTIBRANCHIATA.

Cetoconcha scapha, Gulf of Panama; DALL, P. U. S. Mus. xxiv, p. 561: n. sp.

EULAMELLIBRANCHIATA.

ANATINACEA.

Asthenothærus hemphilli, figd.; DALL, P. U. S. Mus. xxiv, p. 510.
Pandora grandis, Dall, Neogene specimen figd.; RIVERS (450): *P. bushiana*, *trilineata*, *gouldiana*, figd.; DALL, P. U. S. Mus. xxiv, p. 511.

PHOLADACEA.

†*Xylophomya*, n. gen. for *X. laramiensis*, n. sp., Secondary, N. America; WHITFIELD, Bull. Amer. Mus. xvi, p. 75, fig.

MYACEA and CARDIACEA.

Cardium striatulum, n. var.; HEDLEY, Mem. Austral. Mus. iv, p. 322.
Chama lactuca, figd.; DALL, P. U. S. Mus. xxiv, p. 509.
Hippopus, anatomy and morphology; LACAZE-DUTHIERS, Arch. Zool. exp. x, pp. 99–212, figg.
†*Hippurites*, classification; TOUCAS (555).
Lutricola cognata, Galapagos; PILSBRY & VANATTA, P. Washington Ac. iv, p. 556, fig.: n. sp.
Panomya ampla, figd.; DALL, P. U. S. Mus. xxiv, p. 560.
Panopea globosa, figd.; DALL, t. c. p. 560.
Solen, anatomy of British species; BLOOMER (48).
†*Tamiosoma*, Conrad, is a *Balanus*; DALL, Science xv, p. 5.
Tridacna elongata, anatomy and morphology; LACAZE-DUTHIERS, Arch. Zool. exp. x, pp. 99–212, figg.

VENERACEA and TELLINACEA.

Agriopoma, n. sect. of *Meretrix* for *Cytherea texasiana*, Dall, with fig.; DALL, P. U. S. Mus. xxiv, p. 509: also op. cit. xxvi, p. 353.
Anomalodiscus, n. sect. of *Anomalocardia*, type *Cytherea squamosa*, Lam.; DALL, op. cit. xxvi, p. 359.
Austrodosinia, n. sect. of *Dosinia*, type *Cytherea anus*, Phil.; DALL, t. c. p. 347.
Callithaca, n. sect. of *Protothaca* (q. v.), type *Tapes tenerrima*, Cptr.; DALL, t. c. p. 364.
Callocardia (*Agriopoma*) *zonata*, North Carolina, p. 381, *catharia*, Panama, p. 402; DALL, t. c.: n. spp.

Chione mazyckii, North Carolina, p. 382, (*Lirophora*) *schottii*, p. 404, (*L.*) *obliterata*, Panama, (*Timoclea*) *pertincta*, Galapagos, p. 405 ; DALL, t. c. figg. : n. spp.
Clementia solida, Mexico; DALL, t. c. p. 401, fig. : n. sp.
Cyclinella, n. gen. for *C. singleyi*, n. sp., Gulf of California, and others ; DALL, Nautilus xvi, p. 44.
Cyclinella singleyi, W. Mexico; DALL, P. U. S. Mus. xxvi, p. 404, fig.: n. sp.
†*Cyclorisma*, n. subgen. of *Cyprimeria*, type *Cyclothyris carolinensis*, Conrad ; DALL, t. c. p. 357.
Cytherea fordi, figd. ; DALL, t. c. p. 403.
Cytherea (*Ventricola*) *strigillina*, Florida, p. 381, (*V.*) *callimorpha*, Barbados, p. 382, (*V.*) *magdalenæ*, Lower California, (*foveolata* var. ?) *lepidoglypta*, Mexico, p. 403; DALL, op. cit. xxiv, figg. : n. spp.
Dosinella, n. sect. of *Dosinia*, type *Cytherea angulosa*, Phil. ; DALL, P. U. S. Mus. xxvi, p. 347.
Dosinia elegans, *discus*, figd. ; DALL, t. c. p. 379.
Dosinidia, n. sect. of *Dosinia*, type *Venus concentrica*, Born; DALL, t. c. p. 347.
Dosinisca, n. sect. of *Dosinia*, type *Artemis alata*, Reeve ; DALL, t. c. p. 347.
Dosinorbis, n. sect. of *Dosinia*, type *Artemis bilunulata*, Gray ; DALL, t. c. p. 347.
Eucallista, n. sect. of *Amiantis*, type *Cytherea purpurata*, Lam. ; DALL, t. c. p. 352.
Gemma, notes on genus; DALL (122).
Gomphina maorum, New Zealand; SMITH, J. Malac. ix, p. 109, fig. : n. sp.
†*Hyphantosoma*, n. sect. of *Pitaria*, type *Cytherea corbasea*, Guppy ; DALL, P. U. S. Mus. xxvi, p. 354.
Lamelliconcha, n. sect. of *Hysteroconcha*, type *Cytherea concinna*, Sby. ; DALL, t. c. p. 354.
Lepidocardia, n. subgen. of *Cytherea*, type *Chione floridella*, Gray ; DALL, t. c. p. 356.
Liocyma beckii, *viridis*, *scammoni*, figd. ; DALL, t. c. p. 407.
Macridiscus, n. sect. of *Gomphina*, type *Venus æquilatera*, Sby. ; DALL, t. c. p. 359.
†*Macropsammus*, n. n. for *Psammoica*, Dall nec Sol. ; COSSMANN, Ann. Soc. malac. Belgique xxxvi, p. 16.
Mactra, development ; KOSTANECKI (291) : *M. richmondi*, figd. ; DALL, P. U. S. Mus. xxiv, p. 510 : *M. parkesiana*, New South Wales ; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 8, fig. : n. spp.
Mactrella iheringi, figd. ; DALL, P. U. S. Mus. xxiv, p. 510.
Marcia kennerleyi, Rve., figd. ; DALL, op. cit. xxvi, p. 406.
Mercenaria kennicotti, figd. ; DALL, op. cit. xxiv, p. 560.
†*Mercimonia*, n. sect. of *Katelysia*, type *Venus bernayi*, Cossm. ; DALL, op. cit. xxvi, p. 361.
Meretrix texasiana, *conradina* [Figure really refers to *simpsoni* ; DALL, op. cit. xxvi, p. 379], figd. ; DALL, op. cit. xxiv, pp. 509 & 510 : *Paphia* (*Protothaca*) *staminea*, n. var. : DALL, op. cit. xxvi, p. 406.
Parmulina, n. sect. of *Circe*, type *C. corrugata*, Desh. ; DALL, t. c. p. 351.
†*Pelecyora*, n. subgen. of *Dosiniopsis*, type *Cytherea hatchetigbeensis*, Aldr. ; DALL, t. c. p. 346.
Pitaria tomeana, Chile, (*Lamelliconcha*) *callicomata*, Panama ; DALL, op. cit. xxiv, p. 402, figg. : n. spp.
Protapes, n. sect. of *Paphia*, type *Venus gallus*, Gmel. ; DALL, op. cit. xxvi, p. 362.
Protothaca, n. subgen. of *Paphia*, type *Venus thaca*, Molina; DALL, t. c. p. 364.

†*Psammoica*, Dall, renamed *Macropsammus*, q. v.
Psephidia, n. gen., type *Psephis lordi*, Baird; DALL, t. c. pp. 366, 407, fig.: also in J. Conch. x, p. 243.
Psephidia ovalis, California; DALL, P. U. S. Mus. xxvi, p. 407, fig.: n. sp.
†*Radiocrista*, n. sect. (?) of *Gafrarium*, type *Venus pulcherrima*, Desh.; DALL, t. c. p. 350.
Sumarangia, n. sect. of *Katelysia*, type *Venus quadrangularis*, Ad. & Rve.; DALL, t. c. p. 361.
Schumacheria, n. n. for *Scrobiculina*, Dall (1900) nec *Scrobiculinus*, Monts. (1899); COSSMANN, Rev. paleozool. vi, p. 52.
Scrobiculina, Dall, renamed *Schumacheria*, q. v.
Semele werburtonii, Woods, equals *Codakia orbicularis*, L.; HEDLEY, Nautilus xvi, p. 49.
Solanderina, n. sect. of *Sunetta*, type *S. solandri*, Gray; DALL, P. U. S. Mus. xxvi, p. 350.
Spisula parva, Petit, figd., with notes; HEDLEY, P. Linn. Soc. N. S. Wales xxvi, p. 707.
Tapes geographicus and *pullastra* are identical; MARSHALL (326): see also WOODWARD (609).
Tellina bucquoyi, n. n. for *Tellina pulchella* var. *transversa*, B. D. & D., nec *T. transversa*, Desh.; COSSMANN, Rev. paleozool. vi, p. 83.
Theora fragilis, Ad., figd.; HEDLEY, P. Linn. Soc. N. S. Wales xxvi, p. 706.
Tivela abaconis, Bahamas, *nasuta*, Colombia, p. 380, *braziliana*, Brazil, p. 381; DALL, P. U. S. Mus. xxvi, figg.: n. spp.
Transennella conradina, figd.; DALL, t. c. p. 379.
Transennella stimpsoni, Florida; DALL, t. c. p. 379, fig.: n. sp.
Veneridæ, synopsis of North American species; DALL (119).
Venus mercenaria, *campechiensis*, n. varr.; DALL, P. U. S. Mus. xxvi, pp. 377 & 378.

SUBMYTILACEA.

Anodonta anatina, note on; CAZIOT, Feuille Natural., Ann. 32, p. 23: *A. cygnea*, malformed specimen; BLOOMER, J. Malac. ix, p. 96: *Anodonta*, parasitism of Glochidium; FAUSSEK (168): *A. grandis*, variation in position of adductor muscles; DOWNING (144).
Anodonta suilla, Tonkin; MARTENS, Nachrbl. Deutsch. malak. Ges. 1902, p. 130: n. sp.
Astarte globula, figd.; DALL, P. U. S. Mus. xxiv, p. 508.
Bornia filosa, New South Wales; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 7, fig.: n. sp.
†*Bruntrutia*, n. n. for *Kobya*, de Loriol nec Gregory; COSSMANN, Rev. paleozool. vi, p. 116.
Calyculina, North American species; STERKI (520).
Calyculina hodgsonii, Illinois, *ferrissii*, United States; STERKI, Nautilus xvi, p. 91: n. spp.
Cardita (Glans) sulcosa, Panama Bay; DALL, P. Ac. Philad. 1902, p. 715: *C. cavatica*, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 318, fig.: n. spp.
Carditacea, synopsis; DALL (120).
Condylocardia projecta, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 317, fig.: n. sp.
Congeria lunata, Queensland; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 8, fig.: n. sp.
Crassatellites securiforme, p. 312, *scabrilirata*, p. 314, New South Wales; HEDLEY, Mem. Austral. Mus. iv, figg.: n. spp.

†*Creninargo*, n. gen. for *C. inaequicrenata*, n. sp., Tertiary, Paris Basin; COSSMANN, Ann. Soc. malac. Belgique xxxvi, p. 24.
Cuna, n. gen., p. 314, type *C. concentrica*, n. sp., p. 315, with *C. particula*, n. sp., p. 316, New South Wales; HEDLEY, Mem. Austral. Mus. iv, figg.
Cyprina islandica, notes on; JENSEN (251).
Cypriniadea, Rovereto, should replace *Cyprina*, Lam.; NEWTON (369): Not so; HOYLE (236): See NEWTON, op. cit. p. 243.
Diplodon websteri, New Zealand; SIMPSON, Nautilus xvi, p. 30: n. sp.
Erycina acupuncta, New South Wales; HEDLEY, Mem. Austral Mus. iv, p. 321, fig.: n. sp.
†*Gradilucina*, n. sect. of *Phacoides*, type *Lucina tabulata*, Desh., Tertiary; COSSMANN, Ann. Soc. malac. Belgique xxxvi, p. 20.
†*Kobya*, n. gen. for *K. typica*, n. sp., Oxfordian, Jura; LORIOL (316), p. 58: renamed *Bruntrutia*, q. v.
Lampsilis blatchleyi, Indiana; DANIELS, Nautilus xvi, p. 13, fig.: n. sp.
Lucina spinifera, Montagu, figd.; ALCOCK (2), p. 280.
Montacuta spitzbergensis, Spitzbergen; KNIPOVITSCH, Annuaire Mus. St. Petersb. vi, p. 519, fig.: n. sp.
Neocorbicula found with nepionic young; DALL, Nautilus xvi, p. 82.
Nodularia (*Lanceolaria*) *bilirata*, p. 133, (*L.*) *lævis*, p. 134, Tonkin; MARTENS, Nachrbl. Deutsch. malak. Ges. 1902: n. spp.
Pisidium strengii, United States; STERKI, Nautilus xv, p. 126: *P. baicalense*, p. 93, *maculatum*, p. 94, *trigonoides*, *raddei*, p. 95, Lake Baikal; DYBOWSKI, Nachrbl. Deutsch. malak. Ges. 1902: n. spp.
Pseudodon resupinatus, Tonkin; MARTENS, t. c. p. 131: n. sp.
Quadrula salafrutium, Annam; MARTENS, t. c. p. 132: n. sp.
Rochefortia donaciformis, Angas, figd.; HEDLEY, P. Linn. Soc. N. S. Wales xxvii, p. 7.
Rochefortia lactea, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 320, fig.: n. sp.
Sphærium sulcatum, anatomy; DREW (147).
Sphærium ssorense, p. 91, *baicalense*, *korotniewii*, p. 92, *westerlundi*, p. 93, Lake Baikal; DYBOWSKI, Nachrbl. Deutsch. malak. Ges. 1902: n. spp.
Tridonta cagnii, p. 621, *cavallii*, p. 627, figd.; POLLONERA (424).
Unionidæ, list of N. American species; WRIGHT & WALKER (610): Monstrosities; BAKER (31): Time of sexual maturity; KELLY (268).
Unio beauchampi, Tennessee; MARSH, Nautilus xvi, p. 7, fig.: *U. andrewsii*, Tennessee; MARSH, Nautilus xv, p. 115 [Figd.; MARSH, op. cit. xvi, p. 8]: n. spp.
†*Venericardia*, note on hinge; COSSMANN (102).
Venericardia (*Cyclocardia*) *armilla*, Gulf of Mexico, (*C.*) *moniliata*, p. 713, Brazil, (*C.*) *gouldii*, California, (*C.*) *incisa*, Unalaska, p. 714, (*C.*) *stearnsii*, pp. 709, 712, (*C.*) *alaskana*, pp. 710, 715, Alaska; DALL, P. Ac. Philad. 1902: n. spp.

PSEUDOLAMELLIBRANCHIATA.

Amussium alcocki, Smith, figd.; ALCOCK (2), p. 281.
Amusium thetidis, New South Wales; HEDLEY, Mem. Austral. Mus. iv, p. 304, fig.: n. sp.
Chlamys hedleyi, n. n. for *C. fenestrata*, Hedley, nec *Pecten fenestratus*, Forbes; DAUTZENBERG, J. Conchyl. xlix, p. 348.
†*Chondrodonta*, n. gen., type *Ostrea munsoni*, Hill; STANTON, P. U. S. Mus. xxiv, p. 302: Notes on genus; DOUVILLÉ (143).
Cyclopecten favus, p. 305, *obliquus*, p. 306, New South Wales; HEDLEY Mem. Austral. Mus. iv, figg.: n. spp.

Dimya corrugata, New South Wales ; HEDLEY, t. c. p. 308, fig. : n. sp.
Lima albicoma, figd. ; DALL, P. U. S. Mus. xxiv, p. 507 : *L. indica*, Smith, figd. ; ALCOCK (2), p. 281.
Lima galapagensis, Galapagos ; PILSBRY & VANATTA, P. Washington Ac. iv, p. 556, fig. : *L. patagonica*, Patagonia, *agassizii*, Gulf of Panama ; DALL, Nautilus xvi, p. 16 : n. spp.
†*Neoinoceramus*, n. gen. for *N. ameghinoi*, n. sp., Tertiary, Patagonia ; IHERING, P. Amer. Phil. Soc. xli, p. 134, fig.
Ostrea, boring by *Polydora* ; MCINTOSH (318).
Pecten, variation ; DAVENPORT (131) : Structure of mantle ; BOUTAN (55) : *P. opercularis*, n. var. ; DAUTZENBERG, J. Conchyl. xlix, p. 340 : *P. æquisulcatus*, notes on, with anatomy ; WILLIAMSON (593) : *P. gibbus* var., figd. ; DALL, P. U. S. Mus. xxiv, p. 507 : *P. randolphi*, *davidsoni*, figd. ; DALL, t. c. p. 559.
Pecten colbecki, Franklin I. ; SMITH (496), p. 212, fig. : n. sp.
Philobrya atlantica, figd. ; DALL, P. U. S. Mus. xxiv, p. 507.
Philobrya pectinata, New South Wales ; HEDLEY, Mem. Austral. Mus. iv, p. 299, fig. : n. sp.
†*Pseudomonotis*, note on type ; DIENER, Centrbl. Mineral. 1902, p. 342.

FILIBRANCHIATA.

Anomia, muscular structure ; JOBERT (253).
Arca adamsi var. *sagrinata*, figd. ; DALL, P. U. S. Mus. xxiv, p. 508.
Bathyarca perversidens, New South Wales ; HEDLEY, Mem. Austral. Mus. iv, p. 298, fig. : n. sp.
Crenella pectinula, *faba*, figd. ; DALL, P. U. S. Mus. xxiv, pp. 507 & 508.
Crenella megas, Panama Bay ; DALL, t. c. p. 559 : n. sp.
Limopsis panamensis, Panama Bay ; DALL, t. c. p. 559 : n. sp.
Lissarca aucklandica, Auckland Is. ; SMITH (496), p. 212, fig. : n. sp.
Modiolaria splendida, figd. ; HEDLEY, P. Linn. Soc. N. S. Wales xxvi, p. 706.
Mytilidæ of the Gulf of Naples, Monograph ; LIST (305).
Mytilus, structure of the mantle and shell ; JAMESON, P. Zool. Soc. London 1902, i, pp. 146 & 147 : Occurrence of n. gen. and sp. of Crustacean in gills ; STEUER (522) : Formation of pearls ; DUBOIS (153).
Trigonia, hinge and brephic stage ; HEDLEY, Mem. Austral. Mus. iv, p. 302.

PROTOBRANCHIATA.

Cyrilla dalli, New South Wales ; HEDLEY, Mem. Austral. Mus. iv, p. 296, fig. : n. sp.
Leda hamata, figd. ; DALL, P. U. S. Mus. xxiv, p. 558.
Leda miliacea, New South Wales ; HEDLEY, Mem. Austral. Mus. iv, p. 295, fig. : n. sp.
Nucula fultoni, Smith, figd. ; ALCOCK (2), p. 282 : *N. superba*, n. n. for *N. obliqua*, Hanley & Smith nec Lamarck ; HEDLEY, Mem. Austral. Mus. iv, p. 292.
Pronucula, n. gen. for *P. decorosa*, n. sp., New South Wales ; HEDLEY, t. c. p. 290, fig.
Yoldia angulata, Sowerby, figd. ; ALCOCK (2), p. 282.

V. AMPHINEURA.

APLACOPHORA.

Phylogeny and relationship with *Chitonidæ* and worms; THIELE, Zeitschr. wiss. Zool. lxxii, pp. 249–466, figg.
Aplacophora, phylogeny; NIERSTRASZ (371).
Classification and affinities; PRUVOT, Arch. zool. exp. Notes x, pp. viii–xxvii.
Chætoderma, radula; NIERSTRASZ (371).
Chætoderma loveni, p. 36, *wireni*, p. 39, East Indian Archipelago; NIERSTRASZ (371), figg. : n. spp.
Cyclomenia, n. gen., p. 29, for *C. holosericea*, n. sp., p. 30, East Indian Archipelago; NIERSTRASZ (371), fig.
Dinomenia, n. gen., p. 11, for *D. hubrechti*, p. 11, *verrucosa*, p. 13, n. spp., East Indian Archipelago; NIERSTRASZ (371), fig.
Dondersia annulata, East Indian Archipelago; NIERSTRASZ (371), p. 33, fig.: n. sp.
Hemimenia, n. gen. for *H. intermedia*, n. sp., East Indian Archipelago; NIERSTRASZ (371), p. 25, fig.
Notomenia clavigera, Thiele, figd.; THIELE, Zeitschr. wiss. Zool. lxxii, p. 250.
Proneomenia australis, Thiele, figd.; THIELE, t. c. p. 255.
Proneomenia valdiviæ, East Africa; THIELE (551), p. 169, fig.: *P. thulensis*, Spitzbergen; THIELE, Fauna Arctica, p. 111, fig.: *P. weberi*, p. 2, *longa*, p. 7, East Indian Archipelago; NIERSTRASZ (371), figg. : n. spp.
Proparamenia, n. gen. for *P. bivalens*, n. sp., Java Sea; NIERSTRASZ (371), p. 18, fig.
Rhopalomenia indica, East Indian Archipelago; NIERSTRASZ (371), p. 22, fig.: n. sp.

POLYPLACOPHORA.

Monograph commenced; CLESSIN in MARTINI & CHEMNITZ (337).
Chætopleura destituta, South Africa; SYKES, P. Malac. Soc. London v, p. 195, fig. : n. sp.
Ischnochiton stearnsii, p. 557, *sarcosus*, p. 558, California; DALL, P. U. S. Mus. xxiv : n. spp.
Lepidopleurus mesogonus, Queen Charlotte Is., p. 555, *halistreptus*, Mexico, *luridus* Panama Bay, p. 557, *farallonis*, California, p. 557; DALL, t. c. : n. spp.

VIII. BRACHIOPODA.

BY

E. R. Sykes, B.A.

ASSISTED BY

E. A. Smith.

CONTENTS.

	Page
I. Titles	1
II. Biology.	
Anatomy	5
Distribution.	
Geographical	5
Geological	5
III. Systematic	7

I. TITLES.*

1. Alcock, A. A Naturalist in Indian Seas. London, 8vo, 328 pp., 98 figg. Brachiopoda, p. 283, fig. 83.

2. Ami, H. M. Bibliography of Canadian Geology and Palæontology for the year 1900. Tr. R. Soc. Canada vii, sect. iv, pp. 123–133.

3. *Beecher, C. E. E. Studies in Evolution. Yale Bicentennial Publications. New York, 8vo, xxiii + 638 pp., pls., 1902.

* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Paper or Work referred to.

4. Beede, J. W. Variation of the Spiralia in *Seminula argentea* (Shepard) Hall. Science Bull. Kansas i, pp. 155–158, pl. vi.

5. —— & Rogers, A. F. Coal Measures Faunal Studies ii. T. c. pp. 163–181.

6. Bellini, R. Contribuzione alla conoscenza della fauna dei molluschi marini dell isola di Capri. Boll. Soc. Napoli xv, pp. 85–121.

7. Boettger, O. Zur Kenntnis der Fauna der Mittelmiocänen Schichten von Kostej im Krassö-Szörényer Komitat. Herrmanstadt, 1901, 200 pp. Forms part of Verh. Siebenb. Ver. li.

8. Carapezza, E. & Schopen, L. F. Sopra alcune nuove Rhyconelline della Sicilia. Giorn. Soc. Palermo xxii, pp. 215–254, pls. i–iii.

9. Clarke, J. M. Limestones of Central and Western New York interbedded with Bituminous Shales of the *Marcellus* stage, with notes on the nature and origin of their faunas. Bull. N. York Mus. x, pp. 115–138, pl. viii.

10. Claudon, E. Faune Malacologique marine de Saint-Raphäel (Var). Brachiopoda. Feuille Natural., Ann. 32, p. 213.

11. Conklin, E. G. The Embryology of a Brachiopod, *Terebratulina septentrionalis* Couthouy. P. Amer. Phil. Soc. xli, pp. 41–76, 10 pls.

12. Cossmann, M. Appendice No. 3 au catalogue illustré des Coquilles fossiles de l'Éocène des environs de Paris. Ann. Soc. malac. Belgique xxxvi, pp. 9–110, pls. ii–vii.

13. Cumings, E. R. & Mauck, A. V. A quantitative study of variation in the fossil Brachiopod *Platystrophia lynx*. Amer. J. Sci. xiv, pp. 9–16, figg.

14. Dall, W. H. Illustrations and descriptions of new, unfigured, or imperfectly known shells, chiefly American, in the U. S. National Museum. P. U. S. Mus. xxiv, pp. 499–566, pls. xxvii–xl.

15. Drevermann, F. Die Fauna der Untercoblenzschichten von Oberstadtfeld bei Daun in der Eifel. Palæontogr. xlix, pp. 73–120, pls. ix–xiv.

16. ——. Die Fauna der oberdevonischen Tuffbreccie Langenaubach bei Haiger. Jahrb. geol. Landesanst. Berlin xxi, Abh. Auss., pp. 99–207, pls. xii–xvi.

17. Dun, W. S. Notes on some large Chonetine Shells from the Carboniferous of New South Wales. Rec. Geol. Survey N. S. Wales vii, pp. 69–71, pls. xix & xx.

18. ——. Notes on some Carboniferous Brachiopods from Clarence Town. T. c. pp. 72–88, pls. xxi–xxiii.

19. ——. Description of a New Species of *Productus* from the Carboniferous System of New South Wales. T. c. pp. 91–93, pl. xxv.

20. Etheridge, R. The Cretaceous Mollusca of South Australia and the Northern Territory. Mem. R. Soc. S. Austral. ii, pp. 1–54, pls. i–vii.

21. Gemmellaro, G. G. La fauna dei calcari con *Fusulina* della valle del Fiume Sosio nella Provincia di Palermo. Giorn. Soc. Palermo xxii, pp. 95–214, pls. xxv–xxxvi.

22. Groom, T. The Sequence of the Cambrian and Associated Beds of the Malvern Hills. With an appendix on the Brachiopoda by C. A. Matley. Quart. J. Geol. Soc. lviii, pp. 89–149, figg.

23. Hedley, C. Scientific Results of the trawling Expedition of H.M.C.S. "Thetis" off the Coast of New South Wales in February and March, 1898. Mollusca. Part I. Brachiopoda and Pelecypoda. Mem. Austral. Mus. iv, pp. 287–324, figg.

24. Hind, W. A list of localities where fossils occur in the Pendleside series of the country round North Staffordshire. Rep. North Staffordsh. Club xxxvi, pp. 77–81, 1 pl.

25. ——. On the characters of the Carboniferous Rocks of the Pennine System. P. Yorksh. geol. Soc. xiv, pp. 422–464.

26. Hudleston, W. H. Fossils from the Hindu Khoosh. Palæontology. Geol. Mag. 1902, pp. 49–58, pls. ii & iii.

27. Joubin, W. Résultats du voyage du S.Y. Belgica en 1897–1899..... Zoologie. Brachiopodes. Anvers, 1902, 11 pp., 2 pls.

28. Keyes, C. R. & Rowley, R. R. Vertical Range of fossils at Louisiana. P. Iowa Ac. iv, pp. 26–40 [1897].

29. Kindle, E. M. The Niagara Limestones of Hamilton County, Indiana. Amer. J. Sci. xiv, pp. 221–224.

30. Knipovitsch, N. M. Zoologische Ergebnisse der Russischen Expeditionen nach Spitzbergen. Mollusca und Brachiopoda. I. Ueber die in den Jahren 1899–1900 im Gebiete von Spitzbergen gesammelten recenten Mollusken und Brachiopoden. Annuaire Mus. St. Petersb. vi, pp. 435–558, pls. xviii & xix.

31. Leney, F. A List of the 'Type,' Figured, and Described Fossils in the Norwich Castle Museum. Geol. Mag. 1902, pp. 220–231.

32. Loriol, P. de. Étude sur les Mollusques et Brachiopodes de l'Oxfordien supérieur et moyen du Jura Bernois. Premier Supplément. Abh. Schweiz. pal. Ges. xxviii, 119 pp., 7 pls.

33. Mariani, E. Note geologiche sul gruppo delle Grigne. Rend. Ist. Lombardo xxxiv, pp. 1259–1271, figg.

34. Martelli, A. Il devoniano superiore dello Schensi (Cina). Boll. Soc. geol. Ital. xxi, pp. 349–370, pl. xiv.

Matley, C. A. [See Groom (22).]

35. Matthew, G. F. *Acrothyra* and *Hyolithes*, a comparison. Tr. R. Soc. Canada vii, sect. iv, pp. 93–107, figg.

Mauck, A. V. [See Cumings & Mauck (13).]

36. *Morse, E. S. Observations on living Brachiopoda. Mem. Boston Soc. v, pp. 313–374, 386, pls. xxxix–lxi.

37. Norman, A. M. Notes on the Natural History of East Finmark. Ann. Nat. Hist. x, pp. 341–361.
Brachiopoda at p. 360.

38. Ortmann, A. E. Tertiary Invertebrates. Rep. Princeton Univ. Exped. Patagonia iv, pp. 45–332, pls. xi–xxxix.

39. Raymond, P. E. The Crown Point Section. Bull. Amer. Pal. xiv, 40 pp., 3 pls.

40. Remeš, M. Nachträge zur Fauna von Stramberg. I. Die Fauna des rothen Kalksteins (Nesselsdorfer Schichten). Beitr. Pal. Oesterr.-Ung. xiv, pp. 195–217, pls. xviii–xx.

41. ——. Die Fauna des Kalkes von Skalička. Verh. geol. Reichsanst. 1902, pp. 135–141.

ROGERS, A. F. [See BEEDE & ROGERS (5).]

42. ROWLEY, R. R. New species of fossils from the subcarboniferous rocks of Northeastern Missouri. Amer. Geol. xxix, pp. 303–310, pl. xviii.

——. [See also KEYES & ROWLEY (28).]

43. RUEDEMANN, R. Hudson River Beds near Albany and their taxonomic equivalents. Bull. N. York Mus. viii, pp. 489–596, 2 pls., map.

44. ——. Trenton Conglomerate of Rysedorph Hill and its fauna. Op. cit. x, pp. 3–114, 7 pls.

45. SACCO, F. I Brachiopodi dei terreni terziarii del Piemonte e della Liguria. Turin, 4to, 1902, 40 pp., 6 pls.

SCHOPEN, L. F. [See CARAPEZZA & SCHOPEN (8).]

46. SOBOLEV, D. N. Fauna drevnyeíshīkh srednedevonskīkh otlerheniĭ Tz Polskagh. [Fauna of the lowest middle Devonian strata of the Empire of Poland.] Protok. Obshch. Varshav. xi, Biol. Sect. No. 7, 2 pp.

47. SUTER, H. List of the Species described in F. W. Hutton's Manual of the New Zealand Mollusca, with the corresponding names used at the present time. Tr. N. Zealand Inst. xxxiv, pp. 207–224.

48. WALCOTT, C. D. Cambrian Brachiopoda ; *Obolella*, subgenus *Glyptias*; *Bicia* ; *Obolus*, subgenus *Westonia*; with descriptions of new species. P. U. S. Mus. xxiii, pp. 669–695 [1901].

49. WEEKS, F. W. Bibliography of North American Geology, Paleontology, Petrology, and Mineralogy for the years 1892–1900, inclusive. Bull. U. S. Geol. Surv., No. 188, 717 pp.

50. ——. Index to North American Geology, Paleontology, Petrology, and Mineralogy for the years 1892–1900, inclusive. Op. cit. No. 189, 337 pp.

51. WELLER, S. Kinderhook Faunal Studies. I. The fauna of the vermicular sandstone at Northview, Webster County, Missouri. Tr. Ac. St Louis ix, pp. 9–51, pls. ii–vi [1899].

52. ——. Kinderhook Faunal Studies. II. The fauna of the *Chonopectus* sandstone at Burlington, Iowa. Op. cit. x, pp. 57–129, pls. i–ix [1900].

53. ——. Kinderhook Faunal Studies. III. The faunas of Beds No. 3 to No. 7 at Burlington, Iowa. Op. cit. xi, pp. 147–214, pls. xii–xx [1901].

54. WHITEAVES, J. F. On the Genus *Trimerella*, with descriptions of two supposed new species of that Genus from the Silurian Rocks of Keewatin. Ottawa Natural. xvi, pp. 139–143, pls. ii & iii.

55. WOOD, E. *Marcellus* (Stafford) Limestone of Lancaster, Erie Co., N. Y. Bull. N. York Mus. x, pp. 139–181, pl. ix.

56. YATSU, N. On the Development of *Lingula anatina*. J. Coll. Japan xvii, Art. 4, 112 pp., 8 pls.

57. ——. Notes on Histology of *Lingula anatina* Bruguière. T. c. Art. 5, 30 pp., 2 pls.

58. ——. On the habits of the Japanese *Lingula*. Annot. zool. Japon. iv, pp. 61–67.

II. BIOLOGY.

A. Anatomy, &c.

Morphology:—Variation of the Spiralia in *Seminula*; Beede (4).—Embryology of *Terebratulina septentrionalis*, Couthouy; Conklin (11).—Variation in *Platystrophia lynx*; Cumings & Mauck (13).—On some living Brachiopods; Morse (36).—Habits of *Lingula*; Yatsu (58).—Development of *Lingula unatina*; Yatsu (56): On its Histology; Yatsu (57).

Bibliography:—Canadian Palæontology for 1900; Ami (2).—List of type and figured fossils in Norwich Museum; Leney (31).—Bibliography of North American Palæontology for 1892–1900; Weeks (49): Index to same; Weeks (50).

B. Distribution.

GEOGRAPHICAL.

Arctic:—Three species collected by the 'Michael Sars' Expedition; Friele, Bergens Mus. Aarbog 1902, no. 3, p. 4.

Spitzbergen:—Notes on fauna; Knipovitsch (30).

East Finmark:—Notes on fauna; Norman (37).

S. France (St. Raphaël):—List of Brachiopoda; Claudon (10).

Capri:—List of species; Bellini (6).

Indian Ocean:—Deep-Sea fauna, two species of *Terebratula* quoted; Alcock (1).

West Patagonia:—*Crania patagonica*, n. sp.; Dall (14).

Antarctic:—Forms collected by the Belgian Expedition, with n. spp. of *Crania* and *Rhynconella*; Joubin (27).

New South Wales:—Brachiopods trawled by 'Thetis' Expedition; Hedley (23).

New Zealand:—Correct nomenclature of species described in Hutton's Manual of the New Zealand Mollusca; Suter (47).

GEOLOGICAL.

General:—Fossils from Pendleside series in Staffordshire; Hind (24).—Fossils from Oxfordshire; Walford, Quart. J. Geol. Soc. lviii, p. 267.—Few fossils from Junction Beds of Lias and Oolite in Northamptonshire; Thompson, J. Northampt. Soc. xi, pp. 197, 235.

Tertiary:—

Europe:—Appendix to catalogue of Paris Basin fossils with *Cistella thioti*, n. sp.; Cossmann (12).—Brachiopoda from middle Miocene of Kostej, with n. spp.; Boettger (7).—Review of fauna of Piedmont and Liguria, with n. varr., and n. spp. of *Cistella*, *Hemithyris*, *Megathyris*, *Terebratulina*, and *Thecidea*; Sacco (45).

America:—*Terebratalia hemphilli*, n. sp., Santa Barbara; Dall (14).—Brachiopoda collected by Princeton University Expedition in Patagonia, with *Terebratella gigantea*, n. sp.; Ortmann (38).

Cretaceous:—

Europe:—Cenomanian fossils from Toulon; Michalet, Bull. Soc. geol. France ii, p. 574.—Few Senonian Brachiopods from Wolfenbüttel; Wollemann, Jahrb. geol. Landesanst. Berlin xxi, Abh. Auss., p. 1. –*Rhynconella*

compressa from Glatz; STURM, Jahrb. geol. Landesanst. Berlin xxi, Abh. Auss., p. 96.

Australia:—Fauna of South Australia and the Northern Territory with *Rhynconella eyrei*, n. sp.; ETHERIDGE (20).

Jurassic:—

Europe:—Brachiopoda from Franken and Oberpfalz; SCHLOSSER, Zeitschr. Deutsch. geol. Ges. liii, p. 513.—Fauna of the Chalk of Skalička; REMEŠ (41).—Fauna of the 'Nesselsdorfer Schichten' of Stramberg; REMEŠ (40). —Few fossils from near Regensburg; POMPECKJ, Geognost. Jahresh. xiv, p. 139.—First supplement to Oxfordian fauna of Bernese Jura; LORIOL (32).

Lias:—

British Isles:—Occurrence of *Discina holdensis* in Antrim; BELL, Irish Natural. xi, p. 103.—Local fossils in Rugby Museum; ANON., Rep. Rugby Soc. 1901, p. 38.

Europe:—Brachiopods from Franken and Oberpfalz; SCHLOSSER, Zeitschr. Deutsch. geol. Ges. liii, p. 513.—Few fossils from Castel del Monte (Umbria); ANGELIS D'OSSAT, Boll. Soc. geol. Ital. xxi, p. 30.—New species of *Rhynconellina* from Sicily; CARAPEZZA & SCHOPEN (8).

Trias:—Fossils from Lombardy, with n. spp.; MARIANI (33).

Palæozoic:—Comparison between *Acrothyra* and *Hyolithes*; MATTHEW (35).

Asia:—Brachiopoda from the Hindu Khoosh; HUDLESTON (26).

America:—Fauna of limestones of Central and Western New York; CLARKE (9).—Fauna of *Marcellus*-limestone of Lancaster, New York, with n. spp.; WOOD (55).—Fossils from Crown Point Section, with n. spp.; RAYMOND (39).

Permian:—Few fossils from Upper Permian of Western Texas; GIRTY, Amer. J. Sci. xiv, p. 363.

Carboniferous:—

British Isles:—Fossils from the Pennine Area; HIND, ETC., Rep. Brit. Ass. 1901, p. 289.

Europe:—Fauna of the *Fusulina*-Limestone of Palermo, with n. gen. and many n. spp.; GEMMELLARO (21).

America:—Fauna of vermicular sandstone in Missouri, with n. spp.; WELLER (51).—Fauna of *Chonopectus*-sandstone at Burlington, with n. spp.; WELLER (52).—Fauna of various beds at Burlington, Iowa, with n. spp.; WELLER (53).—Vertical range of fossils at Louisiana; KEYES & ROWLEY (28).—*Spirifer pekensis*, n. sp., Missouri; ROWLEY (42).—Lists of fossils from near Morgantown, Virginia, with notes; WHITE, Amer. Geol. xxx, p. 211.—Carboniferous fossils from Kansas; BEEDE & ROGERS (5).

Australia:—*Productus barringtonensis*, n. sp., N. S. Wales; DUN (18).—Notes on some Brachiopods from Clarence Town, N. S. Wales; DUN (19). —Notes on N. S. Wales fossils, with *Chonetes aspinosa*, n. sp.; DUN (17).

Devonian:—Brachiopods from Schensi, with n. spp.; MARTELLI (34). —Upper Devonian fossils from Langenaubach with n. spp.; DREVERMANN (16).—Few fossils from Poland; SOBOLEV (46).—Fauna of the 'Untercoblenzschichten' of Oberstadfel, with n. spp.; DREVERMANN (15).

Silurian:—

British Isles:—Fossils from Clogher Head, Co. Kerry; GARDINER & REYNOLDS, Quart. J. Geol. Soc. lviii, p. 226.

Europe:—Few Bohemian fossils; ŽELIŚKO, Verh. geol. Reichsanst. 1902, p. 61.

America:—Few fossils from Niagara Limestone of Indiana; KINDLE (29).—Fauna of Trenton conglomerate of Rysedorph Hill, N. Y., with n. spp.; RUEDEMANN (44).—Fossils from Hudson River Beds near Albany, with n. spp.; RUEDEMANN (45).—Notes on *Trimerella*, with two n. spp. from Northern Ontario; WHITEAVES (54).

Cambrian:—Many new species from various localities, with notes on known forms; WALCOTT (48).

British Isles:—Fossils of the Pennine System; HIND (25).—Fossils from Malvern Hills; MATLEY in GROOM (22).

America:—Fossils from Mount Stephen, British Columbia; WOODWARD, Geol. Mag. 1902, p. 502.

Australia:—Note on *Spirifer tasmaniensis*, Morris; ETHERIDGE, Rec. Geol. Survey N. S. Wales vii, p. 66.

III. SYSTEMATIC.

Critical notes on many fossil species; WALCOTT (48).

†*Bicia*, n. gen., type *Obolella gemma*, Billings; WALCOTT, P. U. S. Mus. xxiii, p. 676.

Crania patagonica, W. Patagonia; DALL, P. U. S. Mus. xxiv, p. 562: *C. lecointei*, Antarctic; JOUBIN (27), p. 9, fig. : n. spp.

†*Glyptias*, n. subgen. of *Obolella*, type *O. favosa*, Linnarsson, Cambrian; WALCOTT, P. U. S. Mus. xxiii, p. 675.

Lingula anatina, habits of; YATSU, Annot. zool. Japon. iv, pp. 61–67: Development; YATSU (56): Histology; YATSU (57).

Rhynconella racovitzæ, p. 5, *gerlachei*, p. 7, Antarctic; JOUBIN (27), figg. : n. spp.

†*Squamularia*, n. gen. for *S. rotundata*, *dieneri*, n. spp., Carboniferous, Sicily; GEMMELLARO, Giorn. Soc. Palermo xxii, p. 189.

Terebratula johannis-davisi, Alcock, figd.; ALCOCK (1), p. 283.

Terebratulina septentrionalis, Couthouy, embryology; CONKLIN (11).

† *Westonia*, n. subgen. of *Obolus*, for *O. aurora* and others; WALCOTT, P. U. S. Mus. xxiii, p. 691.

IX. BRYOZOA.

BY

ALICE L. EMBLETON, B.Sc.

CONTENTS.

	Page
I. TITLES	2
II. SUBJECT INDEX	5
(*a*) General Biology	5
(*b*) Geographical	5
III. SYSTEMATIC	6

INTRODUCTION.

HARMER (15) gives a comprehensive account of the morphology of the *Cheilostomata* while LEVINSEN (24) has published a paper on the classification and anatomy of that group of Polyzoa. Levinsen's conclusion that *Cinctipora elegans* Hutton belongs to the supposed extinct family *Ceidæ*—and therefore called *Filicea elegans* is worthy of note.

NEVIANI has continued his work on bibliography, and has also contributed four papers on fossil forms.

MAPLESTONE (25 & 26) describes many new species of Cheilostomatous Polyzoa from the Tertiary beds of Victoria.

Swedish species have been listed with localities, synonymy and distribution by ANDERSSON (1).

I. TITLES.*

1. Andersson, K. A. Bryozoen während der schwedischen Expedition 1898 und 1899 unter Leitung von Professor A. G. Nathorst und 1900 unter Leitung von Konservator G. Kolthoff gesammelt. Zool. Jahrb. Syst. xv, pp. 537–560, pl. xxx.
Summary, Zool. Centrlbl. ix, p. 460.

2. *Andrusov, N. Die südrussischen Neogenablagerungen. Verh. russ. miner. Ges. (2) xxxix, pp. 337–495, 1 pl. [n. spp. undescribed].

3. Basedow, H. On the occurrence of Miocene limestones at Edinburgh, and their stratigraphical relationship to the Eocene of Wool Bay, with description of a new species by Professor R. Tate. Tr. R. Soc. S. Austral. xxv, pp. 145, 148 [unimportant for *Bryozoa*].

4. Calvet, L. Matériaux pour servir à l'histoire de la faune des Bryozoaires des côtes françaises. I. Bryozoaires marins de la région de Cette. Trav. Inst. Zool. Montpellier (2) xi, pp. 1–103, 3 pls.

5. ——. II. Bryozoaires marins des côtes de Corse. T. c. (2) xii, pp. 1–52, 2 pls.

——. [See also Labbé (21).]

Cantrill, T. C. [See Strahan & Cantrill (53).]

6. Canu, F. Bryozoaires fossiles. Bull. Soc. geol. France, (4) ii, pp. 10–14, 2 figg.

7. Condra, G. E. New Bryozoa from the Coal measures of Nebraska. Amer. Geol. xxx, pp. 337–358, pl. xviii–xxv.

8. Cumings, E. R. A revision of the Bryozoan genera *Dekayia*, *Dekayella* and *Heterotrypa* of the Cincinnati Group. Op. cit. xxix, pp. 197–217, pls. ix–xii.

9. *Deecke, W. Neue Materialien zur Geologie von Pommern. Mt. Ver. Neu-Pommern. Rügen Jahrg. 33 pp. i fig.

10. *Elbert, J. Das untere Angoumien in der Osningbergketten des Teutoburger Waldes. Verh. Ver. Rheinland lviii, pp. 77–167, 4 pls.

11. Flamand, G. B. M. Sur la présence du Terrain carbonifèrien dans le Tidikelt (Archipel touatien) Sahara. C.R. Ac. Sci. cxxxiv, pp. 1533–1536.

12. Forel, F. A. Le Léman, monographie limnologique. III. Lausanne, 1902. [*Bryozoa*, pp. 113–115, fig. 189.]

13. Fox, H. On the distribution of fossils on the north coast of Cornwall south of the Camel. Tr. Geol. Soc. Cornwall xii, pp. 535–545. [Lists of spp. found—unimportant for *Bryozoa*.]

14. Gardiner, C. J. & Reynolds, S. H. The fossiliferous Silurian beds and associated igneous rocks of the Clogher Head district (Co. Kerry). Quart. J. Geol. Soc. lviii, pp. 226–266, & map.

Grabau, A. W. [See Shimer & Grabau ( ).]

Gravier, C. [See Perrier & Gravier ( ).]

---

* An asterisk prefixed to a title indicates that the Recorder has not seen the Journal or Work referred to.

15. HARMER, S. F. On the morphology of the *Cheilostomata*. Quart. J. Micr. Sci. xlvi, pp 263–450, pls. xv–xviii.

16. ——. *Polyzoa*. Enc. Brit. xxxi, pp. 826–830, 6 figg.

17. HERDMAN, W. A. Fifteenth annual report of the Liverpool Marine Biology Committee and their Biological station at Port Erin. P. Liverp. biol. Soc. xvi, pp. 27–66.

18. ——. Guide to the Port Erin Aquarium. T. c. [*Bryozoa*, pp. 85 & 86, fig.]

HOLLAND, R. [See NEWTON & HOLLAND (38).]

19. KIRKPATRICK, R. Polyzoa. "Southern Cross" Collections, London, 1902, pp. 286–289.

20. KÜKENTHAL, W. Leitfaden für das zoologische Praktikum. Jena, 1901. [*Bryozoa*, pp. 92–96, 2 text-figg.]

21. LABBÉ, A. [Review of L. Calvet's "Contribution à l'histoire naturelle des Bryozoaires ectoproctes marins." Thèse, Paris, 484 pp., 13 pls., 1900.] Annee biol. vi, p 99.
Spermatogenesis and autofecondation.

22. LANDACRE, F. L. Sponges and Bryozoans of Sandusky Bay. Ohio Natural. i, p. 96.

23. LEVANDER, K. M. Förekomsten af Bryozoo-kolonier i Nyländska skärgården. Medd. Soc. Faun. Fenn. xxvi, p. 6.
Summary, Zool. Anz. xxv, p. 358.

24. LEVINSEN, G. M. R. Studies on Bryozoa. Vid. Medd. 1902, pp. 1–31.
Summary, Zool. Anz. xxv, p. 576.

25. MAPLESTONE, C. M. Further descriptions of the Tertiary Polyzoa of Victoria. VII. P. Soc. Victoria xiv, pt. 2, pp. 65–74, pl. vi–viii.

26. ——. Further descriptions of the Tertiary Polyzoa of Victoria. VIII. Op. cit. xv, pt. 1, pp. 17–27, pls. i & ii.

27. MARTELLI, A. I fossili dei Terreni eocenici di Spalato. Palæontogr. ital. viii, pp. 43–97. [Unimportant for *Bryozoa*.]

28. MATZDORFF, C. Jahresbericht über die Bryozoen für 1897 und 1898. Arch. Naturg. lxi, pp. 173–198.

29. MAYER, P. Bryozoa and Brachiopoda. Zool. Jahresber. 1901, 2 pp.
Summary, Zool. Anz. xxv, p. 575.

30. MEISSNER, M. Liste der von Herrn Professor Semon bei Amboina und Thursday Island gesammelten Bryozoan. Semon, Zool. Forschg. Malay Archip. v, pp. 727–731 (=Denk. Ges. Jena). [n. g. *Radulina*.]

31. MONROE, C. E. Notes on a collection of Hamilton Fossils, from the town of Bethany, Genesee, Co. N. Y. Bull. Wisconsin Soc. ii, pp. 57–67.

32. MUNTHE, H. Stratigrafiska studier öfver Gotlands silurlager. Geol. Foren. Stockholm Forh. xxiv, pp. 221–273. [*Bryozoa* mentioned in the lists of spp.]

33. NEVIANI, A. Materiali per una bibliografia italiana degli studi sui Briozoi viventi e fossili, dal 1800 al 1900. Boll. Nat. xxii [continued—Cf. Zool. Rec. XXXVIII (34)].

34. ——. Sulla *Terebripora manzonii* Rov. e sulla *Protulophila gestroi* Rov. Boll. Soc. geol. Ital. xxi, pp. 39–49.

35. [Neviani, A.] Briozoi Ctenostomi fossili. T. c. pp. 216–220.

36. ——. *Rhyncopora incurvata*, n. sp. T. c. xxi, pp. 260–262, fig.

37. ——. I Briozoi pliocenici e miocenici di Pianosa raccolti dal Prof. V. Simonelli e studiati dal dott. G. Gioli. T. c. xxi, pp. 329–343.

38. Newton, R. B. & Holland, R. On some fossils from the Islands of Formosa and Riu-Kiu (=Loo Choo). J. Coll. Japan xvii, 6, pp. 1–23, pls. i–iv.

39. Nickles, J. M. The Geology of Cincinnati. J. Cincinnati Soc. xx, pp. 49–100.

40. ——. Description of a new Bryozoan, *Homotrypa bassleri*, n. sp. from the Warren Beds of the Lorraine Group. T. c. pp. 103–105, 5 figg.

41. Pearson, K. Statoblasts of *Pectinatella magnifica*. Biometrika i, p. 128.

42. Perrier, E. & Gravier, C. La tachygénèse ou accélération embryogénique, son importance dans les modifications des phénomènes embryogéniques; son rôle dans la transformation des organismes. Ann. Sci. nat. xvi, pp. 133–371, 119 text-figg.

43. Remes, M. Nachträge zur Fauna von Stramberg. I. Die Fauna des rothen Kalksteins. (Nesselsdorfer Schichten.) Beitr. Pal. Oesterr.-Ung. xxiv. [*Bryozoa*, p. 211.]

44. Reynolds, S. H. [See Gardiner & Reynolds (14).]

45. Ritter, W. E. A summer's dredging on the coast of Southern California. Science xv. [*Bryozoa*, p. 62.]

46. Robertson, Alice. Some observations on *Ascorhiza occidentalis* Fewkes, and related Alcyonidia. Pap. Calif. Ac. (3) iii, No. 3, pp. 99–108, pl. xiv.

47. Rollier, L. La calcaire grossier du randen et l'helvétien dans le nord de la Suisse. Arch. Sci. Nat. (4) xiv, pp. 642–649.

48. Scharff, R. F. [*Polyzoa.*] Rep. Brit. Ass. 1902, p. 229.

49. Schneider, K. C. Lehrbuch der vergleichenden Histologie der Tiere. Jena, 1902. [*Bryozoa*, pp. 223–226, fig. 278.]

50. Schrader, F. C. Geological section of the Rocky Mountains in Northern Alaska. Bull. Geol. Soc. Amer. xiii, pp. 233–252, pls. xl–xliii.

51. Shimer, H. W. & Grabau, A. W. Hamilton Group of Thedford, Ontario. Bull. Geol. Soc. Amer. xiii, pp. 149–186.

52. Skorikov, A. S. Die Erforschung des Potamoplanktons in Russland. Biol. Centrbl. xxii, pp. 551–570.

53. Strahan, A. & Cantrill, T. C. The geology of the South Wales Coal-field. III. Cardiff. Mem. geol. Surv. U. K. 1902. [Unimportant for *Bryozoa.*]

54. Thornely, Laura B. *Polyzoa* from Ballycastle and Rathlin Island. Irish Natural. xi, pp. 161 & 162.

55. Trouessart, E. Instructions aux naturalistes voyageurs pour la récolte des Arthropodes marins microscopiques. Bull. Soc. zool. France xxvii, pp. 23–27. [Unimportant for *Bryozoa*].

56. Ulmer, G. *Lophopus cristallinus* Pall. bei Hamburg. Verh. ver. Hamburg Unterh. xi, 1901, pp. 195–198. [Title only given in Zool. Rec. xxxviii (53).]

57. VERRILL, A. E. Additions to the fauna of the Bermudas from the Yale Expedition of 1901, with notes on other species. Tr. Connect. Ac. xi, p. 1. [*Bryozoa*, p. 54.]

58. VOIGT, M. Beiträge zur Kenntnis des Planktons pommerscher Seen. Forschber. Plon. ix, pp. 72–86. [*Bryozoa*, p. 75, unimportant.]

59. WANNER, J. Die Fauna der obersten weissen Kreide in der libyschen Wüste. Palæontogr. xxx, pp. 91–151.

60. WIMAN, C. Ueber die Borkholmer Schicht im Mittelbaltischen Silurgebiet. Bull. Geol. Inst. Upsala v, pp. 149–222, 4 pls.

61. WOLLEMANN, A. Einige Bemerkungen über die Versteinerungen aus der Kreide von Misburg bei Hannover. Zeitschr. Deutsch. geol. Ges. liv, pp. 30–33. [Unimportant for *Bryozoa*.]

62. ZYKOFF, W. Bemerkung zur Kenntnis der geographischen Verbreitung der Süsswasser-Bryozoengattung *Plumatella*. Zool. Anz. xxv, p. 181. Brief summary, Zool. Centrlbl. ix, p. 365 ; J. R. Micr. Soc. p. 310.

II. SUBJECT INDEX.

(a) GENERAL BIOLOGY.

Classification, general anatomy and development, HARMER (15).
Morphology and classification of the *Cheilostomata*, with 1 n. gen. and n. spp., HARMER (15).
Classification, and anatomy, LEVINSEN (24).
Italian bibliography of living and fossil forms, NEVIANI (33).
†List of spp. from Cincinnati, NICKLES (39 & 40).
Review of work published in 1897–1898, MATZDORFF (28).
Review of work for 1901, MAYER (29).
Anatomy and classification of spp. from Cette, CALVET (4).
†Anatomy and affinities of *Terebripora manzonii* and *Protulophila gestroi*, NEVIANI (34).
Statoblasts of *Pectinatella magnifica*, PEARSON (41).
Histology, SCHNEIDER (49).
Tachygenesis, PERRIER & GRAVIER (42).

(b) GEOGRAPHICAL.

Europe. Geographical distribution of *Plumatella* and symbiosis of *P. princeps* and *Vivipara fasciata*, ZYKOFF (62).
European distribution of *Plumatella punctata*, LEVANDER (23).
†Baltic silurian spp., WIMAN (60).
Sweden, collection of *Cheilostoma*, *Gymnolæma*, *Ctenostoma*, and *Entoprocta*, ANDERSSON (1).
†Switzerland, ROLLIER (47).
Russia, plankton spp., SKORIKOV (52).
†Stramberg, Nesselsdorf, red chalk, spp. found, REMES (43).
†Calabria, n. sp., NEVIANI (36).
†Pianosa, List of Pliocene and Miocene spp., NEVIANI, Boll. Soc. geol. Ital. xxi, pp. 329–343.
Corsica, collections including 2 n. spp., CALVET (5).

A † is prefixed to the references to fossil forms.

Cette, collections, CALVET (4).
Lake Geneva, FOREL (12).
Port Erin, Collections, HERDMAN (17). Port Erin, Guide to Aquarium, HERDMAN (18).
Ballycastle and Rathlin Island, Collection, THORNELY (54).

Asia. †Formosa and Riu-Kiu, n. spp., NEWTON & HOLLAND (38).

Africa. †Sahara, FLAMAND (11).
Libyan desert spp., WANNER (59).

Australia. Torres Straits, n. sp., HARMER (15).
Victoria and Port Jackson, n. sp., HARMER (15).
†Victoria Tertiary, n. spp. of *Cheilostoma*, MAPLESTONE (25, 26).
Thursday Island, n. g. and sp., MEISSNER (30).

Antarctic. Cape Adare, *Alcyonidium flabelliforme*, n. sp., KIRKPATRICK (19).

North America. †Northern Alaska, spp. from Rocky Mountains, SCHRADER (50).
†Nebraska, n. spp. from Coal Measures, CONDRA (7).
†Cincinnati, *Trepostomata*, n. sp., CUMINGS (8), also list of spp. (1 n. sp.), NICKLES (40).
†Ontario, Hamilton group, list of spp., SHIMER & GRABAU (51).
Ohio, Collection, LANDACRE (22).
Southern California, RITTER (45), and ROBERTSON (46).
†Genesee, Co. N. Y., Collection, MONROE (31).
Bermudas, Collection, VERRILL (57).

III. SYSTEMATIC.

General classification, anatomy and development, HARMER, Enc. Brit. xxxi, pp. 826–830, 6 figg.
General treatment in text-book, KÜKENTHAL, Leitfaden für das zoologische Praktikum, pp. 92–96, and text-figg.
Tachygenesis, PERRIER & GRAVIER, Ann. Sci. nat. xvi, pp. 176 & 177.

ENTOPROCTA.

Ascopodaria macropes (sic), South California, RITTER, Science xv, p. 63.
Barentsia major, Spitzbergen, anatomy, ANDERSSON, Zool. Jahrb. Syst. xv, p. 556, figg. 9–12; *B. variarticulata*, Sweden, characters, ANDERSSON, t. c. p. 557, figg. 13 & 14, n. sp.
Loxosoma phascolosomatum, Greenland, ANDERSSON, t. c. p. 555; *L.* sp. on *Flustra*, Greenland, ANDERSSON, t. c. p. 555.
Pedicellina cernua, distribution, CALVET, Tr. Inst. Montpellier (2) xi, p. 94.

ECTOPROCTA.

GYMNOLÆMA.

CYCLOSTOMA

(s.l. including *Cyclostomata*, *Trepostomata*, *Cryptostomata*).

Cyclostomata from Ballycastle and Rathlin Island, THORNELY, Irish Natural. xi, pp. 161 & 162.

†*Batostomella leia*, Nebraska Coal Measures, CONDRA, Amer. Geol. xxx, p. 339, pl. xix, figg. 7–10, n. sp.

†*Cyclotrypa* (?) *barberi*, Nebraska Coal Measures, CONDRA, t. c. p. 338, pl. xviii, figg. 3–8, n. sp.

†*Cystodictya anisopora*, p. 355, pl. xxv, figg. 1–5, *C. lophodes*, figg. 6 & 7, Nebraska Coal Measures, CONDRA, t. c. n. spp.

†*Dekayia subfrondosa*, Cincinnati, CUMINGS, Amer. Geol. xxix, p. 204, pl. ix, figg. 7 & 8, pl. x, fig. 3, pl. xi, fig. 1, n. sp.

†*D. ulrichi-lobata*, n. var., Cincinnati, CUMINGS, t. c. p. 203, pl. ix, fig. 2, pl. x, fig. 5, pl. xi, figg. 3 & 4.

Entalophora deflexa, Sweden, synonymy and distribution, ANDERSSON, Zool. Jahrb. Syst. xv, p. 55.

†*Fenestella cyclosfenestrata*, p. 342, pl. xxi, figg. 1–3, *F. spinulosa*, pl. xxi, figg. 4 & 5, *F. parvipora*, p. 346, pl. xxi, figg. 6 & 7, *F. gracilis*, figg. 8 & 9, *F. polyporoides*, pl. xxii, figg. 6 & 7, *F. subrudis*, p. 349, pl. xxi, figg. 10 & 11, *F. binodata*, p. 350, pl. xxi, figg. 12 & 13, Nebraska Coal Measures, CONDRA, Amer. Geol. xxx, n. spp.

Filicea; to this Cretaceous genus is referred *Cinctipora elegans* Hutton, LEVINSEN, Vid. Medd. 1902, p. 31.

†*Fistulipora carbonaria* var. *nebrascensis*, n. var., Nebraska Coal Measures, CONDRA, t. c. p. 337, pl. xviii, figg. 1 & 2.

†*Homotrypa bassleri*, Cincinnati, NICKLES, J. Cincinnati Soc. xx, pp. 103–105, 5 figg., n. sp.

Hornera lichenoides, Greenland, synonymy and distribution, ANDERSSON, Zool. Jahrb. Syst. xv, p. 551.

Idmonea erecta, Cette, CALVET, Tr. Inst. Montpellier (2) xi, p. 82, pl. iii, figg. 5, 6, n. sp.

Lichenopora hispida, Sweden, ANDERSSON, t. c. p. 552.

†*Meekopora prosseri*, Nebraska Coal Measures, CONDRA, Amer. Geol. xxx, p. 339, pls. xviii & xix, figg. 1–6, n. sp.

†*Polypora bassleri*, p. 351, pl. xxii, figg. 8 & 9, pl. xxiii, fig. 1, *P. reversipora*, pl. xxiii, figg. 2–5, *P. ulrichi*, p. 352, pl. xxiii, figg. 6–10, *P. remota*, p. 353, pl. xxiv, figg. 1 & 2, Nebraska Coal Measures, CONDRA, t. c. n. spp.

Reticulipora intricaria, Sweden, synonymy and distribution, ANDERSSON, Zool. Jahrb. Syst. xv, p. 550.

†*Stenopora heteropora*, p. 340, pl. xx, figg. 1 & 2, *S. distans*, figg. 3–5, *S.* (!) *polyspinosa*, figg. 6–10, Nebraska Coal Measures, CONDRA, Amer. Geol. xxx, n. spp.

Stomatopora reticulata, p. 77, pl. iii, figg. 1, 2; *S. hirsuta*, p. 78, figg. 3, 4; Cette, CALVET, Tr. Inst. Montpellier (2) xi, n. spp.

†*Thamniscus palmatus* (provisional), Nebraska Coal Measures, CONDRA, t. c. p. 355, pl. xxiv, fig. 9, n. sp.

CHEILOSTOMA.

Discussion on classification and anatomical characters, LEVINSEN, Vid. Medd. 1902, pp. 1–31.

Cheilostoma from Ballycastle and Rathlin Island, THORNELY, Irish Natural. xi, pp. 161 & 162.

†*Aspidostoma airensis*, Victoria Tertiary, MAPLESTONE, P. Soc. Victoria xiv, p. 71, pl. viii, fig. 16 & 16A, n. sp.

Bugula murrayana, *B. quadridentata*, p. 537, Sweden, ANDERSSON, Zool. Jahrb. Syst. xv.

B. germanæ, Corsica, CALVET, Tr. Inst. Montpellier (2) xii, p. 8, pl. i, figg. 1–3, n. sp.

†*Catenariopsis morningtoniensis*, characters and figure, MAPLESTONE, P. Soc. Victoria xv, p. 17, pl. i, fig. 1.

†*Cellaria incudifera*, p. 71, pl. ix, figg. 17 & 17A, *C. robusta*, p. 72, fig. 18, Victoria Tertiary, MAPLESTONE, op. cit. xiv, n. spp.

†*Cellepora formosensis*, Islands of Formosa and Loo Choo, structure and affinities, NEWTON & HOLLAND, J. Coll. Japan xvii, p. 6, pl. ii, figg. 2 & 4–6, pl. iii, fig. 1, pl. iv, n. sp.

C. nodulosa, p. 550, Sweden, locality and synonymy, ANDERSSON, Zool. Jahrb. Syst. xv.

Cribrilinidæ; morphology of the compensation sac and operculum, HARMER, Quart. J. Micr. Sci. xlvi, pp. 291–310, pl. xv, figg. 7–12, pl. xvii, pl. xviii, figg. 53–56.

Cribrilina punctata var. *watersi* n. var. Sweden, ANDERSSON, Zool. Jahrb. Syst. xv, p. 540.

Euthyris obtecta, structure, HARMER, Quart. J. Micr. Sci. xlvi, pp. 277–280, pl. xvi, figg. 32–37.

E. clathrata, Port Jackson, structure, HARMER, t. c. pp. 266–280, pl. xvi, figg. 18–31, n. sp.

Euthyroides n. g. for *Carbasea episcopalis* Busk, structure and affinities, HARMER, t. c. pp. 280–285, pl. xv, figg. 13–17.

Flustra membranaceo-truncata, p. 538, *F' abyssicola*, p. 539, Sweden, ANDERSSON, Zool. Jahrb. Syst. xv.

Flustrina; morphology of the muscles and operculum in various spp., HARMER, Quart. J. Micr. Sci. xlvi, pp. 286–291, pl. xv, figg. 1–5.

†*Gemellipora auriculata*, Victoria Tertiary, MAPLESTONE, P. Soc. Victoria xiv, p. 71, pl. viii, fig. 15, n. sp.

Haplopoma, n. gen. for *Microporella impressa*, LEVINSEN, Vid. Medd. 1902, p. 23.

Kinetoskias arborescens, Greenland, ANDERSSON, Zool. Jahrb. Syst. xv, p. 538.

†*Lagenipora morningtoniensis*, p. 24, pl. ii, fig. 16, *L. airensis*, fig. 17, Victoria Tertiary, MAPLESTONE, P. Soc. Victoria xv, n. spp.

†*Lekythopora mooraboolensis*, p. 25, pl. ii, fig. 18, *L. kitsoni*, fig. 19, Victoria Tertiary, MAPLESTONE, t. c., *L. watersi*, Cette, CALVET, Tr. Inst. Montpellier (2) xi, p. 68, pl. ii, figg. 10–13, n. spp.

Lepralia spatulifera, *L. vitrea*, p. 542, fig. 2, *L. reticulato-punctata*, p. 543, Spitzbergen, distribution and synonymy, ANDERSSON, Zool. Jahrb. Syst. xv.

L. haddoni, Torres Straits, structure, HARMER, Quart. J. Micr. Sci. xlvi, pp. 299, pl. xvii, figg. 38 & 39, n. sp.

†? *L. bisinuata*, Victoria Tertiary, MAPLESTONE, op. cit. xiv, p. 73, pl. ix, fig. 20, n. sp.

Lobopora, n. gen. for *Microporella coscinopora*, LEVINSEN, Vid. Medd. 1902, p. 24.

†*Melicertites meudonensis*, CANU, Bull. Soc. geol. France (4) ii, p. 14, fig. 2.

Membranipora spinifera, Sweden, ANDERSSON, t. c. p. 539, *M. flustroides*, CALVET, Tr. Inst. Montpellier (2) xi, p. 31, pl. i, fig. 3.

Microporoid group; morphology of the muscles and operculum, HARMER, Quart. J. Micr. Sci. xlvi, pp. 316–320, pl. xviii, figg. 57 & 58.

†*Micropora carinata*, characters and figure, MAPLESTONE, P. Soc. Victoria xiv, p. 72, pl. ix, fig. 19.

Microporelloid group; morphology of the compensation sac and operculum, HARMER, Quart. J. Micr. Sci. xlvi, pp. 310–316, pl. xviii, figg. 61–63.

? *Microporella ciliata*, fig. 1, *M. impressa*, Spitzbergen, ANDERSSON, Zool. Jahrb. Syst. xv, p. 540, nov. var. *carinata*, Corsica, CALVET, Tr. Inst. Montpellier (2) xii, p. 17.

†*Microporella marginata*, Victoria Tertiary, MAPLESTONE, P. Soc. Victoria

xv, p. 18, pl. i, fig. 2, *M. joannae*, Corsica, CALVET, Tr. Inst. Montpellier (2) xii, p. 19, pl. i, figg. 5, 6, n. spp.

Monoporina, n. gen. for certain species of *Schizoporella* and *Lepralia*, LEVINSEN, Vid. Medd. 1902, p. 26.

Mucronellidæ, n. fam., composition and characters, LEVINSEN, Vid. Medd. 1902, p. 26.

Mucronella jacksoni, p. 547, *M. variolosa*, p. 548, synonymy and distribution, ANDERSSON, Zool. Jahrb. Syst. xv.

†*M. proboscoides*, p. 20, pl. i, fig. 8, *M. conica*, p. 21, fig. 9, *M. irregularis*, pl. ii, fig. 11, *M. airensis*, p. 22, pl. ii, fig. 12, *M. personata*, p. 22, fig. 13, Victoria Tertiary, MAPLESTONE, P. Soc. Victoria xv, *M. soulieri*, Cette, CALVET, Tr. Inst. Montpellier (2) xi, p. 61, pl. ii, figg. 3–4, n. spp.

Peristomella, n. gen. for *Mucronella coccinea* etc., LEVINSEN, Vid. Medd. 1902, p. 26.

Phyllactella labiata, p. 548, synonymy and distribution, ANDERSSON, Zool. Jahrb. Syst. xv.

Polyporina, n. gen. for certain species of *Schizoporella* and *Lepralia*, LEVINSEN, Vid. Medd. 1902, p. 26.

Porella plana, p. 543, *P. concinna*, p. 544, Sweden, ANDERSSON, t. c.

†*P. rhomboidalis*, p. 19, pl. i, fig. 4, *P. areolata*, fig. 5, *P. otwayensis*, p. 20, pl. i, fig. 5, *P. dennanti*, fig. 7, *P. angustata*, p. 21, pl. i, fig. 10, (?) *P. minutissima*, p. 26, pl. ii, fig. 20, Victoria Tertiary, MAPLESTONE, P. Soc. Victoria xv, n. spp.

†*Porina asperula*, figure, CANU, Bull. Soc. geol. France (4) ii, p. 14, fig. 1.

†*Porina tuberculosa*, Victoria Tertiary, MAPLESTONE, t. c. p. 23, pl. ii, fig. 15, n. sp.

Radulina n. g. for *R. semoni*, n. sp., Thursday Island, MEISSNER, Denk. Ges. Jena viii, 6, p. 731, pl. lxvi, figg. 1–4.

Rhamphostomella scabra, *R. costata*, p. 549, *R. bilaminata*, p. 550, Spitzbergen, synonymy, ANDERSSON, Zool. Jahrb. Syst. xv.

†*Rhyncopora incurvata*, Calabria, structure, NEVIANI, Boll. Soc. geol. Ital. xxi, pp. 260–262, 1 fig.

! *Schizoporella unicornis*, *S. linearis*, *S. crustacea*, p. 541, Spitzbergen, synonymy and locality, ANDERSSON, Zool. Jahrb. Syst. xv; †*S. vigilans*, p. 65, pl. vii, fig. 2, *S. convexa*, p. 66, pl. vii, fig. 4, *S. fenestrata*, p. 68, pl. viii, fig. 11, Victoria Tertiary, characters, MAPLESTONE, P. Soc. Victoria xiv.

†*S. nitidissima*, p. 65, pl. vii, fig. 1, *S. terebrata*, p. 66, fig. 3, *S. ovalis*, fig. 5, *S. mamillata*, p. 67, fig. 6, *S. pulvinator*, fig. 7, *S. hispida*, fig. 8, *S. subgranulata*, p. 68, fig. 9, *S. flabellata*, pl. viii, figg. 10 & 10A, *S. variabilis*, p. 69, fig. 12, *S. chlithridiata*, p. 70, fig. 13, *S. ambigua*, fig. 14, Victoria Tertiary, MAPLESTONE, t. c. pt. 2, n. spp.

Smittia reticulata, p. 544, *S. arctica*, fig. 3, *S. trispinosa* var. *arborea*, p. 545, *S. palmata*, *S. palmata* var. *sinuosa* n. var., p. 546, fig. 5, synonymy and occurrence, Sweden, ANDERSSON, Zool. Jahrb. Syst. xv; †*S. macgillivrayi* n. n. for *S. transversa* McG., p. 17, *S. centralis* var. *lævigata*, p. 18, pl. i, fig. 3, characters, MAPLESTONE, P. Soc. Victoria xv.

Smittia rouvillei, Cette, CALVET, Tr. Inst. Montpellier (2) xi, p. 57, pl. ii, fig. 5, n. sp.

†*Terebripora manzonii*, anatomy and affinities, NEVIANI, Boll. Soc. geol. Ital. xxi, pp. 39–49.

†*Trigonopora*, n. g. for *T. vermicularis*, n. sp., Victoria Tertiary, MAPLESTONE, P. Soc. Victoria xv, p. 23, pl. ii, fig. 14.

†*Trypocella*, n. g. *T. excavata*, n. sp., Victoria Tertiary, MAPLESTONE, op. cit. xiv, p. 73, pl. ix, fig. 21.

Trypostega, n. gen. for *Schizoporella venusta*, LEVINSEN, Vid. Medd. 1902, p. 23.

CTENOSTOMA.

Ctenostoma from Ballycastle and Rathlin Island, THORNELY, Irish Natural. xi, pp. 161 & 162.

†Revision of fossil forms, NEVIANI, Boll. Soc. geol. Ital. xxi, pp. 216–220.

Alcyonidium flabelliforme, Cape Adare, structure, KIRKPATRICK, "Southern Cross," p. 289.

Alcyonidium gelatinosum, p. 552, *A. mamillatum*, *A. mamillatum* var. *erectum*, n. var., p. 553, fig. 6, *A. disciforme*, figg. 7 & 8, *A. mytili*, p. 554, Sweden, synonymy and distribution, ANDERSSON, Zool. Jahrb. Syst. xv.

A. pedunculatum, California, characters, ROBERTSON, Pap. Calif. Ac. iii, p. 106, pl. xiv, figg. 8, 9, n. sp.

Arachnidium hippothooides, Sweden, ANDERSSON, t. c. p. 555.

Ascorhiza californica, affinities, RITTER, Science xv, p. 62, anatomy and affinities [see also *Alcyonidium pedunculatum*], ROBERTSON, Pap. Calif. Ac. iii, pp. 99–106, 1 pl.

Flustrella corniculata, Sweden, synonymy and distribution, ANDERSSON, Zool. Jahrb. Syst. xv, p. 555.

†*Protulophila gestroi*, anatomy and affinities, NEVIANI, Boll. Soc. geol. Ital. xxi, pp. 39–49.

PHYLACTOLÆMA.

Cristatella mucedo, colonies, ULMER, Verh. Ver. Hamburg Unterh. xi, pp. 195–198.

Fredericella du plessisi, Lake Geneva, characters, FOREL, Le Leman iii, Lausanne, p. 113, fig. 189.

Lophopus cristallinus (sic), Hamburg, two generations, occurrence, habits, colonies and statoblasts and affinities, ULMER, Verh. Ver. Hamburg Unterh. xi, pp. 195–198.

Pectinatella magnifica, Ohio, LANDACRE, Ohio Natural, i, 6, p. 97 ; statoblasts, PEARSON, Biometrika i, p. 128.

Plumatella ; geographical distribution, ZYKOFF, Zool. Anz. xxv, p. 181 ; *P. princeps*, symbiosis with *Vivipara fasciata*, ZYKOFF, t. c. p. 181 ; *P. punctata*, occurrence of, in Europe, LEVANDER, Medd. Soc. Faun. Fenn. xxvi, p. 6 ; *P. polymorpha*, var. *repens*, Ohio, LANDACRE, Ohio Natural. i, 6, p. 96 ; *P. polymorpha*, Colonies, statoblasts, ULMER, Verh. Ver. Hamburg Unterh. xi, pp. 196–198.

X. CRUSTACEA.

(Including GIGANTOSTRACA AND PYCNOGONIDA.)

BY

W. T. CALMAN, D.Sc.

CONTENTS.

	Page
Introduction	2
Crustacea	
I. TITLES	3
II. SUBJECT INDEX	24
1. Morphology	24
2. Physiology	25
3. Reproduction & Development	25
4. Autotomy & Regeneration	26
5. Bionomics	26
a. General	26
b. Habitats	26
c. Symbiosis & Parasitism	27
6. Variation & Abnormalities	27
7. Phylogeny & Classification	28
8. Miscellaneous	28
III. DISTRIBUTION	
1. Geographical	28
a. Land & Fresh-water	29
b. Marine	31
2. Geological	33
IV. SYSTEMATIC INDEX.	
A. Malacostraca	
1. Decapoda	34
a. Brachyura	34
b. Anomura	40
c. Macrura	43
SYSTEMATIC—*continued.*	
2. Schizopoda	48
3. Stomatopoda	49
4. Cumacea	50
5. Tanaidacea	50
6. Isopoda	50
7. Amphipoda	57
8. Phyllocarida	60
B. Entomostraca	
1. Phyllopoda	61
a. Branchiopoda	61
b. Cladocera	61
2. Copepoda	63
3. Branchiura	70
4. Ostracoda	70
5. Cirripedia	75
Gigantostraca (Xiphosura, Trilobita, Eurypterida)	
I. Titles	76
II. Subject Index	78
III. Distribution	79
IV. Systematic Index	79
Pycnogonida	81 and 82

INTRODUCTION.

THE Record of Crustacean Literature for 1902 must be prefaced by an apology. The work of compiling it came into the hands of the present Recorder at a late date and it now goes to press in a state of confessed incompleteness. More especially on the Palæontological side many important periodicals have not been seen, and it has been impossible to make any systematic search for papers omitted in former years. The Recorder hopes to remedy some of these deficiencies next year, and will be glad to have his attention called to any omissions.

Among the more noteworthy contributions to Morphology during the year we may call attention to MILNE EDWARDS & BOUVIER'S fine monograph on the remarkable deep-sea Isopod *Bathynomus* (171) in which many facts are brought forward in support of Hansen's views as to the constitution of the appendages in Crustacea. The memoir by the same authors on *Dromiacea* and *Oxystomata* (170) has much importance in relation to the morphology and classification of the Brachyura. These two works are probably the last to bear the name of Milne Edwards, which for two generations has been a leading one in carcinological literature. Other monographs of morphological as well as systematic interest are BONNIER'S great work on the *Bopyridæ* (23) published in 1900, and WILSON on the *Argulidæ* (286). GRUVEL (102) gives an important account of the structure of the "complemental males" in various Cirripedes. EKMAN (84) and SPENCER (257) make contributions to our knowledge of the *Phyllopoda*. FRITSCH (90) introduces the name *Simplicipoda* for the very interesting group of fossil Crustacea to which Packard long ago gave the name *Syncarida*, and gives restorations which have been criticised by CALMAN (43) and JAEKEL (134). STEUER'S (267) *Mytilicola* adds another to the small number of Crustacea stated to possess a closed vascular system. BOHN'S (21) elaborate work on the respiratory system of Decapods may also be mentioned here, though its interest is chiefly physiological and bionomical. The systematic position of the problematical Decapod *Amphion* is not rendered much clearer by KOEPPEL'S (140) paper.

In Physiology we have FÜRTH'S text-book (93) and other contributions to physiological chemistry; KEEBLE & GAMBLE'S (139) preliminary account of their researches on the physiology of colour; papers by PARKER (194), RÁDL (211), and YERKES (292) on the reactions of *Entomostraca* to various stimuli, a line of research of great interest in relation to plankton work.

In Embryology some new observations relating to Crustacea are embodied in the continuation of KORSCHELT & HEIDER'S (141) well-known text-book. HÄCKER'S (107 & 109) work on the history of the reproductive cells in Copepods is of great theoretical interest. BIGELOW (16) on the early development of *Lepas* should also be mentioned.

Under Bionomics we have numerous papers of varying interest. BORRADAILE (26 & 27) continues his series of studies on the Crustacean life of Coral Islands. SAMTER & HEYMONS (225) have reinvestigated the influence of environment on variation in the classical case of *Artemia*.

Autotomy and regeneration continue to attract much attention. The whole subject is lucidly dealt with in MORGAN'S book (177) and HERBST (120 & 121) has an important investigation of the conditions which determine the occasional regeneration of an antenna-like organ in place of an eye in certain Decapods.

Among the numerous papers on plankton work GRAN'S (99) may be singled out as worthy of special attention.

Subterranean Crustacea form the subject of several papers. The affinities of the Isopod *Stenasellus* remain somewhat mysterious since VIRÉ'S (210) account provides it with *nine* thoracic somites. HAY'S (115)

rather unfortunately named *Palæmonias* represents in America the *Troglocaris* of European caverns.

Parasitic forms are the subject of BONNIER'S & WILSON'S monographs already mentioned. HANSEN'S (113) *Echinocheres* living in the spines of a deep-sea Echinoid is a form of special interest.

It is hardly possible to make a selection from the long list of systematic papers, but the appearance of another volume of SARS' (229) monumental work on the Crustacea of Norway cannot be passed over without mention.

In the series of papers by American writers dealing with the fauna of Porto Rico, that of MOORE (175) on the *Isopoda* is of special interest since he describes in *Branchuropus* a shallow water form which seems to link the aberrant deep-sea *Anuropus* with the normal *Cirolaninæ*.

On the subject of Geographical Distribution ORTMANN (191) has a paper of more than usual interest dealing with the freshwater *Decapoda*.

The most important papers recorded under Gigantostraca are those of JAEKEL (11) and BEECHER (2) on the Morphology of Trilobites, and POCOCK (22) on the Taxonomy of recent species of *Limulus*.

The Pycnogonida of the "Valdivia" Expedition, described by MÖBIUS (7), include no very startling novelties. MEISENHEIMER (6) has a very elaborate paper on the development of *Ammothea*.

I. TITLES.*

1. *ABSOLON, K. Význačni korýši z jeskyň moravskych [Bezeichnende Crustaceen aus den Höhlen des mährischen Karstes]. No. 68 časop Vlasten Muzejn. spolk. (Zeitschr. d. patriot. Mus. Olmütz.) 3 pp.

2. ALCOCK, A. A Naturalist in Indian Seas, or Four Years with the Royal Indian Marine Survey Ship "Investigator." pp. xxiv + 328, pls. & figg. in text, 8vo, London, 1902.

3. ALLEN, E. J. & TODD, R. A. The Fauna of the Exe Estuary. J. Mar. Biol. Ass. vi, pp. 295–335, 1 map.
Abstract in J. R. Micr. Soc. 1902, p. 174.

4. APSTEIN, C. *Cladocera* (*Daphnidæ*), Wasserflöhe, in K. BRANDT'S Nordisches Plankton vii (in Lief. i). Kiel u. Leipzig, 1901, pp. 11–15, figg. 20–24.
Abstract by F. ZSCHOKKE, Zool. Centrlbl. ix, p. 520.

5. ARNOLD, JOHANN. Ueber die Fischnahrung in den Binnengewässern. Verh. Zool. Congr. Berlin, v, pp. 553–566, 1 pl.

6. BEARDSLEY, ARTHUR E. Notes on Colorado Entomostraca. Tr. Amer. micr. Soc. xxiii, pp. 41–47.

7. BEECHER, C. E. Revision of the Phyllocarida from the Chemung and Waverly groups of Pennsylvania. Quart. J. Geol. Soc. lviii, pp. 441–449, pls. xvii–xix.

8. BELL, F. JEFFREY. On the occurrence of *Squilla desmaresti* in the North Sea. J. Mar. Biol. Ass. vi, pp. 371 & 372.
Abstract in J. R. Micr. Soc. 1902, p. 185.

9. ——. *Squilla desmaresti*. Nature lxv, p. 366.

* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

10. Benedict, Jas. E. The Hermit Crabs of the *Pagurus bernhardus* type. P. U. S. Mus. xxiii, pp. 451–456, 6 figg. in text.

11. ——. Four new symmetrical Hermit Crabs (Pagurids) from the West India Region. T. c. pp. 771–778, 7 figg. in text.

12. ——. Description of a new genus and forty-six new species of Crustaceans of the family Galatheidæ, with a list of the known marine species. Op. cit. xxvi, pp. 243–334, 47 figg. in text. [On p. 246 the number of new species described is correctly given as forty-five.]

13. ——. The Anomuran collections made by the Fish Hawk Expedition to Porto Rico. Bull. U. S. Fish Comm. xx (2), pp. 131–148, pls. iii–vi. Includes *Dromiidea*.

——. [See also Richardson (219).]

14. Bergh, R. S. Beiträge zur vergleichenden Histologie. 3. Ueber die Gefässwandung bei Arthropoden. Anat. Hefte Arb. xix, pp. 349–386, pls. ix–xi.
Crustacea, pp. 374–383. Abstracts: by author, Zool. Centrlbl. ix, pp. 461 & 462; Zool. Jahresber. 1902, Arthrop. p. 21.

——. Abstracts in Zool. Centrlbl. ix & x. See Nos. 16, 88, 121, 131, 132, 207, 234.

15. Biedermann, W. Ueber die Structur des Chitins bei Insecten und Crustaceen. Anat. Anz. xxi, pp. 485–490.
Abstract Zool. Jahresber. 1902, Arthrop. p. 20.

16. Bigelow, Maurice A. The early development of Lepas. A study of Cell-Lineage and Germ-Layers. [Addendum by E. L. Mark & W. E. Castle, pp. 136 & 137.] Bull. Mus. Harvard xl, pp. 62–144, 12 pls.
Abstracts: in J. R. Micr. Soc. 1902, p. 555; Zool. Jahresber. 1902, Arthrop. p. 26; by R. S. Bergh, Zool. Zentrlbl. x, pp. 424–426.

17. ——. The cytological phenomena of maturation and first cleavage in the Cirriped Egg. Science (n. s.) xv, p. 626.
Preliminary Abstract.

18. ——. The Cirripedia collected near Porto Rico by the Fish Hawk Expedition 1898–99. Bull. U. S. Fish Comm. xx (2), pp. 179 & 180.

19. —— & A. N. Bigelow. Early development of the Rock Barnacle *Balanus*. Science (n. s.) xvi, p. 347.
Preliminary Abstract.

20. Bigelow, Robert Payne. The Stomatopoda of Porto Rico. Bull. U. S. Fish Comm. xx (2), pp. 151–160, 13 figg. in text.

21. Bohn, Georges. Des Mécanismes respiratoires chez les Crustacés Décapodes. Essai de Physiologie évolutive, éthologique et phylogénique. Bull. Sci. France Belgique xxxvi, pp. 178–551, 209 figg. in text.

22. ——. Quelques vues nouvelles sur les mécanismes de l'évolution. Trav. Stat. Arcachon, pp. 81–95, 18 figg.

23. Bonnier, Jules. Contribution à l'étude des Épicarides. Les Bopyridæ. Trav. Stat. Zool. Wimereux viii (1900), 475 pp., 41 pls. and 62 text-figg.

24. —— & Pérez, C. Sur un Crustacé commensal des Pagures, *Gnathomysis Gerlachei* nov. sp. type d'une famille nouvelle de Schizopodes. C.R. Ac. Sci. cxxxiv, pp. 117–119.
Abstract in J. R. Micr. Soc. 1902, p. 555.

25. Borradaile, L. A. The Land Crustaceans of a Coral Island. Rep. Brit. Ass. 1901, pp. 692 & 693.
Abstract of (14) Zool. Rec. 1901.

26. ——. Marine Crustaceans. I. On Varieties. II. Portunidæ. In "The Fauna and Geography of the Maldive and Laccadive Archipelagoes," edited by J. Stanley Gardiner. Cambridge, 4to, vol. i, Pt. 2, pp. 191–208, text-figg. 35–38.

27. ——. Marine Crustaceans. III. The Xanthidæ and some other crabs. T. c. Pt. 3, pp. 237–271, text-figg. 41–60.
Abstracts of (26 & 27), Zool. Jahresber. 1902, Arthrop. p. 33.

28. Bottazzi, F. L'innervazione viscerale nei Crostacei e negli Elasmobranchi. Arch. ital. Biol. xxxvi, pp. 79–81.

29. ——. Contribution à la connaissance de la coagulation du sang de quelques animaux marins et des moyens pour l'empêcher. Op. cit. xxxvii, pp. 49–63.
Crustacea, pp. 53–60.

29a. ——. Untersuchungen über das viscerale Nervensystem der decapoden Crustaceen. Zeitschr. Biol. (2) xxv, pp. 341–371.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 32.

30. Bourne, Gilbert C. An Introduction to the Study of the Comparative Anatomy of Animals. II, pp. xv+321, figg. in text, 8vo, London, 1902.
Crustacea, pp. 90–148.

Bouvier, E. L. [See Milne Edwards & Bouvier (170 & 171).]

31. Brady, George Stewardson. On new or imperfectly-known Ostracoda, chiefly from a Collection in the Zoological Museum, Copenhagen. Tr. Zool. Soc. London xvi, pp. 179–210, pls. xxi–xxv.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 29.

32. ——. On Copepoda and other Crustacea taken in Ireland and on the North East Coast of England. Nat. Hist. Tr. Northumb. xiv, pp. 54–68, pls. i–iv.
Abstracts: Irish Natural. vi, p. 102; Zool. Jahresber. 1902, Arthrop. p. 28.

33. ——. The Isopoda obtained by dredging in 1901–2. Rep. Northumberland Sea Fisheries Committee for 1902, p. 48.

34. ——. List of Entomostraca taken by Mr Meek in Holy Island Lough. T. c. p. 49.

Braem, F. Abstract in Centrbl. Bakter. xxxii. See No. 264.

Brandt, K. [See Apstein (5), Müller (182).]

Branner, John C. [See Rathbun (215a).]

Braun, M. [Abstract of Linton (158) in Zool. Centrlbl. ix. See No. 158.]

35. Brehm, V. Zusammensetzung, Verteilung und Periodicität des Zooplanktons im Achensee. Zeitschr. Ferd. Tirol (3) xlvi, 63 pp., 1 map, 2 pls., figg. in text.
Abstract by F. Zschokke, Zool. Zentrlbl. x, pp. 257–259.

Bresslau, E. Abstract in Zool. Centrlbl. ix. See No. 48.

36. Brian, Alessandro. Note su alcuni Crostacei parassiti dei Pesci del Mediterraneo. Atti Soc. Ligustica xiii, pp. 30–45, pl. i, 1 fig. Reprinted in Boll. Mus. Genova, No. 115, 1902, 16 pp., 1 pl., 1 fig.
Abstracts: by F. Zschokke, Zool. Centrlbl. ix, p. 738; Zool. Jahresber. 1902, Arthrop. p. 29.

37. [Brian, Alessandro.] Caso di anomalia verificatosi su di una *Brachiella* del Tonno. Boll. Mus. Genova, No. 104, 1901, 3 pp., 1 fig. in text.
"Pubblicato in francese nel 'Cosmos' anno 50e, No. 835 (5 Gennaio 1901), Parigi."

38. Bruntz, L. L'excrétion chez les Crustacés supérieurs. C.R. Ac. Sci. cxxxv, pp. 589–591.

39. ——. L'excrétion chez les Cirripèdes. T. c. pp. 987 & 988.
Abstract of this and (38), Zool. Jahresber. 1902, Arthrop. p. 26.

40. —— & Gautrelet, J. Étude comparée des liquides organiques de la Sacculine et du Crabe. T. c. pp. 349 & 350.

41. Bumpus, Hermon C. On the movements of certain Lobsters liberated at Woods Hole during the summer of 1898. Bull. U. S. Fish Comm. xix, pp. 225–230 (1901).

42. Bürger, Otto. Ein Fall von lateralem Hermaphroditismus bei *Palinurus frontalis* M.-E. Zeitschr. wiss. Zool. lxxi, pp. 702–707, 4 figg. in text.
Abstracts: Zool. Jahresber. 1902, Arthrop. p. 32, J. R. Micr. Soc. 1902, p. 433.

43. Calman, W. J. [T.]. *Uronectes* and *Anaspides*. A reply to Prof. Ant. Fritsch. Zool. Anz. xxv, pp. 65 & 66.
Abstract in J. R. Micr. Soc. 1902, p. 185.

44. Capeder, Guiseppe. Contribuzione allo studio degli Entomostraci Ostracodi dei terreni miocenici del Piemonte. Atti Acc. Torino xxxvii, pp. 5–18, 1 pl.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 29.

45. Car, Lazar. Planktonproben aus dem Adriatischen Meere und einigen süssen und brakischen Gewässern Dalmatiens. Zool. Anz. xxv, pp. 601–605,
Abstract by F. Zschokke, Zool. Centrlbl. ix, p. 600.

Castle, W. E. [See Bigelow, M. A. (16).]

46. Caullery, M. & Mesnil, F. Sur *Staurosoma parasiticum* Will, Copépode gallicole, parasite d'une Actinie. C.R. Ac. Sci. cxxxiv, pp. 1314–1317.

47. —— & ——. Sur *Staurosoma parasiticum* Will, Copépode gallicole, parasite d'une Actinie. C.R. Soc. Biol. liv, pp. 629–632, figg. 1–3.

48. —— & ——. Sur les Fécampia, Giard, Turbellariés endoparasites. C.R. Ac. Sci. cxxxiv, pp. 911–913.
Abstract by E. Bresslau, Zool. Centrlbl. ix, pp. 496–498.
Parasitic in Decapod and Isopod Crustacea.

49. Chapman, Frederick. On some Ostracoda from Funafuti. J. Linn. Soc. xxviii, pp. 417–433, pl. xxxvii.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 29.

50. ——. On an *Alveolina*-Limestone and Nummulitic Limestones from Egypt. Geol. Mag. (4) ix, pp. 62–67, 106–114, pls. iv & v. [*Ostracoda.*]

51 ——. On some Foraminifera and Ostracoda from Cocos Keeling Atoll, collected by Dr C. W. Andrews, 1898. P. Zool. Soc. London 1902, i, pp. 228–233, figg. 27 & 28, in text.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 29.

52. ——. New or little-known Victorian fossils in the National Museum, Melbourne. Pt. I. Some Palæozoic species. P. Soc. Victoria xv, pp. 104–122, pls. xvi–xviii.

53. Chevreux, Ed. Amphipodes provenant des campagnes de l'Hirondelle (1885–1888). Résultats des Campagnes scientifiques accomplies sur son yacht par Albert Ier Prince souverain de Monaco.... Fasc. xvi, pp. 196 + iv, 18 pls. (Monaco, 1900).
Quoted hereafter as Amphip. Hirondelle.

54. ——. Campagnes scientifiques de S.A.S. le prince Albert Ier de Monaco. Description d'un Amphipode marin appartenant au genre *Hyalella* Smith. Bull. Soc. zool. France xxvii, pp. 223–227, 2 figg. in text.

55. ——. Mission scientifique de M. Ch. Alluaud aux îles Séchelles; Crustacés Amphipodes. Mem. Soc. zool. France xiv, pp. 388–438, 65 figg. in text (1901).
Abstract, Zool. Jahresber. 1902, Arthrop. p. 34.

56. ——. Diagnose d'un Amphipode nouveau (*Orchestia excavata*) provenant du Haut-Zambèze. Bull. Mus. Paris viii, pp. 521 & 522.

57. ——. Amphipodes recueillis par la *Melita* sur les côtes occidentale et méridionale de Corse. C.R. Ass. Franc. Ajaccio 1901, ire Partie, p. 153 (Abstract), iime Partie, pp. 692–699, pl. v.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 34.

58. Chilton, Chas. The Terrestrial Isopoda of New Zealand. Tr. Linn. Soc. London (2) Zool. viii, Pt. iv, pp. 99–152 & 152*, pls. xi–xvi (1901).

59. Cleve, P. T. Plankton from the Indian Ocean and the Malay Archipelago. Svenska Ak. Handl. xxxv, No. 5, 58 pp., viii pls. (1901).
Abstract, Zool. Jahresber. 1902, Arthrop. p. 28.

60. — —. The Plankton of the North Sea and the Skagerak in 1900. Svenska Ak. Handl. xxxv, No. 7, 49 pp.

61. Cligny, A. Mission de "La Vienne." Le Plankton pélagique au large des côtes bretonnes. C.R. Ass. Franc. Ajaccio 1901, iime Partie, pp. 707–715.

62. Cobb, John M. The Lobster Fishery of Maine. Bull. U. S. Fish Comm. xix, pp. 241–265, pls. xxvi–xxxii (1901).

62a. Cockerell, T. D. A. & Porter, Wilmatte. A new Crayfish from New Mexico. P. Ac. Philad. 1900, pp. 434 & 435, 1 fig.

63. Coe, Wesley, R. The Nemertean parasites of Crabs. Amer. Natural. xxxvi, pp. 431–450, 9 figg.

64. Coker, Robert E. Notes on a species of Barnacle (*Dichelaspis*) parasitic on the gills of edible crabs. Bull. U. S. Fish Comm. xxi, pp. 401–412, 14 text-figg.

65. Coutière, H. Les Crustacés comestibles; Le Homard. Rev. Scient. (4) xviii, pp. 1–11.

66. ——. Sur un type nouveau de Rhizocéphale, parasite des *Alpheidæ*. C.R. Ac. Sci. cxxxiv, pp. 913–915.
Abstract in J. R. Micr. Soc. 1902, p. 555.

67. ——. Sur la morphologie interne du genre *Thylacoplethus*, parasite grégaire des *Alpheidæ*. C.R. Ac. Sci. cxxxiv, pp. 1452 & 1453.
Abstract in J. R. Micr. Soc. 1902, p. 555.

68. ——. Sur un nouveau type de Rhizocéphale, parasite des *Alpheidæ*. C.R. Soc. Biol. liv, pp. 447–449.

69. ——. Sur un nouveau type de Rhizocéphale grégaire, parasite des *Alpheidæ*. 2 et 3 note. C.R. Soc. Biol. liv, pp. 625 & 626, 724 & 725.
Abstract of (66–69), Zool. Jahresber. 1902, Arthrop. p. 27.

70. [Coutière, H.] Sur quelques espèces nouvelles du genre *Automate* de Man. Bull. Mus. Paris viii, pp. 337–342.

71. ——. Note sur les *Palæmonidæ* africains provenant des explorations d'Ed. Foa. T. c. pp. 515–521.

——. [See also Lenz (149).]

72. [Cunningham, J. T.] Report on Lobster Hatching. Rep. Cornwall Soc. lxix, 1901, pp. 25–30.

73. Daday, E. v. Mikroskopische Süsswasserthiere aus Patagonien, gesammelt von Dr Filippo Silvestri im Jahre 1899 und 1900. Termes. Fuzetek xxv, pp. 201–310, pls. ii–xv, 3 figg. in text.
Abstracts: by F. Zschokke, Zool. Centrlbl. ix, pp. 337 & 338; Zool. Jahresber. 1902, Arthrop. pp. 28, 29, &c.

74. ——. Beiträge zur Kenntniss der Süsswasser-Mikrofauna von Chile. T. c. pp. 436–447, 4 figg.
Abstract, Zool. Jahresber. 1902, Arthrop. pp. 28, 29, &c.

75. Dall, W. H. On the true nature of *Tamiosoma*. Science (n. s.) xv, pp. 5–7. [*Cirripedia.*]

76. de Man, J. G. *Crustacea*, in Report on a Collection made by Messrs F. V. McConnell and J. J. Quelch at Mount Roraima in British Guiana. Tr. Linn. Soc. London (2) viii, pp. 57–64, pl. vi (1900).

77. ——. Die von Herrn Professor Kükenthal im Indischen Archipel gesammelten Dekapoden und Stomatopoden. Abh. Senckenb. Ges. xxv, pp. 467–929, pls. xix–xxvii.
Abstract, Zool. Jahresber. 1902, Arthrop. pp. 31 & 33.

78. ——. Description d'une espèce nouvelle du genre *Heteropanope* Stimpson, provenant de la Côte d'Ivoire, *Heteropanope africana* n. sp. Bull. Mus. Paris vii, pp. 254–260, figg. 1–3 *b*. in text.

79. ——. Over de Crustacea ("Weeke Schaalvisschen") in Rumphius' Rariteitkamer. Rumphius Gendenkboek, 1702–1902. Uitgegeven door het Kolonial Museum te Haarlem, pp. 98–104.

80. Doflein, F. Ostasiatische Decapoden. Abh. Bayer. Ak. xxi, pp. 613–670, 4 figg., 6 pls., 4 figg. in text.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 33.

81. Dubois, R. Du cuivre normal dans la série animale. Ann. Soc. Linn. Lyon xlvii (1901), pp. 93–97.
Abstract in J. R. Micr. Soc. 1902, p. 637.

Duboscq, O. [See Léger & Duboscq (148).]

Eastman, C. R. [See Patten (196).]

82. Eaton, A. E. Ants displaced by Woodlice in New Zealand. Ent. Mag. (2) xiii, p. 160. [Note on Smith (255).]

Edwards, A. Milne. [See Milne Edwards (170 & 171).]

83. Egger, Joseph Georg. Ostrakoden aus Meeresgrund-Proben gelothet von 1874–1876 von S.M.S. Gazelle. Abh. Bayer. Ak. xxi, pp. 413–477, 8 pls. (1901).

84. Ekman, Sven. Beiträge zur Kenntnis der Phyllopodenfamilie *Polyartemiidæ*. Bih. Svenska Ak. xxviii (4), No 11, 38 pp., pls. i–iv, 1 text-fig.
Abstract by F. Zschokke, Zool. Zentrlbl. x, pp. 294–296.

85. [Ekman, Sven.] [...über die Beziehungen der verschiedenen Formen der Cladocere *Bythotrephes longimanus* zu einander...]. Zool. Anz. xxv, pp. 268 & 269.

86. Fabiani, R. Nota sul *Cœcosphæroma bericum* Fabiani. Atti Ist. Veneto lxii, pp. 177–181, 1 fig.

86a. Faxon, Walter. Observations on the *Astacidæ* in the United States National Museum and in the Museum of Comparative Zoology, with descriptions of new species. P. U. S. Mus. xx, pp. 643–694, pls. lxii–lxx. (1898).

Fick, R. Abstracts in Zool. Centrlbl. ix & x, see Nos. 107, 202.

87. Field, Geo. W. The Biological Basis of Legislation governing the Lobster Industry. Science (n. s.) xv, pp. 612–616.

88. Filatowa, E. Quelques rémarques à propos du développement post-embryonnaire et l'anatomie de *Balanus improvisus* (Darw.). Zool. Anz. xxv, pp. 379–385, 6 figg. in text.
Abstracts: by R. S. Bergh, Zool. Centrlbl. ix, pp. 462 & 463; J. R. Micr. Soc. 1902, p. 432; Zool. Jahresber. 1902, Arthrop. p. 26.

89. Forel, F. A. Le Léman, Monographie limnologique. III (1), 411 pp., 37 figg., 1 map. Lausanne, 1901.
Abstract by F. Zschokke, Zool. Centrlbl. ix, pp. 338–347.

90. Fritsch, Ant. Fauna der Gaskohle und der Kalksteine der Permformation Böhmens. IV (3). Prag, 1901.
Crustacea, pp. 66–79, pls. 156–161, text-figg. 371–378.

91. Fulton, S. W. & Grant, F. E. Some little known Victorian decapod Crustacea with description of a new species. P. Soc. Victoria (2) xiv, pp. 55–64, pl. v.
Abstract in J. R. Micr. Soc. 1902, p. 432.

92. —— & ——. Some little known Victorian Decapod Crustacea with descriptions of New Species, No. II. P. Soc. Victoria (2) xv, pp. 59–68, pls. viii–x.
Abstracts: in J. R. Micr. Soc. 1902, p. 646; (91 & 92), Zool. Jahresber. 1902, Arthrop. p. 33.

93. Fürth, Otto von. Vergleichende chemische Physiologie der niederen Tiere. pp. xiv+670, 8vo, Jena, 1903.
[Received in London December 1902.]

94. Gadd, P. Några förut obeskrifna, parasitiskt lefvande Copepoder. Medd. Soc. Faun. Fenn. xxvii, p. 98–100 (1901).

Gamble, F. W. [See Keeble & Gamble (139).]

95. Garbini, A. Una specie nuova di *Gammarus* (*G. tetrachantus*) nel lago Müggel. Zool. Anz. xxv, pp. 153 & 154, 1 fig. in text.
Abstract in J. R. Micr. Soc. 1902, p. 185.

Gardiner, J. Stanley. [See Borradaile (26 & 27).]

Garjajeff, W. [See Gharyaev, V. P. (96a).]

96. Gautrelet, J. Des formes élémentaires du phosphore chez les Invertébrés. C.R. Ac. Sci. cxxxiv, pp. 186–188.
Abstracts: J. R. Micr. Soc. 1902, p. 298; Zool. Jahresber. 1902, Arthrop. p. 26.

——. [See also Bruntz & Gautrelet (40).]

96A. GHARYAEV, V. P. Gammarīd'i ozera Baikala. Chast perbaya. Acanthogammarinæ. Die Gammariden des Baikalsees. Erster Thiel. Acanthogammarinæ. Trudui Kazan. Univ. xxxv (6), 63 pp., 3 pls., 1 map. [German resumé, with diagnoses of new genera, pp. 60–62.]
Dated 1901, received in London June 1903.

97. GIESBRECHT, W. Copepoden. Résultats du voyage du S.Y. Belgica. Zoologie, 4to, 49 pp., xiii pls. Anvers, 1902.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 29.

98. —— & MAYER, P. Arthropoda. Zool. Jahresber. für 1902, 72 pp. *Crustacea*, pp. 24–35.

GINESTE, CH. [See KUNSTLER & GINESTE (143).]

GOLDSCHMIDT, R. Abstract in Zool. Centrlbl. ix, see No. 205.

99. GRAN, H. H. Das Plankton des Norwegischen Nordmeeres. Rep. Norwegian Fishery Invest. II, No. 5, pp. 1–219, 1 pl., 16 figg. in text.

GRANT, F. E. [See FULTON & GRANT (91 & 92).]

100. GRAY, G. M. *Naushonia crangonoides* (in "Biological Notes"). Bull. U. S. Fish Comm. xix, p. 307.

101. GROOM, THEODORE. On Polyphyma, a New Genus belonging to the *Leperditiadæ*, from the Cambrian Shales of Malvern. Quart. J. Geol. Soc. lviii, pp. 83–88, pl. iii, 1 fig. in text.

101A. *GRUVEL, A. Sur un Cryptoniscien parasite d'*Alepas minuta* (*Leponiscus alepadis*). Soc. Sci. phys. nat. Bordeaux, 21 fev. 1901, pp. 19 & 20.
Variously quoted as Bull. and as Pr.-verb.

102. ——. Cirrhipèdes. Expéditions scientifiques du "Travailleur" et du "Talisman" pendant les années 1880, 1881, 1882, 1883, pp. 179, vii pls.
[Contains also description of a parasitic Isopod, pp. 35–43, pl. i.]

103. ——. Sur quelques Lépadides nouveaux de la collection du British Museum. Tr. Linn. Soc. London (2) viii, pp. 277–295, pl. xxiv, 5 figg. in text.

104. ——. Catalogue des Cirrhipèdes appartenant à la collection du Muséum. Bull. Mus. Paris viii, pp. 522–566.
List, with localities. Many new species named but not described.

105. ——. Sur une forme géante de Spermatozoides chez les Cirrhipèdes. Bull. Mus. Paris viii, pp. 526 & 527.

106. GURNEY, ROBERT. The Metamorphosis of *Corystes cassivelaunus* (Pennant). Quart. J. Micr. Sci. (n. s.) xlvi, pp. 461–478, pls. xxix–xxxi.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 31.

107. HÄCKER, V. Ueber die Autonomie der väterlichen und mütterlichen Kernsubstanz vom Ei bis zu den Fortpflanzungszellen. Anat. Anz. xx, pp. 440–452, 11 figg. in text.
Abstract by R. FICK, Zool. Centrlbl. ix, p. 102.

108. ——. Ueber die Fortpflanzung der limnetischen Copepoden des Titisees. (Fortpflanzungscyklus, Geschlechtssonderung und Geschlechtsverhältniss). Ber. Ges. Freiburg xii, pp. 1–33, 6 figg.
Abstract in J. R. Micr. Soc. 1902, p. 432.

109. [Häcker, V.] Ueber das Schicksal der elterlichen und grosselterlichen Kernantheile. Morphologische Beiträge zum Ausbau der Vererbungslehre. Jena. Zeitschr. xxxvii, pp. 297–400, 16 figg., pls. xvii–xx.
Abstract of (107 & 109), Zool. Jahresber. 1902, Arthrop. pp. 24 & 27.

110. Hall, T. S. New or little known Fossils from the Tertiaries of Victoria. P. Soc. Victoria xv, pp. 80–84, pl. xi. [*Lepas* n. sp., p. 83.]

111. Halpern, Berku. Das Hüll- und Stützgewebe des Bauchmarks bei *Astacus fluviatilis*. Arb. Inst. Wien xiv, pp. 423–442, 12 figg. in text.

112. Hansen, H. J. Danmarks Stilling og Tilstand. II. Det Kongelige Danske Videnskabernes Selskab, med tillæg, *Rhizorhina*, *Herpyllobius* og Søren Jensen. 214 pp. with figg. in text. Kjøbenhavn, 1900 (8vo).

113. ——. *Echinocheres globosus* n. gen., n. sp., a Copepod parasitic in spines of an Echinothurid. Vid. Medd. 1902, pp. 437–449, pl. xv.

114. Harris, J. Arthur. Distribution of Kansas Crayfishes. Kansas Univ. Bull. i, pp. 3–11, with map.

Hartog, Marcus. (86) Zool. Rec. 1901, Reprinted Amer. Micr. J. xxiii, pp. 131 & 132.

115. Hay, W. P. Two new subterranean Crustaceans from the United States. P. Biol. Soc. Washington xiv, pp. 179 & 180.

116. ——. On the proper application of the name *Cambarus carolinus* Erichson. P. Soc. Washington xv, p. 38.

117. ——. Observations on the Crustacean Fauna of the region about Mammoth Cave, Kentucky. P. U. S. Mus. xxv, pp. 223–236, 1 fig.

118. ——. Observations on the Crustacean fauna of Nickajack Cave, Tennessee, and vicinity. T. c. pp. 417–439, 8 figg.

119. H[eath], H. The Breeding habits of *Cancer magister*. Amer. Natural. xxxvi, pp. 501 & 502.

[Heider, K. See Korschelt & Heider (141).]

120. Herbst, Curt. Ueber die formativen Beziehungen zwischen Nervensystem und Regenerationsprodukt. Verh. Congr. Zool. Berlin v, pp. 449–451.

121. ——. Ueber die Regeneration von antennenähnlichen Organen au Stelle von Augen. v. Weitere Beweise für die Abhängigkeit der Qualität des Regenerates von den nervösen Centralorganen. Arch. Entwickmech. xiii (1901), pp. 436–447, pl. xix.
Abstract by R. S. Bergh, Zool. Centrlbl. ix, pp. 121 & 122.

122. Herdman, W. A. Fourteenth Annual Report of the Liverpool Marine Biology Committee and their Biological Station at Port Erin. P. Liverp. biol. Soc. xv (1901), pp. 19–84, 7 pls.
Distribution of *Crustacea*, esp. p. 68, pl. v.

123. Herrick, F. H. The Ovary and the Reproductive Period. Science (n. s.) xv, p. 531.

124. ——. The Reproductive Period in the Lobster. Bull. U. S. Fish Comm. xxi, pp. 161–166, 5 text-figg.

Hesse, R. [Author's abstract of] "Untersuchungen über die Organe der Lichtempfindung bei niederen Tieren. VII. Von den Arthropoden-Augen" (Zeitschr. wiss. Zool. lxx (1901), pp. 347–473). Zool. Centrlbl. ix, pp. 79–82.

Heymons, R. [See Samter & Heymons (225).]

125. Hinch, J. de Witt. A contribution to the Glacial Geology of County Dublin. Irish Natural. xi, pp. 229–236.
Cirripedia, p. 232.

126. Hodgson, T. V. Crustacea, in Report on the Collections of Natural History made in the Antarctic Regions during the voyage of the "Southern Cross." London, 1902 (pp. 228–261, pls. xxix–xl).

127. Holmes, Samuel J. Phototaxis in the Amphipoda. Amer. J. Physiol. v, pp. 211–234.

128. ——. Observations on the Habits of *Hyalella dentata*. Science (n. s.) xv, pp. 529 & 530.

129. Horst, R. On the habits of the Cocoa-nut Crab or Palm-thief (*Birgus latro* Fabr.). Notes Leyden Mus. xxiii, No. 3 (July 1901, published 15 July 1902), pp. 143–146.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 33.

130. Howe, Freeland. Report of a dredging expedition off the southern coast of New England, September 1899. Bull. U. S. Fish Comm. xix, pp. 237–240 (1901).

131. Hübner, Otto. Neue Versuche aus dem Gebiet der Regeneration und ihre Beziehungen zu Anpassungsercheinungen. Zool. Jahrb. Syst. xv, pp. 462–498, pls. xxviii & xxix. [*Crustacea*, pp. 466–472.]
Abstracts: by R. S. Bergh, Zool. Centrlbl. ix, pp. 427–429; Zool. Jahresber. 1902, Arthrop. p. 22.

132. Ishikawa, C. Ueber das rhythmische Auftreten der Furchungslinie bei *Atyephira compressa* de Haan. Arch. Entwickmech. xv, pp. 535–542, pl. xix.
Abstacts: Zool. Jahresber. 1902, Arthrop. p. 31; by R. S. Bergh, Zool. Zentrlbl. x, pp. 476 & 477.

133. Issel, Raffaele. Studi sulla fauna termale euganea. Boll. Mus. Genova, No. 108 (1901), 5 pp.

Jacobi, —. Abstract in Centrbl. Bakter. xxxii. See No. 267.

134. Jaekel, O. Ueber die Organisation der Trilobiten. Theil I. Zeitschr. Deutsch. geol. Ges. liii (1901), pp. 133–171, pls. iv–vi, 31 figg. in text.
Note on *Gampsonyx*, p. 140.

135. ——. Ueber verschiedene Wege phylogenetischer Entwickelung. Verh. Congr. Zool. Berlin v, pp. 1058–1117, 28 figg. in text.
[Evolution of *Crustacea*, pp. 1071 &c.]

136. Jones, T. R. Notes on Dr G. F. Matthew's Cambrian Ostracoda from North-Eastern America. Geol. Mag. (4) ix, pp. 401–403, 6 figg.

137. —— & Kirkby, James W. The Carboniferous Ostracoda of the Clyde Drainage Area. Fauna, Flora and Geology of the Clyde Area, edited by G. F. Scott Elliot, Malcolm Laurie and J. Barclay Murdoch. (Brit. Ass. Handbook.) 8vo, Glasgow, 1901 (pp. 488–491).
Includes also *Phyllopoda* and *Phyllocarida*.

138. Jordan, H. Die Functionen der sogen. Leber bei *Astacus fluviatilis*. Verh. Deutsch. zool. Ges. 1902, pp. 183–186.

139. Keeble, Frederick & Gamble, F. W. The Colour-physiology of Higher Crustacea. (Abstract.) P. R. Soc. London lxxi, pp. 69–71.

Kirkby, James W. [See Jones & Kirkby (137).]

140. Koeppel, Ernst. Beiträge zur Kenntnis der Gattung *Amphion*. Arch. Naturg. lxviii (1), pp. 262–299, pls. xii & xiii.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 31.

141. Korschelt, E. & Heider, K. Lehrbuch der vergleichenden Entwicklungsgeschichte der wirbellosen Thiere. Allgemeiner Theil. 1ste Lief. 1 & 2 Aufl. x + 538 pp., 318 figg. in text. 8vo, Jena, 1902.

141a. Kraepelin, Karl. Ueber die durch den Schiffsverkehr in Hamburg eingeschleppten Tiere. Mt. Mus. Hamburg xviii, pp. 183–209. List of *Isopoda*, p. 204.

142. *Kraft, L. Die Phosphoritführung des vogtländischen Obersilur und die Verbreitung des Phosphorits im Altpalæozoicum Europas. N. Jahrb. Min. xv (1901), pp. 1–65, pls. i & ii.
Phosphatic nodules associated with Crustacean remains.
Abstract by A. Tornquist, Zool. Centrlbl. ix, pp. 549–551.

143. Kunstler, J. & Gineste, Ch. Contribution à l'étude de l'œil composé des Arthropodes. C.R. Ass. Franc. Ajaccio 1901, 1re Partie, p. 150 (Abstract), 2me Partie, pp. 646–666, 25 figg. in text.
Appears to deal chiefly with *Crustacea* but no genera or species are mentioned by name. The word "Hippérines," which may be conjecturally regarded as a version of *Hyperina*, is the only clue to the group to which figures and text refer, but this name is in use both among Insects and among *Crustacea*.

144. Labbé, A. Sur la continuité fibrillaire des cellules épithéliales et des muscles chez les *Nebalia*. C.R. Ac. Sci. cxxxv, pp. 750–752.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 25.

145. Lanchester, W. F. On the Crustacea collected during the "Skeat" Expedition to the Malay Peninsula, together with a note on the genus *Actæopsis*. Part I. Brachyura, Stomatopoda, and Macrura. P. Zool. Soc. London 1901 (ii), pp. 534–574, pls. xxxiii & xxxiv.
Abstract, Zool. Jahresber. 1902, Arthrop. pp. 31 & 33.

146. Lang, A. Fünfundneunzig Thesen über den phylogenetischen Ursprung und die morphologische Bedeutung der Centralteile des Blutgefässsystems der Tiere. Vierteljahrschr. Ges. Zurich xlvii, pp. 393–421.
Arthropoda, pp. 403–408.

147. Lankester, E. Ray. Arthropoda. Encycl. Brit. xxv, pp. 689–701, 11 figg.

148. Léger, L. & Duboscq, O. Sur la régénération épithéliale dans l'intestin moyen de quelques Arthropodes. Arch. zool. exp. Notes (3) x, pp. xxxvi–xlii.
Abstracts: J. R. Micr. Soc. 1902, p. 551; Zool. Jahresber. 1902, Arthrop. p. 21.

149. Lenz, Heinrich. Die Crustaceen der Sammlung Plate (*Decapoda* und *Stomatopoda*). Zool. Jahrb. Suppl. v, Fauna Chilensis ii, pp. 731–772, pl. xxiii.
On p. 732, a note by H. Coutière.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 34.

150. Lepri, G. Nota preliminare sopra una forma cieca di *Asellus*. Monit. Zool. ital. xiii, Suppl. pp. 37 & 38.

151. Lerat, Paul. La première cinèse de maturation dans l'ovogénèse et la spermatogénèse du *Cyclops strenuus*. Anat. Anz. xxi, pp. 407–411, 4 figg. in text.
Abstract by F. Zschokke, Zool. Zentrlbl. x, p. 297.

152. Levander, K. M. Om förekomsten af Moina rectirostris O. F. M. i Finland. Medd. Soc. Faun. Fenn. xxviii, A, p. 32.

152A. ——. Zur Kenntnis des Planktons und der Bodenfauna einiger seichten Brackwasserbuchten. Acta Soc. Faun. Fenn. xx, No. 5, 34 pp. (1901).

152B. ——. Uebersicht der in der Umgebung von Esbo-Löfö im Meereswasser vorkommender Thiere. T. c. No. 6, 20 pp.

153. Lilljeborg, Wilhelm. Tres species novæ generis Canthocampti e Novaja Semlja et Siberia Boreali sive Trenne nya Arter af Släktet *Canthocamptus* från Novaja Semlja och norra Siberien. Bih. Svenska Ak. xxviii (4), No. 9, 20 pp., 3 pls.

154. ——. Synopsis specierum huc usque in aquis dulcibus Sueciæ observatarum familiæ Harpacticidarum, sive Bidrag till en Öfversikt af de uti Sveriges Färska vatten hittills iakttagna Arterne af Familjen *Harpacticidæ*. Svenska Ak. Handl. xxxvi (1), 75 pp., pls. i–iv.

155. Linko, A. K. O Cladocera Solovetzkagho ostrova i Byelagho Morya. Trudui St. Peterb. Obshch. xxx (4) pp. 1–16.
Abstract, Sur les Cladoceres de la Mer Blanche et des îles de Solowetzky, pp. 17–20, 1 pl. (1900).

156. ——. Mater'yal'i po faunye Phyllopoda Evropeĭskoĭ Rossii. Trudui St. Peterb. Obshch. xxxi (4), pp. 64–81.
Abstract, Beitrag zur Kenntniss der Phyllopodenfauna des europaischen Russlands, pp. 82–90, 1 pl. (1901).

157. Linton, Edwin. Fish Parasites collected at Woods Hole in 1898. Bull. U. S. Fish Comm. xix (1901), pp. 267–304, pls. xxxiii–xliii.
Parasitic Copepod, p. 285, pl. xxxiii, figg. 1–5.

158. ——. Parasites of Fishes of the Woods Hole Region. T. c. pp. 405–492, pls. i–xxxiv.
Two Copepoda mentioned, pp. 448 & 461.
Abstract by M. Braun, Zool. Centrlbl. ix, pp. 495 & 496.

159. Lo Bianco, Salvatore. Le pesche pelagiche abissale eseguite dal Maia nelle vicinanze di Capri. (Con una carta topografica.) Mt. Stat. Neapel xv, pp. 413–482, pl. xix (1901).
Abstracts: Zool. Jahresber. 1902, Arthrop. p. 26; by F. Zschokke, Zool. Zentrlbl. x, pp. 260–264.

——. [See Monticelli & Lo Bianco (173 & 174).]

160. Lozeron, H. Sur la répartition verticale du plancton dans le lac de Zurich, de décembre 1900 à décembre 1901. Vierteljahrschr. Ges. Zurich xlvii, pp. 115–196, pls. ii–vi.
Abstract by F. Zschokke, Zool. Centrlbl. ix, pp. 600–603.

161. Luther, Alexander. Planktonologiska og hydrofaunistiska studier i Lojo sjö under sommaren 1901. Medd. Soc. Faun. Fenn. xxviii, A, pp. 52–55.

162. Malard, A. E. Des variations mensuelles de la Faune et de la Flore maritimes de la Baie de la Hogue (Novembre et Décembre). Bull. Mus. Paris viii, pp. 30–35; (Janvier et Fevrier), pp. 190–197.

Man, J. G. de. [See de Man (76–79).]

163. Marchand, Ernest. Description de deux Arthropodes nouveaux provenant du Soudan français (*Trox Borgognoi* [Coléopt.] et *Pot.* (*Potamonautes*) *ecorssei* [Crust.]). Bull. Soc. Ouest France (2) ii, pp. 331–342, pl. xiii.

Mark, E. L. [See Bigelow, M. A. (16).]

164. Marshall, F. H. A. On variation in the number and arrangement of the male genital apertures in the Norway Lobster (*Nephrops norvegicus*). P. Zool. Soc. London 1902, i, pp. 2–12, 3 figg. in text.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 32.

165. Matthew, G. F. Ostracoda of the Basal Cambrian Rocks in Cape Breton. Canad. Rec. viii (7), pp. 437–468, 2 pls.

Mayer, P. [See Giesbrecht & Mayer (98).]

166. Meek, Alexander. On the growth of the Crab. Rep. Northumberland Sea Fisheries Committee for 1900, pp. 58–64. [*Carcinus mænas.*]

167. ——. The Decapoda of Northumberland. T. c. pp. 65–67.

168. ——. The Marine Amphipoda of Northumberland. T. c. pp. 68–70.

Meisenheimer, J. Abstract in Zool. Centrlbl. ix, see No. 302.

169. Meissner, Walerian. Notiz über niedere Crustaceen des Wolga-Flusses bei Saratow. Zool. Anz. xxvi, pp. 51–55.
Abstract by F. Zschokke, Zool. Zentrlbl. x, p. 296.

Mesnil, F. [See Caullery & Mesnil (46, 47, 48).]

170. Milne Edwards, A. & Bouvier, E. L. Les Dromiacés et Oxystomes. (Reports on the Results of dredging...by the U.S. Steamer "Blake," No. xxxix.) Mem. Mus. Harvard xxvii, No. 1, pp. 1–128, pls. i–xxv.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 34.

171. —— & ——. Les Bathynomes. (Reports on the Results of dredging ...by the U.S. Steamer "Blake," No. xl.) T. c. No. 2, pp. 129–176, pls. i–viii.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 34.

172. Monaco, Prince Albert de. Sur la troisième campagne de la Princesse Alice II. C.R. Ac. Sci. cxxxiv, pp. 961–964.

173. Monticelli, Fr. Sav. & Lo Bianco, S. Su la probabile larva di *Aristeus antennatus* Risso. Monit. Zool. ital. xiii, Suppl. p. 30.

174. —— & ——. [Ancora sullo sviluppo dei *Peneidi* del Golfo di Napoli.] Boll. Soc. Napoli xv, p. 159.

175. Moore, H. F. Report on Porto Rican Isopoda. Bull. U. S. Fish Comm. xx (2), pp. 163–176, pls. vii–xi.

176. *Moreira, Carlos. Contribuções o conhecimento da fauna brazilaire. Crustaceos do Brazil. Arch. Mus. Nacion. Rio de Janeiro xi, pp. .

177. Morgan, Thos. Hunt. Regeneration. (Columbia University Biological Series vii), pp. xii + 316, figg. in text. 8vo, New York, 1901.

178. ——. Regeneration of the Appendages of the Hermit-Crab and Crayfish. Anat. Anz. xx, pp. 598–605, 17 figg. in text.
Abstracts: J. R. Micr. Soc. 1902, p. 431; Zool. Jahresber. 1902, Arthrop. p. 26.

179. ——. The reflexes connected with autotomy in the Hermit crab. Amer. J. Physiol. vi, pp. 278–282.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 25.

180. Mrázek, Al. Arktische Copepoden; in Römer & Schaudinn's Fauna Arctica ii, pp. 499–528, pls. iv–vi, 13 figg. in text.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 28.

181. [Mrázek, Al.] Süsswasser-Copepoden. Ergebnisse der Hamburger Magalhaensischen Sammelreise vi (2), 29 pp., 4 pls.
Quoted hereafter as Copep. Hamb. Magalh. Sammelreise. Abstract, Zool. Jahresber. 1902, Arthrop. p. 28.

181a. ——. Ueber abnorme Mitosen im Hoden von *Astacus*. SB. Bohmisch. Ges. 1901 (v), 7 pp., 1 pl.

182. Müller, G. W. *Ostracoda*, Muschelkrebse; in K. Brandt's Nordisches Plankton vii (in Lief. i). Kiel & Leipzig, 1901, pp. 1–10, figg. 1–19.
Abstract by F. Zschokke, Zool. Centrlbl. ix, pp. 520 & 521.

183. Murlin, John Raymond. Absorption and Secretion in the Digestive system of the Land Isopods. P. Ac. Philad. liv, pp. 284–359, pl. xvi and 23 figg. in text.

Nansen, Fridtjof. [See Sars, G. O. (226).]

184. Neher, E. M. The eye of *Palæmonetes antrorum*. P. Indiana Ac. 1901, pp. 96–101, 6 figg.
Abstracts: Zool. Jahresber. 1902, Arthrop. p. 32; by F. Zschokke, Zool. Zentrlbl. x, p. 297.

185. Nichols, M. Louise. The Spermatogenesis of *Oniscus asellus* Linn. with especial reference to the history of the Chromatin. P. Amer. Phil. Soc. xli, pp. 77–112, pls. xi–xviii.

186. Nobili, Guiseppe. Decapodi e Stomatopodi Eritrei del Museo Zoologico dell' Università di Napoli. Ann. Mus. Napoli i, No. 3, 20 pp. (1901).

187. Nordgaard, O. Oplysninger om seiens vekst og aate. Bergens Mus. Aarbog 1901, No. 3, 20 pp. with English summary (1902).

188. Norman, A. M. Notes on the Natural History of East Finmark (continued). Ann. Nat. Hist. (7) x, pp. 472–486.

189. Ohlin, Axel. Isopoda from Tierra del Fuego and Patagonia. i. Valvifera; in Svenska Expeditionen till Magellansländerna ii, pp. 261–306, pls. xx–xxv (1901).

190. ——. Arctic Crustacea collected during the Swedish Arctic Expeditions 1898, 1899 and 1900 under the direction of Professor A. G. Nathorst and Mr G. Kolthoff. ii. *Decapoda, Schizopoda*. Bih. Svenska Ak. xxvii (4) No. viii, 92 pp., 3 pls. (1901).

191. Ortmann, A. E. The Geographical Distribution of Freshwater Decapods and its Bearing upon Ancient Geography. P. Amer. Phil. Soc. xli, pp. 267–400, 8 figg.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 33.

191a. Ostroumov, A. A. O znachenii osmotīcheskagho darleniya v' protzessye v' ilupleniya nauplius' ov iz īkr 'i artemii. [On the influence of osmotic pressure in the hatching of the nauplius from the egg of *Artemia*]. Protok. Kazan. Univ. 1901–1902, No. 198, 11 pp. German resumé 2 pp.

192. Packard, A. S. A new fossil crab from the miocene greensand bed of Gay Head, Martha's Vineyard, with remarks on the phylogeny of the genus *Cancer*. P. Amer. Ac. xxxvi (1900) pp. 3–9, pls. i & ii.
Abstract by A. Tornquist, Zool. Centrlbl. ix, p. 629.

193. Parker, Geo. H. [On the marine Copepod *Labidocera*.] Science, n. s. xv, p. 471.
Preliminary abstract of (194).

194. [Parker, Geo. H.] The Reactions of Copepods to various stimuli and the bearing of this on daily depth-migrations. Bull. U. S. Fish Comm. xxi, pp. 103–123.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 28.

195. Partridge, Miss E. M. *Echinocaris whidbornei* (Jones & Woodward) and *Echinocaris Sloliensis*, n. sp. Geol. Mag. (4) ix, pp. 307 & 308, pl. xvii, figg. 7–9.

196. Patten, William. On the Structure and classification of the *Trematastpidæ*. Amer. Natural. xxxvi, pp. 379–393, 3 figg.
Compared with *Apus* &c. Criticism by C. R. Eastman, t. c. pp. 505–507.

197. Peach, B. N. The Crustacea of the Silurian Rocks of South-west Scotland, pp. 448 & 449. Fauna, Flora and Geology of the Clyde Area, edited by G. F. Scott Elliot, Malcolm Laurie and J. Barclay Murdoch. (Brit. Ass. Handbook.) 8vo, Glasgow, 1901.
Notes.

198. ——. The Arthropoda from the Silurian Rocks of South-west Scotland. T. c. pp. 450–453.
Lists.

199. ——. Scottish Palæontology during the last Twenty Years. P. Phys. Soc. Edinb. xiv (4) pp. 361–394.
Crustacea, pp. 369–373.

200. Pearcey, F. G. Notes on the Marine Deposits of the Firth of Forth and their relation to its Animal Life. Tr. Soc. Glasgow (n. s.) vi, pp. 217–251, with chart.

Pérez, C. [See Bonnier & Pérez (24).]

201. Perrier, E. La fixation héréditaire des attitudes avantageuses. Verh. Congr. Zool. Berlin v, pp. 336–338.

202. Petrunkewitsch, Alexander. Die Reifung der parthenogenetischen Eier von *Artemia salina*. Anat. Anz. xxvi, pp. 256–263, 4 figg. in text.
Abstracts: Zool. Jahresber. 1902, Arthrop. p. 30; by R. Fick, Zool. Zentrlbl. x, p. 381.

203. Poche, Franz. Bemerkungen zu der Arbeit des Herrn Basset Smith; "A Systematic Description of Parasitic Copepoda found on Fishes with an Enumeration of the known species." Zool. Anz. xxvi, pp. 8–20.

Porter, Wilmatte. [See Cockerell & Porter (62a).]

204. Praeger, R. L. *Trichoniscus roseus* near Dublin. Irish Natural. xi, p. 323.

205. Prowazek, S. Ein Beitrag zur Krebsspermatogenese. Zeitschr. wiss. Zool. lxxi, pp. 445–456, pl. xxv, and 1 fig. in text.
Abstracts: by R. Goldschmidt, Zool. Centrlbl. ix, pp. 463 & 464; Zool. Jahresber. 1902, Arthrop. p. 25.

206. Przibram, Hans. Beobachtungen über adriatische Hummer im Aquarium (und vorläufige Mittheilung über Regenerationsversuche). (Mittheilungen aus der k. k. Zoologischen Station in Triest, No. 2.) Zool. Anz. xxv, pp. 76–82, 1 fig. in text.
Abstract in J. R. Micr. Soc. 1902, p. 185.

207. ——. Experimentelle Studien über Regeneration (2 Mitteilung; Crustaceen). Arch. Entwickmech. xiii, pp. 507–527, pls. xxi & xxii.
Abstracts by R. S. Bergh, Zool. Centrlbl. ix, pp. 785 & 786; Zool. Jahresber. 1902, Arthrop. p. 32.

208. [PRZIBRAM, HANS.] Intraindividuelle Variabilität der Carapax dimensionen bei brachyuren Crustaceen. Arch. Entwickmech. xiii, pp. 588–596, 21 figg.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 32.

209. RADKEVĪCH, GH. O nīzhnetretīchn'ikh otlozheniyakh okrestnosteĭ Kaneva. (Sur les dépôts tertiaires et inférieurs aux environs de Kanew.) Zapiski Kiev. Obshch. xvi (1900), pp. 319–363. [*Crustacea*, p. 360.]

210. RÁDL, ERN. Ueber specifische Strukturen der nervösen Centralorgane. Zeitschr. wiss. Zool. lxxii, pp. 31–99, pls. iii–v.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 20.

211. ——. Ueber die Lichtreactionen der Arthropoden auf der Drehscheibe. Biol. Centrbl. xxii, pp. 728–732. [*Cladocera.*]
Abstract, Zool. Jahresber. 1902, Arthrop. p. 20.

212. RATHBUN, MARY J. Description des nouvelles espèces de *Parathelphusa* appartenant au Museum de Paris. Bull. Mus. Paris viii, pp. 184–187.

213. ——. Descriptions of new Decapod Crustaceans from the West Coast of North America. P. U. S. Mus. xxiv, pp. 885–905.

214. ——. Crabs from the Maldive Islands. Bull. Mus. Harvard xxxix, No. 5, pp. 123–138, 1 pl.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 34.

215. ——. Papers from the Hopkins Stanford Galapagos Expedition, 1898–1899. VIII. Brachyura and Macrura. P. Washington Ac. iv, pp. 275–292, pl. xii, 4 figg. in text.

215A. *——. [Description of *Zanthopsis cretacea*] in JOHN C. BRANNER'S "Geology of the Northeast coast of Brazil." Bull. Geol. Soc. Amer. xiii for 1901 (publ. Feb. 1902).

216. REDEKE, H. C. Note sur le composition du plankton de l'Escaut oriental. Tijdschr. Nederland. Dierk. Ver. (2) vii, pp. 244–253.

217. RICHARD, J. Campagne scientifique de la *Princesse Alice* en 1901. Bull. Soc. zool. France xxvii, pp. 81–104.
Abstract by F. ZSCHOKKE, Zool. Centrlbl. ix, pp. 604 & 605.

218. RICHARDSON, HARRIET. The Marine and Terrestrial Isopoda of the Bermudas, with descriptions of New Genera and Species. Tr. Connect. Ac. xi, pp. 277–310, pls. xxxvii–xl.

219. ——. Key to the Isopods of the Atlantic Coast of N. America with descriptions of new and little known species. P. U. S. Mus. xxiii, pp. 494–579, 34 figg. in text (1901).
Description of species on pp. 543 & 558, by J. E. BENEDICT.

220. ——. A new fresh-water Isopod of the genus *Mancasellus* from Indiana. Op. cit. xxv, pp. 505–507, 4 figg.

221. ——. A new terrestrial Isopod of the genus *Pseudarmadillo*, from Cuba. T. c. pp. 509–511, 4 figg.

222. RIGGENBACH, E. Beobachtungen über Selbstverstümmelung. Zool. Anz. xxiv (1901), pp. 587–593, 6 figg. [*Crustacea*, p. 593.]
Abstract in J. R. Micr. Soc. 1902, p. 174.

223. RUEDEMANN, RUDOLF. Trenton Conglomerate of Rysedorph Hill, Rensselaer Co. N. Y. and its Fauna. Bull. N. York Mus. xlix, pp. 3–114, pls. i–vii (1901). [*Ostracoda* and *Cirripedia.*]

224. SAMTER, M. & WELTNER, W. Weitere Mittheilung über relicte Crustaceen in norddeutschen Seen. Zool. Anz. xxv, pp. 222–224.
Abstracts: by F. ZSCHOKKE, Zool. Centrlbl. ix, pp. 324 & 325; J. R. Micr. Soc. 1902, p. 432.

225. —— & HEYMONS, R. Die Variationen bei *Artemia salina* Leach und ihre Abhängigkeit von äusseren Einflüssen. Abh. Ak. Berlin 1902, Anh. ii, 62 pp.
Abstracts: Zool. Jahresber. 1902, Arthrop. p. 30; by F. ZSCHOKKE, Zool. Zentrlbl. x, pp. 337–342.

226. SARS, G. O. Crustacea. The Norwegian North Polar Expedition 1893–1896. Scientific Results, edited by Fridtjof Nansen, I (v) 137 pp., 36 pls. (1900).

227. ——. Account of the Postembryonal Development of *Pandalus borealis* Krøyer, with remarks on the development of other *Pandali* and description of the adult *Pandalus borealis*. Rep. Norwegian Fishery Investigations i, No. 3, 45 pp., 10 pls. (1900, separate copies dated 1899).

228. ——. On the *Polyphemidæ* of the Caspian Sea. Annuaire Mus. St. Petersb. vii, pp. 31–54, pls. i–iv.
Abstracts: Zool. Jahresber. 1902, Arthrop. p. 29; by F. ZSCHOKKE, Zool. Zentrlbl. x, pp. 686–688.

229. ——. An Account of the Crustacea of Norway. IV. *Copepoda Calanoida*, parts iii–xii, pp. 29–142, pls. xvii–xcvi.
Quoted as Crust. Norway iv. Abstract, Zool. Jahresber. 1902, Arthrop. p. 28.

230. ——. On a New South American Phyllopod *Eulimnadia brasiliensis* G. O. Sars, raised from dried mud. Arch. Naturv. Christian. xxiv, No. 6, 12 pp., 1 pl.
Abstract by F. ZSCHOKKE, Zool. Zentrlbl. x, p. 336.

231. SAYCE, O. A. A new genus of *Phreatoicidæ*. P. Soc. Victoria xiv, pp. 218–224, pls. xviii & xix.
Abstract in J. R. Micr. Soc. 1902, p. 432.

232. ——. Description of some new Victorian freshwater Amphipoda. No. 2. Op. cit. xv, pp. 47–58, pls. iv–vii.
Abstract in J. R. Micr. Soc. 1902, p. 646.

233. SCHENKEL, E. Beitrag zur Kenntnis der Dekapodenfauna von Celebes. Verh. Ges. Basel xiii, pp. 485–585, pls. vii–xiii.
Abstract in J. R. Micr. Soc. 1902, p. 432.

234. SCHIMKEWITSCH, W. K' voprosu o proïskhozhdenin rakoobrazn'ikh. Trudui St. Peterb. Obshch. xxx (4), pp. 35–41. Abstract (or translation), Beitrag zur Frage über die Abstammung der Crustaceen, pp. 43–48 (1900).
Abstract by R. S. BERGH, Zool. Centrlbl. viii, p. 650.

235. SCHNEE, —. Beiträge zur Fauna der Marschall-Inseln, III. Blütenfressende Krebse. Zool. Garten xliii, p. 138.

236. SCHNEIDER, KARL CAMILLO. Lehrbuch der vergleichenden Histologie der Tiere, pp. xiv+988, 691 figg. in text. Jena, 1902.
Crustacea, pp. 457–497.

237. SCHOUTEDEN, H. Le Phototropisme de *Daphnia magna* Straus. Ann. Soc. ent. Belgique xlvi, pp. 352–362.

238. SCOTT, ANDREW. Some additions to the Fauna of Liverpool Bay. P. Liverp. biol. Soc. xv (1901), pp. 342–353, 2 pls.
Abstract in J. R. Micr. Soc. 1902, p. 175.

239. [SCOTT, ANDREW.] On some Red Sea and Indian Ocean Copepoda. Op. cit. xvi, pp. 397–428, pls. i–iii.

240. SCOTT, THOMAS. Land, Fresh-Water, and Marine Crustacea (pp. 328–358); in, Fauna, Flora and Geology of the Clyde Area, edited by G. F. Scott Elliot, Malcolm Laurie and J. Barclay Murdoch (Brit. Ass. Handbook). 8vo, Glasgow, 1901.

241. ——. Notes on some Parasites of Fishes. Rep. Fish. Board Scotland xx, Part III, pp. 288–302, pls. xii & xiii.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 28.

242. ——. Notes on Gatherings of Crustacea collected by the Fishery Steamer "Garland" and the Steam Trawlers "Star of Peace" and "Star of Hope" of Aberdeen, during the year 1901. Rep. Fish. Board Scotland xx (3), pp. 447–485, pls. xxii–xxv.
Abstracts: Zool. Jahresber. 1902, Arthrop. p. 28; by F. ZSCHOKKE, Zool. Zentrlbl. x, p. 335.

243. ——. Observations on the Food of Fishes. Rep. Fish. Board Scotland xx (3), pp. 486–538.

244. ——. Notes on Scottish Crustacea. Ann. Nat. Hist. (7) x, pp. 1–5, pl. i.
Abstract in J. R. Micr. Soc. 1902, p. 555.

245. ——. Notes on Fresh and Brackish-Water Entomostraca found in Aberdeenshire. Ann. Scott. Nat. Hist. 1902, pp. 21–29.

246. ——. *Podon leuckartii* G. O. Sars, in the Firth of Forth and the Moray Firth. T. c. pp. 57 & 58.

247. ——. Some notes on the Scottish Crangonidæ. Ann. Scott. Nat. Hist. 1902, pp. 225–231.

——. [See also SMITH, SCOTT & STEEL (254).]

248. SCOURFIELD, D. J. The Ephippia of the Lynceid Entomostraca. J. Quekett Club (2) viii, pp. 217–244, pls. x–xii.
Abstracts: J. R. Micr. Soc. 1902, p. 554; Zool. Jahresber. 1902, Arthrop. p. 29.

249. SELLIER, —. Sur la lipase du sang chez quelques groupes de poissons et d'animaux invertébrés. Pr.-verb. Soc. Bordeaux lvii, pp. xlix & l.

250. SENNA, ANGELO. Le esplorazione abissali nel Mediterraneo del R. Piroscafo Washington nel 1881. I. Nota sugli Oxicefalidi. Bull. Soc. ent. Ital. xxxiv, pp. 10–32, pl. ii.

251. SKORIKOW, A. Die Erforschung des Potamoplanktons in Russland. Biol. Centrbl. xxii, pp. 551–570.

252. ——. Sur une espèce des Phyllopodes provenante du gouvernment de Saratov [Russian]. Annuaire Mus. St. Petersb. vi, No. 4, p. xxiv (1901).

253. ——. Ueber den Fund einer Myside in der Wolga bei Saratow. Zool. Anz. xxv, p. 530.

254. SMITH, JOHN, SCOTT, T. & STEEL, JAMES. The Post-Drift Fossils of the Clyde Drainage Area at Low Levels. Fauna, Flora and Geology of the Clyde Area, edited by G. F. Scott Elliot, Malcolm Laurie and J. Barclay Murdoch. (Brit. Ass. Handbook), 8vo, Glasgow, 1901. [*Crustacea*, chiefly *Ostracoda* and *Cirripedia*, pp. 533–535.]

255. SMITH, W. W. Ants displaced by Woodlice in New Zealand. Ent. Mag. (2) xiii, pp. 132 & 266.

256. Sokolowsky, Alexander. Ueber drei in der Nordsee bei Helgoland gefundene Caprelliden. Wiss. Meeresuntersuch. N. F. v, Abth. Helgoland, Heft. i, pp. 11–16, pl. ii.

257. Spencer, W. K. Zur Morphologie des Centralnervensystems der Phyllopoden, nebst Bemerkungen über deren Frontalorgane. Zeitschr. wiss. Zool. lxxi, pp. 508–524, pl. xxix, 7 figg. in text.
Abstracts: by F. Zschokke, Zool. Centrlbl. ix, pp. 627–629; Zool. Jahresber. 1902, Arthrop. p. 29.

258. Sprague, T. B. & B. Notes on the Entomostraca of Midlothian. Tr. Edinb. Field Soc. iv (4), pp. 305–321, pls. xxxi, xxxi *a*.

259. Stebbing, Thomas R. R. *Lynceus* and the *Lynceidæ*. Zoologist (4) vi, pp. 101–106, 1 fig. in text.

260. ——. South African Crustacea. Part ii. Marine Investigations in South Africa. Cape of Good Hope, Department of Agriculture. Cape Town, 1902, 8vo, pp. 92, pls. v–xvi. (Quoted as S. African Crust. ii.)
Abstract, Zool. Jahresber. 1902, Arthrop. pp. 29, 31, 33 etc.

261. ——. Crustacea. Encycl. Brit. xxvii, pp. 298 & 299.

262. ——. Entomostraca. Op. cit. xxviii, pp. 269–273, 4 figg.

263. ——. Malacostraca. Op. cit. xxx, pp. 479–482, 4 figg.

Steel, James. [See Smith, Scott & Steel (254).]

264. Stempell, W. Ueber *Polycaryum branchipodianum*, n. g., n. sp. Zool. Jahrb. Syst. xv, pp. 591–595, pl. xxxi.
Abstract by F. Braem, Centrbl. Bakter. xxxii, 1 Abth. Referate, p. 275.

265. ——. Ein neues parasitäres Protozoon aus *Branchipus grubei* Dyb. Verh. Congr. Zool. Berlin v, p. 685.
Preliminary abstract of (264).]

266. Steuer, Adolf. Beobachtungen über das Plankton des Triester Golfes im Jahre 1901. (Mittheilungen aus der k. k. zoologischen Station in Triest. No. 4.) Zool. Anz. xxv, pp. 369–372 with table.
Abstract by F. Zschokke, Zool. Centrlbl. ix, pp. 494 & 495.

267. ——. *Mytilicola intestinalis*, n. g., n. sp., aus dem Darme von *Mytilus galloprovincialis* Lam. (Mittheilungen aus der k. k. zoologischen Station in Triest. No. 6.) T. c. pp. 635–637.
Abstracts: by F. Zschokke, Zool. Centrlbl. ix, pp. 738 & 739; by Jacobi, Centrbl. Bakter. xxxii, i Abth. Referate, p. 528; J. R. Micr. Soc. 1902, p. 646.

268. Stingelin, Th. Bemerkungen über die Fauna des Neuenburgersees. Rev. Suisse Zool. ix (1901), pp. 315–323, pl. xvii.
Abstracts: by F. Zschokke, Zool. Centrlbl. ix, p. 42; J. R. Micr. Soc. 1902, p. 307.

269. Thomson, Geo. M. On a new species of *Paramithrax* from New Zealand. Ann. Nat. Hist. (7) x, pp. 361–363, pls. vii & viii.

270. ——. Some recent additions to and Notes on the Crustacean Fauna of New Zealand. Ann. Nat. Hist. (7) x, pp. 462–465.

271. Thompson, Millett T. A new Isopod parasitic on the Hermit Crab. Bull. U. S. Fish Comm. xxi, pp. 53–56, pls. ix & x.

272. ——. The Larva of *Naushonia crangonoides*. Science (n. s.) xv, p. 578.

Todd, R. A. [See Allen & Todd (3).]

Tornquist, A. Abstract in Zool. Centrlbl. ix. See No. 192.

273. Trouessart, E. Instructions aux naturalistes voyageurs pour la récolte des Arthropodes marins microscopiques, Acariens, Copépodes, Amphipodes, Ostracodes, &c. Bull. Soc. zool. France xxvii, pp. 23–27.

274. ——. Note sur les *Uropodinæ* [*Arachnida*] et description d'espèces nouvelles. T. c. pp. 29–45, 4 figg. in text.
Species parasitic on Amphipod Crustacea, p. 38.

275. Ulrich, Carl Jost. A contribution to the subterranean Fauna of Texas. Tr. Amer. micr. Soc. xxiii, pp. 83–101, pls. xiv–xviii.

276. Verhoeff, Karl W. Ueber paläarktische Isopoden. 8 Aufsatz. Armadillidien der Balkanhalbinsel und einiger Nachbarländer, insbesondere auch Tirols und Norditaliens. *Porcellio*; *Agabiformes*. Zool. Anz. xxv, pp. 241–255.
Author's abstract, Zool. Centrlbl. ix, p. 367.

277. ——. Einige Mittheilungen über Land-Isopoden. Berlin. ent. Zeitschr. xlvi, pp. 17–20 (1901).

——. [Isopoden aus Dalmatien.] Op. cit. xlvii, SB. p. 2. [Included in Verhoeff (277).]

278. Verrill, Addison E. Additions to the Fauna of the Bermudas from the Yale Expedition of 1901, with notes on other species. Tr. Connect. Ac. xi, pp. 15–62, pls. i–ix.
[*Crustacea*, pp. 16–23.]

279. Viré, A. Contribution à l'étude de la répartition géographique du genre *Niphargus* en France et dans le nord de l'Italie. Bull. Mus. Paris viii, pp. 94 & 95.

280. ——. La Faune et la Flore souterraines du Puits de Padirac (Lot). T. c. pp. 601–607, 3 figg.

281. ——. La Faune souterraine. Bull. Soc. Saone (n. s.) viii, pp. 170–174, 199–202, 230–233.

282. Voigt, M. Beiträge zur Kenntniss des Planktons pommerscher Seen. Forschber. Plon ix, pp. 72–86, 2 figg. in text.
Abstract by F. Zschokke, Zool. Centrlbl. ix, p. 348.

Weltner, W. [See Samter & Weltner (224).]

283. Wesenberg-Lund, C. Sur l'existence d'une faune relicte dans le lac de Furesö. Ov. Danske Selsk. 1902, pp. 257–303, 1 map.

284. Wheeler, William Morton. The Free-swimming Copepods of the Woods Hole Region. Bull. U. S. Fish Comm. xix, pp. 157–192, 30 figg. in text (1901).

285. Whitelegge, Th. Scientific results of the trawling expedition of H.M.C.S. "Thetis" off the Coast of New South Wales in February and March 1898, Part iv. *Crustacea*, Part iii. *Isopoda*, Part ii. Mem. Austral. Mus. iv, pp. 249–283, 38 figg.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 34.

286. Wilson, Charles Branch. North American parasitic Copepods of the family *Argulidæ*, with a bibliography of the group and a sytematic review of all known species. P. U. S. Mus. xxv, pp. 635–742, pls. viii–xxvii.

287. Witten, E. P. On the structural changes accompanying the Ecdysis of the Crab. Rep. Northumberland Sea Fisheries Committee for 1902, pp. 53–57.
It is nowhere stated which species is referred to.

288. Wolfenden, R. Norris. The Plankton of the Faröe Channel and Shetlands. Preliminary notes on some Radiolaria and Copepoda. J. Mar. Biol. Ass. vi, pp. 344–372, pls. i–iv and a chart.
Abstracts: J. R. Micr. Soc. 1902, p. 185; Zool. Jahresber. 1902, Arthrop. p. 28.

289. Wollebæk, Alf. Decapoda collected during the fishing investigations directed by Dr Hjort in 1897 & 1898. Rep. Norwegian Fish. Invest. i, No. 4, 29 pp., 3 pls. & figg. in text (1900).

290. ——. Lidt om Ræker og Rækefiske. Norsk Fiskeritidende, 1901, 8 de Hefte, 15 pp., 6 pls.

291. Woodward, H. The Canadian Rockies, Part I. On a Collection of Middle Cambrian Fossils obtained by Edward Whymper, Esq., F.R.G.S., from Mount Stephen, British Columbia. Geol. Mag. (4) ix, pp. 529–544, 7 figg.

292. Yerkes, R. M. Reaction of Entomostraca to Stimulation by light. II. Reactions of *Daphnia* and *Cypris*. Amer. J. Physiol. iv (1900), pp. 405–422, 6 figg. [Also] Contrib. Zool. Lab. Harvard, No. 116.
Abstract by F. Zschokke, Zool. Centrlbl. ix, p. 520.

293. ——. A study of variation in the Fiddler crab *Gelasimus pugilator* Latr. P. Amer. Ac. xxxvi, No. 24, pp. 417–442, 3 figg. in text (1901).
Abstract, Zool. Jahresber. 1902, Arthrop. p. 32.

294. ——. Habit-formation in the Green Crab, *Carcinus granulatus*. Biol. Bull. iii, pp. 241–244, 1 fig.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 32.

295. Zacharias, Otto. Das Plankton des Laacher Sees. Zool. Anz. xxv, pp. 395 & 396.
Abstracts: by F. Zschokke, Zool. Centrlbl. ix, p. 495; J. R. Micr. Soc. 1902, p. 426.

296. ——. Einige Beispiele von massenhafter Vermehrung gewisser Planktonorganismen in flachen Teichen. Biol. Centrbl. xxii, pp. 535 & 536.
Abstract by F. Zschokke, Zool. Centrlbl. ix, p. 605.

297. ——. Zur Kenntnis der Planktonverhältnisse des Schöh- und Schluensees. Forschber. Plon ix, pp. 26–32.

298. ——. Ueber die natürliche Nahrung einiger Süsswasserfische. T. c. pp. 62–69.

299. Zernov, S. A. Résultats d'une excursion au bord du bateau "Ljedokol Donskich Girl,"...Livr. 2. Plankton de la mer d'Azov et de ses Limans. [Russian.] Annuaire Mus. St. Petersb. vi, No. 4, pp. 435–584, pls. xviii & xix, 1901.

300. Zimmer, Carl. Cumaceen. Ergebnisse der Hamburger Magalhaensischen Sammelreise vi (3), 18 pp., 31 figg. in text.
Quoted hereafter as Cumaceen Hamb. Magalh. Sammelreise.

301. ——. Die von Professor Thilenius gesammelten Cumaceen. Zool. Jahrb. Syst. xvii, pp. 444–456, 22 figg. in text.
Abstract (300 & 301), Zool. Jahresber. 1902, Arthrop. p. 31.

302. Zschokke, F. Die Tierwelt der Schweiz in ihren Beziehungen zur Eiszeit. Basel, 8vo, 1901, 71 pp.
Abstracts: by J. Meisenheimer, Zool. Centrlbl. ix, pp. 7–9; Scot. Geogr. Mag. xviii, pp. 236–243; Amer. Natural. xxxvi, p. 330.

——. Abstracts in Zool. Centrlbl. ix & x. See Nos. 5, 35, 36, 45, 84, 89, 151, 159, 160, 169, 182, 184, 217, 224, 225, 228, 230, 242, 257, 266, 267, 268, 282, 292, 295, 296.

303. ZUR STRASSEN, O. Ueber die Gattung *Arcturus* und die Arcturiden der Deutschen Tiefsee-Expedition. Zool. Anz. xxv, pp. 682–689, 4 figg. in text.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 34.

304. ——. Zusatz zu meinem Artikel über die Arcturiden. Op. cit. xxvi, p. 31.

305. ZYKOFF, W. Ueber *Mysis* in der Wolga bei Saratow. Op. cit. xxv, pp. 275 & 276.
Abstract in J. R. Micr. Soc. 1902, p. 556.

II. SUBJECT INDEX.

1. MORPHOLOGY.

General account of anatomy of *Apus* and *Astacus*; BOURNE (30).

Morphology of *Dromiacea* and *Oxystomata*; MILNE EDWARDS & BOUVIER (170).

External and internal anatomy of *Amphion*; KOEPPEL (140).

Morphology of "*Simplicipoda*" (*Gasocaris*, *Gampsonychus* etc.); FRITSCH (90): criticism by CALMAN (43) and JAEKEL (134).

Morphology of *Bopyridæ*, external and internal structure; BOUVIER (23) p. 10.

Morphology of *Bathynomus*, segmentation of appendages confirming Hansen's views, adaptations to deep-sea life etc.; MILNE EDWARDS & BOUVIER (171).

External anatomy of *Ligia novæ-zealandiæ* (*Isopoda*); CHILTON (58) p. 107, pl. xi.

External and internal anatomy of *Argulidæ*; WILSON (286).

External and internal anatomy of *Polyartemia*; EKMAN (84).

Alimentary system of terrestrial *Isopoda*, anatomy and histology; MURLIN (183).

Cirripedia, morphology of test, p. 18, of complemental males, p. 116 etc.; GRUVEL (102).

Anatomy of *Balanus*, antennal glands, "organs of Knipowitch"; FILATOWA (88).

Anatomy and development of *Mytilicola*, n. g. *Copepoda*, closed circulatory system; STEUER (267).

Morphology of *Rhizorhina*, *Herpyllobius* and other *Copepoda*; HANSEN (112) pp. 124–205.

Morphology of vascular system in Arthropoda; LANG (146).

Morphology of respiratory system in *Decapoda*; BOHN (21).

Structure of mid-gut, and regeneration of its epithelium in *Decapoda*; LÉGER & DUBOSCQ (148) pp. xxxvii–xxxix.

Central nervous system and "frontal organ" of *Phyllopoda*; SPENCER (257).

Visceral nervous system of *Decapoda*; BOTTAZZI (29A).

Histology of *Crustacea*; SCHNEIDER (236) pp. 457–497.

Histology of *Nebalia*; LABBÉ (144).

Histology of compound eyes in *Crustacea*; KUNSTLER & GINESTE (143).

Histology of eye in blind and normal species of *Palæmonetes*; NEHER (184).

Histology of central nervous system of *Crustacea*; RÁDL (210).

Histology of nervous system of *Astacus fluviatilis*; HALPERN (111).

Histology of blood-vessels in *Astacus*; BERGH (14).

Anatomy and histology of chromatophore-system of *Schizopoda* and *Decapoda*; KEEBLE & GAMBLE (139).
Structure of cuticle in Land *Isopoda*; VERHOEFF (277) p. 19.
Structure of Chitin in *Stomatopoda* and *Decapoda*; BIEDERMANN (15).

2. PHYSIOLOGY.

Chemical Physiology of Crustacea, Blood, p. 76, Respiration, p. 117, Nutrition, p. 222, Excretion, p. 288, Pigments, p. 533, Adaptation to life in fresh-water and sea-water etc., p. 622; FÜRTH (93).
Influence of osmotic pressure in hatching of *Artemia*; OSTROUMOV (191A).
Inorganic combinations of phosphorus in exoskeleton of *Decapoda*; GAUTRELET (96).
Presence of copper in *Decapoda*; DUBOIS (81).
Lipase in blood of *Decapoda*; SELLIER (249).
Coagulation of blood of Decapod Crustacea; BOTTAZZI (29).
Chemical composition of fluids of body in *Sacculina* and its host; BRUNTZ & GAUTRELET (40).
Functions of the "Liver" in *Astacus fluviatilis*; JORDAN (138).
Digestion, Secretion, Absorption, in alimentary system of terrestrial *Isopoda*; MURLIN (183).
Physiology of respiration in *Decapoda*; BOHN (21).
Functions of visceral nervous system in *Decapoda*; BOTTAZZI (28).
Excretory organs in *Nebalia*, *Amphipoda*, *Isopoda*, and *Schizopoda*; BRUNTZ (38).
Excretory organs of *Cirripedia* and *Rhizocephala*; BRUNTZ (39).
Reactions of Copepods (*Labidocera*) locomotion, photo-, geo-, chemiotropism, attraction between sexes; PARKER (193 & 194).
Phototropic reactions of *Cladocera*; RÁDL (211).
Phototaxis in terrestrial and marine *Amphipoda*; HOLMES (127).
Reaction of *Daphnia* and *Cypris* to stimulation by light; YERKES (292).
Heliotropism of nauplius of *Balanus*; FILATOWA (88).
Phototropism of *Daphnia*; SCHOUTEDEN (237).
Physiology of colour in *Schizopoda* and *Decapoda*; KEEBLE & GAMBLE (139).

3. REPRODUCTION and DEVELOPMENT.

Development and life-history of *Bopyridæ*; BONNIER (23).
Reproduction of *Eulimnadia*; SARS (230).
Reproductive cycle and development of sexual characters in limnetic *Copepoda*; HÄCKER (108).
Sexual relations of *Cirripedia*; GRUVEL (102) p. 137, etc.
Sexual dimorphism in Land-*Isopoda*; VERHOEFF (277).
Breeding habits of *Cancer*; HEATH (119).
Reproductive cycle of Lobster; HERRICK (123 & 124).
Ephippia of *Lynceidæ* (*Cladocera*); SCOURFIELD (248).
Oogenesis in Crustacea, p. 353, etc., Spermatozoa, p. 443, Spermatophores, p. 431; KORSCHELT & HEIDER (141).
Oogenesis and spermatogenesis in *Cyclops strenuus*; LERAT (151).
Spermatogenesis in *Oniscus asellus*; NICHOLS (185): in Crayfish (*Astacus*); PROWAZEK (205).
Dimorphism of spermatozoa in *Balanus perforatus*; GRUVEL (105).
Abnormal mitoses in testis of *Astacus*; MRÁZEK (181A).
Spermatophores, formation of, in *Copepoda*; HANSEN (113) pp. 124–205.
Maturation of parthenogenetic eggs of *Artemia salina*; PETRUNKEWITSCH (202).

History of reproductive cells in *Copepoda*; HÄCKER (107 & 109).
Maturation and Cleavage of egg of *Cirripedia*; BIGELOW (17).
Early development of *Balanus*; M. A. & A. N. BIGELOW (19).
Early development of *Lepas*, formation of germ-layers; BIGELOW (16).
Rhythmical segmentation of egg of *Atyephyra*; ISHIKAWA (132).
Postembryonic development of *Balanus*, excretory cells, "acid-cells," nervous system of larva; FILATOWA (88).
Larval stages of *Dichelaspis* (*Cirripedia*); COKER (64).
Larval development of *Argulidæ*; WILSON (286).
Notes on larvæ of various Decapods; LO BIANCO (159).
Metamorphosis of *Corystes*; GURNEY (106).
Larval stages of *Naushonia*; THOMPSON (271).
Postembryonic development of *Pandalidæ*; SARS (227).
"Mysis" larva referred to *Aristeus antennatus*; MONTICELLI & LO BIANCO (173).

4. AUTOTOMY and REGENERATION.

Autotomy and Regeneration in *Crustacea*, MORGAN (177) p. 150, etc.: in *Decapoda*; PRZIBRAM (207): regeneration of appendages in "the Hermit Crab and the Crayfish" (gen.? and sp.?); MORGAN (178): in European lobster; PRZIBRAM (206): regeneration of antenna-like organ after removal of eye-stalk in *Palinurus* and *Palæmon* only if optic ganglion also removed, if ganglion left intact a normal eye is regenerated; HERBST (120 & 121): autotomy in *Eupagurus*; MORGAN (179): autotomy in *Alpheus* and *Dorippe*; RIGGENBACH (222): experiments on *Cladocera* and *Copepoda*; HÜBNER (131).

5. BIONOMICS.

a. *General.*

General account of deep-sea Crustacea from Indian Seas; ALCOCK (2).
Seasonal changes in littoral marine fauna; MALARD (162).
Habits, etc., of *Portunidæ*; BORRADAILE (26): of *Xanthidæ*; BORRADAILE (27): of European lobster; PRZIBRAM (206): of *Hyalella* (*Amphipoda*); HOLMES (128): of fresh-water *Entomostraca*; SPRAGUE, T. B. & B. (258): nocturnal and tree-climbing habits of *Birgus latro*; HORST (129): Hermit-crabs [*Cœnobita*?] eating flowers in Marshall Is.; SCHNEE (235): *Porcellio* (*Isopoda*) displacing ants in New Zealand—attacked by parasitic mite; SMITH (255).
Bionomics of *Decapoda* with special reference to respiration; BOHN (21).
Migration of Lobsters; BUMPUS (41).
Daily migrations of marine *Copepoda*; PARKER (193 & 194).
Habit-formation in *Carcinus*; YERKES (294).
Rate of growth of *Carcinus mænas*; MEEK (166): of European lobster; PRZIBRAM (206).
Ecdysis of "the Crab" (species not stated), structural changes; WITTEN (287): of European lobster; PRZIBRAM (206).

b. *Habitats.*

Habitats of Crustacea at Port Erin, I. of Man, with chart of distribution; HERDMAN (122): habitats and distribution of *Galatheidæ*; BENEDICT (12) pp. 244-246: brackish-water *Entomostraca*; SCOTT, T. (245).
Plankton, Marine; APSTEIN (4), CAR (45), CLEVE (59 & 60), CLIGNY (61), GIESBRECHT (97), GRAN (99), LINKO (155), LO BIANCO (159), MALARD

(162), MRÁZEK (180), MÜLLER (182), REDEKE (216), SARS (226 & 229), A. SCOTT (239), SENNA (250), STEUER (266), WHEELER (284), WOLFENDEN (288), ZERNOV (299): Fresh-water; BRADY (34), BREHM (35), CAR (45), HÄCKER (108), LINKO (155), LOZERON (160), LUTHER (161), MEISSNER (169), MRÁZEK (181), SKORIKOW (251), STINGELIN (268), VOIGT (282), ZACHARIAS (295–297): Brackish water; CAR (45), LEVANDER (152A).

Bionomics of Pelagic Crustacea, annual life-cycle, especially of *Calanus finmarchichus*, p. 56; GRAN (99): life-cycle of limnetic *Copepoda*; HÄCKER (108).

Abyssal, pelagic and littoral Crustacea in Lake of Geneva; FOREL (89).

Alpine fresh-water *Copepoda*, *Cladocera* and *Amphipoda*; ZSCHOKKE (302).

Subterranean fauna; ABSOLON (1), FABIANI (86), HAY (115, 117 & 118), ULRICH (275), VIRÉ (279–281).

Crustacea of hot springs; ISSEL (133).

c. *Symbiosis and Parasitism.*

Symbiosis of *Lissocarcinus* with *Holothuria nigra*; BORRADAILE (26): of *Trapeziinæ* and other *Xanthidæ* with corals; BORRADAILE (27): Crab (*Melia*) carrying sea-anemones in its chelipeds; BORRADAILE (27) p. 250.

Commensalism of Schizopod (*Gnathomysis*) with *Pagurus*; BONNIER & PÉREZ (24).

Parasitic Crustacea: on Fish, *Argulidæ*, WILSON (286), *Copepoda*, GADD (94), T. SCOTT (241), A. SCOTT (238), LINTON (157 & 158); on *Crustacea*, *Epicaridea*, BONNIER (23), GRUVEL (101A & 102), THOMPSON (271), *Rhizocephala*, COUTIÈRE (66–69), *Cirripedia*, COKER (64); on *Mollusca*, Copepod endoparasitic in *Mytilus*, STEUER (267); on *Echinoderma*, Copepod in spines of *Calveria*, HANSEN (113); on *Cœlenterata*, Copepod endoparasitic in *Anemonia*, CAULLERY & MESNIL (46 & 47).

Parasites of Crustacea:—*Epicaridea* and other *Crustacea*, see above; Parasite, probably protozoan, of *Branchipus grubei*; STEMPELL (264 & 265): Parasitic (?) mite, *Uropoda orchestiidarum* attached to *Orchestia* and *Talitrus* (*Amphipoda*) p. 38; TROUESSART (274): Turbellarian (*Fecampia*) parasitic in *Carcinus* and *Idotea*; CAULLERY & MESNIL (48): Nemertean worms parasitic on *Decapoda*; COE (63).

6. VARIATION and ABNORMALITIES.

Influence of external conditions on variation of *Artemia*; SAMTER & HEYMONS (225).

Variation and distribution of *Bythotrephes longimanus*; EKMAN (85).

Variation in *Polyphemidæ* of Caspian Sea; SARS (228).

Variation and relation between varieties and species in *Decapoda*; BORRADAILE (26).

Variation in *Gelasimus pugilator*, examined by statistical methods; YERKES (293).

Changes of relative dimensions of carapace with growth in *Brachyura*; PRZIBRAM (208).

Variation in *Galatheidæ*; BENEDICT (12) pp. 244 & 245.

Blind albino form of *Asellus aquaticus* occurring in company with normal individuals in marshes of Fiumicino at mouth of Tiber; LEPRI (150).

Variation in *Caridina* and *Palæmon*; LANCHESTER (145).

Variation in number and arrangement of ♂ genital apertures in *Nephrops*; MARSHALL (164).

Abnormal specimen of *Brachiella thynni*; BRIAN (37).
Gynandromorphism in *Porcellio*; VERHOEFF (277) p. 19.
Lateral hermaphroditism in individual of *Palinurus frontalis*, external characters described and figured; BÜRGER (42).

7. PHYLOGENY and CLASSIFICATION.

Relations of *Crustacea* to other Arthropoda; LANKESTER (147).
Phylogeny of *Crustacea*, embryological considerations, distinctions of naupliar and post-naupliar regions, body-cavity &c.; SCHIMKEWITSCH (234).
Relationships and classification of *Argulidæ*; WILSON (286).
Phylogeny and affinities of *Cirripedia*; GRUVEL (102).
Evolution of *Cirripedia*; PERRIER (201).
Phylogeny and classification of *Epicaridea*, BONNIER (23) p. 227 &c.
Branchuropus n. g. (*Isopoda*) uniting *Anuropus* with normal *Cirolanidæ*; MOORE (175).
Relations of Palæozoic "Schizopoda" to living *Anaspides*; CALMAN (43), PEACH (199).
Phylogeny of *Decapoda*, with special reference to respiratory system; BOHN (21).
Evolution of *Decapoda*; JAEKEL (135) p. 1071 &c.
Trematastpidæ compared with Phyllopod Crustacea; PATTEN (196).
Classification of *Galatheidæ* with keys to some spp.; BENEDICT (12).
Classification of *Dromiacea* and *Oxystomata*; MILNE EDWARDS & BOUVIER (170).
Systematic position of *Amphion*; KOEPPEL (140).

8. MISCELLANEOUS.

Review of literature for 1902; GIESBRECHT & MAYER (98).
Summaries of recent work; STEBBING (261–263).
Economic:—General account of Lobster from an economic point of view; COUTIÈRE (65): Biology of Lobster in relation to Legislation; FIELD (87): Experiments in hatching and rearing Lobsters; [CUNNINGHAM] (72): Lobster Fishery of Maine, U.S.; COBB (62): Prawn fishery in Norway, with special reference to *Leander Fabricii* and *Pandalus borealis*; WOLLEBÆK (289): *Crustacea* as food of fishes, lists; SCOTT (243): food of young *Gadus virens*; NORDGAARD (187): freshwater *Copepoda* and *Cladocera* as food of fish; ARNOLD (5), ZACHARIAS (298).
Nomenclature—genus *Lynceus*; STEBBING (259).
Nomenclature and synonymy of Parasitic *Copepoda*; POCHE (203).
Methods of collecting marine micro-crustacea; TROUESSART (273).

III. DISTRIBUTION.

1. GEOGRAPHICAL.

Distribution of *Epicaridea*; BONNIER (23) p. 157.
Distribution of fresh-water and marine *Argulidæ*; WILSON (286).
Caspian Sea, *Polyphemidæ* n. spp.; SARS (228).
Copepoda in brackish or fresh-water pools on pack-ice, Antarctic Seas; GIESBRECHT (97) p. 4.
Mingling of fresh-water and marine forms in brackish water; LEVANDER (152A).

A. Land and Fresh-water.

Geographical distribution of fresh-water *Decapoda* (*Potamobiidæ*, *Parastacidæ*, *Aegleidæ* and *Potamonidæ*) as evidence of past geographical conditions; Ortmann (191).

Exotic *Isopoda* introduced into Hamburg; Kraepelin (141a).

Palæarctic Region.

Holy Island, Northumberland, list of *Cladocera*, *Copepoda* and *Ostracoda*; Brady (34).

Midlothian, *Copepoda*, *Cladocera*, *Ostracoda*; Sprague, T. B., & B. (258).

Aberdeenshire, Fresh and Brackish-water *Entomostraca*, lists; Scott (245).

Clyde Area, *Crustacea*; Scott (240).

Dublin, *Trichoniscus roseus* (*Isopoda*); Praeger (204).

France: localities for spp. of *Niphargus*; Viré (279): Caves of Padirac, Lot, *Copepoda*, *Amphipoda*, *Isopoda*; Viré (280).

Germany: Lakes of East Holstein, *Copepoda* and *Cladocera* of plankton; Zacharias (297): of Pommerania, *Cladocera* and *Copepoda*; Voigt (282): See von Maria Laach, Coblenz, *Crustacea* of Plankton; Zacharias (295): Müggel See, *Gammarus* n. sp.; Garbini (95).

Relict crustacea in lakes of North Germany; Samter & Weltner (224).

Switzerland: Lake of Geneva, lists of *Crustacea*; Forel (89): of Zurich—distribution of plankton, *Cladocera* and *Copepoda*; Lozeron (160): Neuenburgersee, *Cladocera*, Stingelin (268).

Italy: Priabona, *Cæcosphæroma*; Fabiani (86): *Crustacea* in hot springs, list; Issel (133).

Balkan peninsula, Tyrol and N. Italy, terrestrial *Isopoda* (*Armadillidium* and *Porcellio*) n. spp.; Verhoeff (276).

Fresh and brackish waters of Dalmatia, *Crustacea* of plankton; Car (45).

Sicily, Spain, N. Africa, *Ostracoda*, n. spp.; Brady (31).

Mediterranean Land *Isopoda* compared with European; Verhoeff (277) p. 18.

Azores, etc., terrestrial and fresh-water *Amphipoda*, n. sp.; Chevreux (53).

Denmark, "Relict" Crustacea (*Schizopoda*, *Amphipoda*, *Copepoda*) in Lake Furesö; Wesenberg-Lund (283).

Norway, *Copepoda Calanoida*; Sars (229).

Sweden, fresh-water *Harpacticidæ* (*Copepoda*); Lilljeborg (154).

Finland: parasitic *Copepoda*, n. spp.; Gadd (94): *Moina rectirostris*; Levander (152): *Cladocera*, *Amphipoda*, etc.; Luther (161): *Crustacea* in brackish water; Levander (152a & 152b).

Russia, Potamoplankton; Skorikow (251).

Volga: *Mesomysis ullskyi*; Skorikow (253); Zykoff (305): *Cladocera*, *Copepoda*, *Ostracoda*; Meissner (169).

European Russia, *Phyllopoda*, n. varr. *Cladocera*; Linko (156).

Solowetzky Is., White Sea, *Cladocera*, n. sp. and var.; Linko (155).

N. Siberia and Nova Zembla, *Canthocamptus* (*Copepoda*) n. spp.; Lilljeborg (153).

Lake Baikal, *Amphipoda*, n. gg. and spp.; Gharyaev (96a).

Japan and China, *Decapoda*, n. sp.; Doflein (80).

Oriental Region.

Malay Archipelago, Ternate, Celebes, Borneo, etc., *Decapoda*, n. spp.; de Man (77).

Malay Peninsula, *Decapoda*, n. spp.; LANCHESTER (145).
Sumatra, *Potamon*, n. sp.; RATHBUN (212).
Siam and Cochin China, *Potamon*, n. spp.; RATHBUN (212).
Celebes, *Decapoda*, n. spp.; SCHENKEL (233).

Ethiopian Region.

Lake Télé, near Timbuctoo, *Potamon*, n. sp.; MARCHAND (163).
W. Africa, *Potamon*, n. sp.; RATHBUN (212).
Upper Zambesi, *Orchestia*, n. sp.; CHEVREUX (56).
Upper Congo, *Palæmon*, n. spp.; COUTIÈRE (71).

Nearctic Region.

N. America, *Cambarus*, n. spp.; FAXON (86A).
San Marcos, Texas, wells and caves, Decapod, *Isopoda*, n. g. and spp., *Amphipoda*, n. sp., *Copepoda*, n. spp., *Ostracoda*; ULRICH (275).
Colorado, *Entomostraca*; BEARDSLEY (6).
Bermuda Is., *Isopoda*, n. g. and spp.; RICHARDSON (218).
Kansas, distribution of spp. of *Cambarus*; HARRIS (114).
Atlantic Coast of N. America, Terrestrial and Fresh-water *Isopoda*, n. spp.; RICHARDSON (219).
Indiana, *Mancasellus*, n. sp. (*Isopoda*); RICHARDSON (220).
Kentucky, Mammoth Cave and vicinity, *Amphipoda*, n. sp., *Isopoda*, *Decapoda*; HAY (117).
Mammoth Cave, Kentucky and Nickajack Cave, Tennessee, *Macrura*, n. sp., *Isopoda*, n. sp.; HAY (115).
Tennessee, Nickajack Cave and vicinity, *Amphipoda*, n. sp., *Isopoda* *Decapoda*, n. subspp.; HAY (118).
New Mexico, *Cambarus*, n. sp.; COCKERELL & PORTER (62A).

Neotropical Region.

S. America, *Parastacus*, n. spp.; FAXON (86A).
West Indies, *Isopoda*, n. g. and spp.; RICHARDSON (219).
Porto Rico, *Isopoda*, n. spp.; MOORE (175).
Cuba, *Pseudarmadillo*, n. sp. (*Isopoda*); RICHARDSON (221).
British Guiana, Mt Roraima, *Palæmon*, n. sp.; DE MAN (76).
Chile, *Copepoda*, *Cladocera*, n. sp.; DADAY (74).
Patagonia, *Copepoda*, n. g. and spp., *Cladocera*, n. spp., *Branchiopoda*, n. spp., *Ostracoda*, n. spp.; DADAY (73).
S. America, Argentina, Chile, Uruguay, Patagonia, Tierra del Fuego, Falkland Is., Fresh-water *Copepoda*, n. gg. and spp.; MRÁZEK (181).
Geographical relations of fresh-water *Copepoda* of S. America; MRÁZEK (181).
Brazil, *Phyllopoda*, n. sp., raised from mud sent from S. Paulo and Iprianga; SARS (230).

Australian Region.

Distribution of terrestrial *Isopoda* with special reference to New Zealand; CHILTON (58) pp. 100–103.
New Zealand, Terrestrial *Isopoda*, n. g. and spp.; CHILTON (58).
Victoria, *Amphipoda*, n. spp.; SAYCE (232).
Tasmania, *Phreatoicidæ* (*Isopoda*), n. g. and sp.; SAYCE (231).

B. Marine.

Ostracoda from "Gazelle" Expedition, n. spp. from Australia, Mauritius and W. Africa; Egger (83).

Distribution of Arctic *Copepoda*; Mrázek (180) p. 525.

Distribution of *Arcturidæ*; zur Strassen (303).

Localities for Cirripedes in Paris Museum; Gruvel (104).

Atlantic and Mediterranean.

Atlantic: *Cirripedia* of "Travailleur" Expedition; Gruvel (102): *Ostracoda*, n. spp.; Brady (31).

North Atlantic, *Amphipoda*, 5 n. gg. 17 n. spp.; Chevreux (53).

N. Atlantic, Azores, C. of France, Arctic Seas, *Epicaridea*, n. g. and spp.; Bonnier (23).

Plankton of Northern Seas, *Cladocera*; Apstein (4): *Ostracoda*; Muller (182).

Norway: *Copepoda Calanoida*, n. gg. and spp.; Sars (229): *Decapoda*; Wollebæk (289).

Norwegian North Atlantic Plankton, *Amphipoda*, *Copepoda*, *Ostracoda*, *Cladocera*; Gran (99).

Shetland and Faröe Channel, *Copepoda*, n. spp.; Wolfenden (288).

Scotland: *Crangonidæ* (*Decapoda*); Scott (247): *Cladocera*; Scott (246): *Crustacea*, n. gg. and spp. *Copepoda*; Scott, T. (242): *Copepoda* parasitic on Fishes, n. spp.; Scott, T. (241): Clyde, lists of *Crustacea*; Scott, T. (240): *Epicaridea*, n. spp.; Scott, T. (244): Firth of Forth, lists of spp., distribution in relation to nature of bottom deposits; Pearcey (200).

English and Irish coasts, lists of *Crustacea*, n. g. and spp. *Copepoda*; Brady (32).

North Sea, *Squilla desmaresti*; Bell (8 & 9).

Northumberland, lists of *Decapoda*, Meek (167); of *Amphipoda*, Meek (169); of *Isopoda*, Brady (33).

Port Erin, I. of Man, lists of *Crustacea* with chart of distribution; Herdman (122).

Liverpool Bay, *Crustacea*, n. g. and sp. *Copepoda*; Scott, A. (238).

Exe Estuary, *Crustacea*; Allen & Todd (3).

Plankton of N. Sea and Skagerrak, *Crustacea*, *Amphipoda*, *Cladocera*, *Copepoda*; Cleve (60).

Crustacea in Plankton of the Scheldt; Redeke (216).

Heligoland, *Caprellidæ*; Sokolowsky (256).

Brittany, Plankton, *Copepoda* and *Schizopoda*; Cligny (61).

Mediterranean: *Crustacea* of abyssal pelagic fauna, lists, p. 415, notes on spp. p. 434; Lo Bianco (159): *Copepoda*, n. sp., and *Isopoda* parasitic on fish; Brian (36): abyssal *Oxycephalidæ* (*Amphipoda*); Senna (250): Alboran I., n. sp. *Amphipoda*; Chevreux (54): Corsica, Algiers etc., *Amphipoda*, n. spp.; Chevreux (57): Adriatic Sea, *Crustacea* of Plankton; Car (45): Gulf of Trieste, *Crustacea* of Plankton; Steuer (266): n. g. and sp. *Copepoda* paras.; Steuer (267).

Sea of Azov, lists of plankton forms, n. spp. *Cladocera* and *Cumacea*; Zernov (299).

Tropical Atlantic, deep-sea *Crustacea*; Monaco (172).

Deep sea *Crustacea* dredged near Canary and Cape Verde Is.; Richard (217).

Azores, *Automate*, n. sp.; Coutière (70).

Madeira, *Cirripedia*, n. spp.; Gruvel (102).

Ivory Coast, *Brachyura*, n. sp.; de Man (78).

Atlantic Coast of N. America, *Isopoda*, n. spp.; RICHARDSON (219): *Paguridæ*, n. sp.; BENEDICT (10).

Woods Hole, Massachusetts: *Naushonia* (*Macrura*); GRAY (100): pelagic *Copepoda*, n. spp.; WHEELER (284): parasitic copepod; LINTON (157 & 158): *Epicaridea*, n. sp.; THOMPSON (271).

Off Southern Coast of New England, list of *Decapoda* and 1 Amphipod; HOWE (130).

Beaufort, N. C., *Cirripedia*, n. sp.; COKER (64).

Bermuda Is.: *Isopoda* n. gg. and spp.; RICHARDSON (218): *Decapoda*, n. var. *Stomatopoda*, *Amphipoda*, n. sp., *Cirripedia*, n. var.; VERRILL (278).

West Indies: *Ostracoda*, n. spp.; BRADY (31): *Anomura*, n. spp. and *Dromiidea*; BENEDICT (13): *Paguridæ*, n. spp.; BENEDICT (11).

West Indies, Gulf of Mexico, Caribbean Sea, *Galatheidæ*, n. spp.; BENEDICT (12).

Porto Rico: *Cirripedia* (4 spp.); BIGELOW, M. (18): *Stomatopoda*, n. spp.; BIGELOW, R. (20): *Isopoda*, n. gg. and spp.; MOORE (175).

Cuba, *Cirripedia*, n. spp.; GRUVEL (103).

Gulf of Panama, *Automate*, n. sp.; COUTIÈRE (70).

Gulf of Mexico and Caribbean Sea, *Dromiacea* and *Oxystomata*; MILNE EDWARDS & BOUVIER (170).

Caribbean Sea, *Bathynomus*; MILNE EDWARDS & BOUVIER (171) p. 158.

Indo-Pacific.

Indo-Pacific; Flores, Friendly Is., Hong Kong, California, Chili, *Epicaridea*, n. g. and spp.; BONNIER (23).

Pacific, *Cirripedia*, n. sp.; GRUVEL (103).

Red Sea, *Schizopoda*, n. [g. ? and] sp.; BONNIER & PÉREZ (24).

Erythrea, *Decapoda*, n. spp., and *Stomatopoda*, NOBILI (186).

Djibouti, Muscat, Minikoi, *Automate*, n. sp.; COUTIÈRE (70).

Red Sea and Indian Ocean, *Copepoda*, n. spp.; SCOTT, A. (239).

Laccadive and Maldive Is., *Portunidæ*, n. spp.; BORRADAILE (26): *Xanthidæ*, n. gg. and spp.; BORRADAILE (27).

Maldive Islands, *Brachyura*; RATHBUN (214).

Seychelles, marine and terrestrial *Amphipoda*, n. gg. and spp.; CHEVREUX (55).

Madagascar, *Epicaridea*, n. sp.; BONNIER (23).

S. Africa, *Brachyura*, n. sp., *Macrura*, n. spp., *Isopoda*, n. gg. and spp.; STEBBING (260).

Indian Ocean and Malay Archipelago, Plankton Crustacea, *Cladocera*, *Ostracoda*, *Copepoda*, n. g. and spp.; CLEVE (59).

Cocos Keeling I., *Ostracoda*, n. spp.; CHAPMAN (51).

Indian, Malay, and China Seas, *Ostracoda*, n. spp.; BRADY (31).

Malay Peninsula, *Decapoda*, n. spp., and *Stomatopoda*; LANCHESTER (145).

Malay Archipelago, Ternate, Celebes, Borneo etc., *Decapoda*, n. g. and spp.; DE MAN (77).

Amboina etc., remarks on spp. figured by Rumphius; DE MAN (79).

Celebes, *Decapoda*, n.g. and spp.; SCHENKEL (233).

Singapore, *Cirripedia*, n. spp.; GRUVEL (103).

Funafuti, Pacific, *Ostracoda*, n. spp.; CHAPMAN (49).

Thursday I., Fernando Veloso, Torres Straits, *Rhizocephala*, n. g. and spp.; COUTIÈRE (66–69).

Philippine Is., parasitic *Copepoda*, n. g. and sp.; HANSEN (113).

Japanese Seas: *Decapoda*, n. spp.; DOFLEIN (80): *Galatheidæ*, n. g. and spp.; BENEDICT (12): Sagami Bay, *Bathynomus*; MILNE EDWARDS & BOUVIER (171) p. 164.

New South Wales, *Sphæromidæ* (*Isopoda*), n. g. and spp.; WHITELEGGE (285).

Victoria, *Decapoda*, n. g. and spp.; FULTON & GRANT (91 & 92).

New Zealand: *Decapoda*, *Amphipoda*, *Copepoda*; THOMSON (270): n. sp. *Paramithrax* (*Brachyura*, *Oxyrhyncha*); THOMSON (269): *Cumacea*, n. spp.; ZIMMER (301).

West Coast of North America, *Decapoda*; RATHBUN (213).

Off North and Central America, *Galatheidæ*, n. spp.; BENEDICT (12).

West Coast of S. America, Juan Fernandez etc., *Decapoda*, n. spp., and *Stomatopoda*; LENZ (149).

Galapagos Islands: *Brachyura* and *Macrura*; RATHBUN (215): *Galatheidæ*, n. spp.; BENEDICT (12).

Juan Fernandez, *Palinurus frontalis*; BÜRGER (42).

Arctic and Antarctic.

Distribution of Arctic *Decapoda* and *Schizopoda*, "Bipolarity" of *Amblyops crozetii*; OHLIN (190).

Arctic Seas, *Copepoda*, n. spp.; MRÁZEK (180).

N. Polar Sea, *Amphipoda*, n. spp., *Copepoda*, n. gg. and spp., *Ostracoda*; SARS (226).

E. Finmark, *Crustacea*, lists of spp.; NORMAN (188).

Spitzbergen and E. Greenland Seas, *Decapoda* and *Schizopoda*, n. spp. *Mysidæ*; OHLIN (190).

Bering Sea, *Galatheidæ*, n. spp.; BENEDICT (12).

Antarctic Seas, n. spp. *Decapoda*, *Schizopoda*, *Isopoda*; HODGSON (126).

Agulhas bank, *Arcturidæ*, n. g. and sp.; ZUR STRASSEN (303).

Straits of Magellan and Antarctic Seas, *Copepoda*, n. g. and spp., relations of fauna, distribution, habitats; GIESBRECHT (97).

Coast of S. America, Tierra del Fuego, S. Georgia, *Cumacea*, n. spp.; ZIMMER (300).

Patagonia, n. spp. of *Galatheidæ*; BENEDICT (12).

Coast of Patagonia, Straits of Magellan and Tierra del Fuego, *Isopoda*, n. gg. and spp.; OHLIN (189).

Bouvet I., *Arcturidæ*, n. g. and sp.; ZUR STRASSEN (303).

2. GEOLOGICAL.

Geological distribution of recent *Ostracoda* obtained by "Gazelle" Expedition; EGGER (83) p. 470.

Geological distribution of *Simplicipoda*; FRITSCH (90).

Post-Drift deposits, Clyde Area, *Crustacea*, chiefly *Ostracoda* and *Cirripedia*; SMITH, SCOTT & STEEL (254).

Glacial beds in Co. Dublin, *Cirripedia*; HINCH (125).

Tertiary, Kaneva, Russia, *Crustacea*; RADKEVĪCH (209).

Miocene, Piedmont, *Ostracoda*, n. spp.; CAPEDER (44).

Miocene, California, *Tamiosoma* a Cirripede; DALL (75).

Miocene, New England, *Cancer*, n. sp.; PACKARD (192).

Eocene (?), Victoria, *Cirripedia*, n. sp.; HALL (110).

Eocene, Libyan series, Egypt, *Ostracoda*, n. spp.; CHAPMAN (50).

Cretaceous, N. E. Brazil, *Brachyura*, n. sp.; RATHBUN (213).

Palæozoic *Phyllocarida* (p. 369) and "*Schizopoda*" (p. 370) of Scotland; PEACH (199).

Permian of Bohemia, *Estheria*, n. spp., *Ostracoda*, n. spp: Kohlenrothliegende, horizon of Nyřan, Bohemia, *Gasocaris*; FRITSCH (90).

Carboniferous of Clyde Area, *Ostracoda*, *Phyllopoda* and *Phyllocarida*; JONES & KIRKBY (137).

Upper Devonian and Lower Carboniferous of Pennsylvania, *Phyllocarida*, n. spp.; BEECHER (7).

Devonian, Marwood Beds near Barnstaple, *Phyllocarida*, n. sp.; PARTRIDGE (195).

Upper Silurian, Phosphatic nodules associated with Crustacean remains; KRAFT (142).

Silurian, S.W. Scotland, *Phyllocarida*, *Ostracoda*, *Cirripedia*; PEACH (198).

Silurian, Victoria, *Ostracoda*, n. spp.; CHAPMAN (52).

Ordovician (?), Trenton Limestone, Albany, N. Y., *Ostracoda*, n. spp., and Cirripede; RUEDEMANN (223).

Lower Ordovician, Victoria, *Phyllocarida*, n. g. and spp.; CHAPMAN (52).

Cambrian, Malvern, *Ostracoda*, n. g. and sp.; GROOM (101).

Cambrian, N. E. America, *Ostracoda*; JONES (136).

Cambrian, Cape Breton, *Ostracoda*, n. gg., spp. and varr.; MATTHEW (165).

Middle Cambrian, Mt. Stephen, British Columbia, *Phyllocarida*; WOODWARD (291).

IV. SYSTEMATIC INDEX.†

A. MALACOSTRACA.

1. DECAPODA.

a. BRACHYURA.

OXYRHYNCHA.

Achæus lorina, p. 654; DE MAN, Abh. Senckenb. Ges. xxv.

Chalaroachæus **n. g.** (*Inachidæ*), p. 657, *curvipes*, Ternate, p. 657, pl. xxii, fig. 30; DE MAN, t. c. **n. sp.**

Epialtus bituberculatus var. *bermudensis* **n. var.**, p. 16, pl. i, fig. 1; VERRILL, Tr. Connect. Ac. xi.

Eurypodius latreillei, p. 755; LENZ, Zool. Jahrb. Suppl. v.

Halimus agassizii, Maldive Is., p. 133, fig. 6; RATHBUN, Bull. Mus. Harvard xxxix, **n. sp.**

Harrovia elegans, p. 682; DE MAN, Abh. Senckenb. Ges. xxv.

Hyastenus subinermis, p. 663, pl. xxii, fig. 31, *convexus*, p. 664, pl. xxii, fig. 32; DE MAN, t. c.

Lambrus (*Rhinolambrus*) *bispinosus*, Maldive Is., p. 134, figg. 1 & 2; RATHBUN, Bull. Mus. Harvard xxxix: *L. lippus*, Malay Peninsula, p. 537, pl. xxxiii, fig. 1; LANCHESTER, P. Zool. Soc. London 1901 (ii) : **n. spp.**

Menæthius monoceros, p. 662; DE MAN, Abh. Senckenb. Ges. xxv.

Microphrys branchialis, notes, p. 285; RATHBUN, P. Washington Ac. iv.

Naxia taurus, p. 666, n. sp.?, p. 667, pl. xxii, fig. 33, n. sp.?, p. 670, pl. xxii, fig. 34; DE MAN, Abh. Senckenb. Ges. xxv.

Oregonia bifurca, Aleutian Is., p. 885; RATHBUN, P. U. S. Mus. xxiv, **n. sp.**

Paramithrax peroni, p. 756; LENZ, Zool. Jahrb. Suppl. v.

---

† This sign when prefixed to a quotation indicates a fossil form or forms. Where the character of a reference is not indicated the words "description" or "descriptive notes" are to be understood.

P. longipes, p. 362, pls. vii & viii; THOMSON, Ann. Nat. Hist. (7) x, **n. sp.**
Platymaia, p. 2, *turbynei*, Cape Natal, p. 3, pl. v; STEBBING, S. African Crust. ii, **n. sp.**
Podochela margaritaria, Galapagos Is., p. 283, pl. xii, fig. 12; RATHBUN, P. Washington Ac. iv, **n. sp.**
Prionorhynchus edwardsi, p. 230; HODGSON, Crustacea, "Southern Cross."
Scyramathia, p. 5, *hertwigi*, p. 7, pl. vi; STEBBING, S. African Crust. ii.
Thyrolambrus rathbuni, Ternate, p. 677, pl. xxii, fig. 35; DE MAN, Abh. Senckenb. Ges. xxv, **n. sp.**
Tiarinia gracilis, p. 674, *angusta*, p. 676; DE MAN, t. c.
Tylocarcinus styx, p. 673; DE MAN, t. c.

CYCLOMETOPA.

Acanthocyclus gayi, p. 753, *albatrossis*, p. 753, *hassleri*, p. 754; LENZ, Zool. Jahrb. Suppl. v.
Acanthodes armatus, p. 661, pl. ii; DOFLEIN, Abh. Bayer. Ak. xxi.
Actæa rufopunctata, p. 607, *speciosa*, p. 609, *rüppellii*, p. 610, *obesa*, p. 612, *cavipes* var.? p. 614, *granulata*, p. 617; DE MAN, Abh. Senckenb. Ges. xxv.
A. lata, p. 254, fig. 53, *variolosa*, p. 256, fig. 54, *spinosissima*, p. 256, fig. 55, *perspinosa*, p. 257, fig. 56, Maldive Is.; BORRADAILE, Fauna Maldive and Laccadive Archip. i, **n. spp.**
Actæopsis [see also *Actites* and *Carpilodes*] *pallida*, p. 579; DE MAN, Abh. Senckenb. Ges. xxv.
Actites **nom. nov.** for *Actæopsis erythrus*, p. 574; LANCHESTER, P. Zool. Soc. London 1901.
Actumnus setifer, p. 639; DE MAN, Abh. Senckenb. Ges. xxv.
†*Archæoplax signifera*, p. 7, pls. i, fig. 4, ii, figg. 1–3; PACKARD, P. Amer. Ac. xxxvi.
Archias sp.? descr. p. 131; RATHBUN, Bull. Mus. Harvard xxxix.
Atergatis integerrimus, notes, p. 538; LANCHESTER, P. Zool. Soc. London 1901 (ii).
Cæcopilumnus **n. g.** (incert. sed. ? *Xanthidæ*) p. 267, *hirsutus*, Maldive Is. p. 269, fig. 59; BORRADAILE, Fauna Maldive and Laccadive Archip. i, **n. sp.**
Cancer, phylogeny of g. p. 6; PACKARD, P. Amer. Ac. xxxvi: *C. magister*, breeding habits; HEATH, Amer. Natural. xxxvi, pp. 501 & 502: *C. irroratus*, p. 759; LENZ, Zool. Jahrb. Suppl. v.
†*C. proavitus*, Miocene, p. 3, pl. i, figg. 1–3; PACKARD, P. Amer. Ac. xxxvi, **n. sp.**
Caphyra, key to spp. p. 11; *monticellii*, Erythrea, p. 10; NOBILI, Annuario Mus. Napoli i, No. 3, **n. sp.**
Carcinus, habit-formation; YERKES, Biol. Bull. iii, p. 241: *C. mænas*, occurring at Port Phillip, Victoria, p. 55; FULTON & GRANT, P. Soc. Victoria (2) xiv: possible occurrence at Amboina, recorded by Rumphius; DE MAN, Rumphius Gedenkboek, p. 102: rate of growth; MEEK, Rep. Northumberland Fish. Comm. 1902, pp. 58–64.
Carpilodes pallidus, p. 260; BORRADAILE, Fauna Maldive and Laccadive Archip. i: *C. tristis*, p. 577, *stimpsonii*, p. 578; DE MAN, Abh. Senckenb. Ges. xxv.
Charybdis cruciatus, p. 9; STEBBING, S. African Crust. ii.
Chlorodius bidentatus, Erythrea, p. 15; NOBILI, Annuario Mus. Napoli i, No. 3, **n. sp.** ?
Chlorodopsis frontalis, p. 261; BORRADAILE, Fauna Maldive and Laccadive Archip. i: *C. melanodactyla*, p. 624; DE MAN, Abh. Senckenb. Ges. xxv.

C. espinosus, Maldive Is., p. 262, fig. 57; BORRADAILE, Fauna Maldive and Laccadive Archip. i, **n. sp.**
Corystes cassivelaunus, metamorphosis; GURNEY, Quart. J. Micr. Sci. (n.s.) xlvi, pp. 461–478, pls. xxix–xxxi.
Cycloblepas semoni, p. 617; DE MAN, Abh. Senckenb. Ges. xxv.
Etisodes anaglyptus, p. 605; DE MAN, t. c.
Heteropanope africana, Ivory Coast, p. 254, figg. 1–3b; DE MAN, Bull. Mus. Paris 1902, No. 4, **n. sp.**
Hoploxanthus Alcock = *Parapanope* de Man, p. 595; DE MAN, Abh. Senckenkb. Ges. xxv.
Hypopeltarion spinulosum, p. 758; LENZ, Zool. Jahrb. Suppl. v.
Kraussia nitida Stimpson, notes, p. 132, *hendersoni* **nom. nov.** for *nitida* Henderson non Stimpson, p. 132; RATHBUN, Bull. Mus. Harvard xxxix.
Leptodius sanguineus, p. 602; DE MAN, Abh. Senckenb. Ges. xxv.
Leptodius (*Xanthodius*) *cristatus*, Minikoi, p. 252, fig. 51; BORRADAILE, Fauna Maldive and Laccadive Archip. i: *L. tridentatus*, p. 761, pl. xxiii, figg. 7–7 *a*, *spinoso-granulatus*, p. 762, pl. xxiii, figg. 8–8 *a*, Juan Fernandez; LENZ, Zool. Jahrb. Suppl. v: *L. snodgrassi*, Galapagos Is., p. 279, pl. xii, figg. 7 & 8; RATHBUN, P. Washington Ac. iv, **n. spp.**
Liomera spinipes, Maldive Is., p. 253, fig. 52; BORRADAILE, Fauna Maldive and Laccadive Archip. i, **n. sp.**
Lophoactæa, key to some spp. p. 586, *granulosa*, p. 582, *semigranosa*, p. 582, pl. xxi, figg. 19, *anaglypta*, p. 587, *maculata*, p. 588; DE MAN, Abh. Senckenb. Ges. xxv.
L. tomentosa, Amboina, p. 585; DE MAN, t. c. **n. sp.**
Lupa sanguinolenta, p. 11; STEBBING, S. African Crust. ii.
Maldivia **n. g.** (? *Xanthidæ*), p. 269, *symbiotica*, Maldive Is., p. 270, fig. 60; BORRADAILE, Fauna Maldive and Laccadive Archip. i, **n. sp.**
Medæus simplex, p. 603; DE MAN, Abh. Senckenb. Ges. xxv.
Melia, affinities, p. 249, *tessellata*, carrying sea anemones, p. 250, fig. 49; BORRADAILE, Fauna Maldive and Laccadive Archip. i.
Nectocarcinus antarcticus, p. 229; HODGSON, Crustacea, "Southern Cross."
Neptunus (*Amphitrite*) *gladiator*, notes, p. 544; LANCHESTER, P. Zool. Soc. London 1901 (ii): *N.* (*Amphitrite*) *argentatus*, p. 642, (*Pontus*) *convexus*, p. 643, pl. xxi, fig. 27; DE MAN, Abh. Senckenb. Ges. xxv.
Ovalipes, p. 12, *trimaculatus*, p. 13; STEBBING, S. African Crust. ii.
Ozius rugulosus, p. 627, *lobatus*, p. 628, pl. xxi, fig. 23; DE MAN, Abh. Senckenb. Ges. xxv.
Phymodius ungulatus, p. 618; DE MAN, t. c.
Pilodius, p. 619, *pubescens*, p. 619; DE MAN, t. c.
Pilumnus andersoni, subsp., p. 245, *hirsutus*, subsp., p. 245, *rotumanus*, p. 247, *elegans*, subsp., p. 247; BORRADAILE, Fauna Maldive and Laccadive Archip. i: *P. cursor*, p. 630, *longicornis*, p. 635, *nitidus*, p. 638; DE MAN, Abh. Senckenb. Ges. xxv: *P. hirsutus*, unpublished description by Stimpson quoted, p. 129; RATHBUN, Bull. Mus. Harvard xxxix.
Pilumnus rotundus, p. 246, fig. 46, *maldivensis*, p. 247, fig. 47, *alcocki*, p. 248, fig. 48; BORRADAILE, Fauna Maldive and Laccadive Archip. i: *P. habererianus*, Sagami Bay, p. 629, pl. v, fig. 6; DOFLEIN, Abh. Bayer. Ak. xxi: *P. kükenthali*, Ternate, p. 631, pl. xxi, fig. 24; DE MAN, Abh. Senckenb. Ges. xxv: *P. woodworthi*, Maldive Is., p. 128, figg. 11 & 12; RATHBUN, Bull. Mus. Harvard xxxix: **n. spp.**
Pilumnoides pusillus, Galapagos Is., p. 281, pl. xii, figg. 9 & 10; RATHBUN, P. Washington Ac. iv, **n. sp.**
Platyozius, **n. subg.** of *Pseudozius* (q.v.), p. 243; BORRADAILE, Fauna Maldive and Laccadive Archip. i.
Platypodia spectabilis, p. 17, pl. i, fig. 2; VERRILL, Tr. Connect. Ac. xi.
P. gemmata, Galapagos Is., p. 279, pl. xii, figg. 5 & 6; RATHBUN, P. Washington Ac. iv, **n. sp.**

Portunus (*Xiphonectes*) *longispinosus*, notes on Dana's type specimens, p. 131; RATHBUN, Bull. Mus. Harvard xxxix.

P. (*Achelous*) *stanfordi*, Galapagos Is., p. 282, pl. xii, fig. 11; RATHBUN, P. Washington Ac. iv, **n. sp.**

Potamon (*Parathelphusa*) *tridentatum* var. *pulcherrima* **n. var.**, p. 550, pl. xx, fig. 15, *larnaudii* var. *brevimarginata*, p. 567; DE MAN, Abh. Senckenb. Ges. xxv: *P.* (*Potamonautes*) *celebense*, p. 528, pls. x, figg. 9 & 13*a*, vii, *forma typica*, p. 528, varr. *pallidum*, *annulipes*, *tenuipes*, *croceum*, p. 530, varr. *immaculatum*, pl. x, fig. 9, *lokaensis*, p. 531, SCHENKEL, Verh. Ges. Basel xiii.

Potamon lansi, Upper Yang-tse-kiang, p. 626, pl. vi, figg. 1–3; DOFLEIN, Abh. Bayer. Ak. xxi: *P.* (*Parathelphusa*) *improvisum*, Malay Peninsula, p. 546, pl. xxxiii, fig. 2; LANCHESTER, P. Zool. Soc. London 1901 (ii): *P.* (*Potamonautes*) *baramense*, Borneo, p. 553, pl. xx, fig. 16 [subg. ?], *halmaherense*, Halmahera, p. 561, pl. xx, fig. 17, (*Geothelphusa*) *cassiope*, Celebes etc., p. 568, pl. xx, fig. 18; DE MAN, Abh. Senckenb. Ges. xxv: *P.* (*Potamonautes*) *ecorssei*, Lake Télé, near Timbuctoo, p. 334, pl. xiii, figg. 2–6; MARCHAND, Bull. Soc. Ouest France (2) ii: *P.* (*Parathelphusa*) *maindroni*, Sumatra, p. 184, *dugasti*, Siam, p. 185, *beauvoisi*, Saigon, p. 185, *harmandi*, Cochin China, p. 186, *tetragonum*, Cochin China, p. 186, *neisi*, Cochin China and Siam, p. 186, *prolatus*, Cochin China, p. 186, *germaini*, Cochin China, p. 187, *marchei*, W. Africa, p. 187; RATHBUN, Bull. Mus. Paris viii: *P.* (*Parathelphusa*) *matannensis*, p. 517, pls. x, fig. 13*d*, xi, fig. 14, *pantherinus*, p. 522, pl. x, figg. 11, 12 & 13*c*, (*Potamonautes*) *sarasinorum*, pl. x, figg. 10 & 13*b*, (*Geothelphusa*) *angustipes*, p. 533, pl. xi, fig. 17, *rubrum*, p. 537, pl. xi, fig. 16, *minahassæ*, p. 540, pl. xi, fig. 15, Celebes; SCHENKEL, Verh. Ges. Basel xiii: **n. spp.**

Potamonidæ, list of gg. with notes on synonymy and discussion of geograph. distrib., p. 299; ORTMANN, P. Amer. Phil. Soc. xli.

Pseudozius coralliophilus, p. 241, fig. 43, *triunguiculatus*, p. 243, fig. 44, (*Platyozius*) *lævis*, p. 243, fig. 45, Minikoi and Maldives; BORRADAILE, Fauna Maldive and Laccadive Archip. i, **n. spp.**

Quadrella coronata var. *granulosa* **n. var.**, key to varieties, p. 266; BORRADAILE, t. c.

Q. bispinosa, Maldive Is., p. 267, fig. 58; BORRADAILE, t. c. **n. sp.**

Tetralia glaberrima, p. 641, pl. xxi, fig. 26; DE MAN, Abh. Senckenb. Ges. xxv.

Thalamita admeta, key to varr., p. 202, *exetastica*, key to varr. p. 203; BORRADAILE, Fauna Maldive and Laccadive Archip. i: *T. danæ*, p. 644, pl. xxi, fig. 28, *cœruleipes*, p. 645, *savignyi*, p. 645, *integra*, p. 646, *sexlobata* var. ?, p. 651, pl. xxi, fig. 29; DE MAN, Abh. Senckenb. Ges. xxv: *T. oculea*, notes, p. 131; RATHBUN, Bull. Mus. Harvard xxxix.

T. tenuipes, Maldive Is., p. 204, fig. 35, *gardineri*, Minikoi, p. 205, fig. 36, *cooperi*, Maldives, p. 206, fig. 37, *pilumnoides*, Minikoi, p. 207, fig. 38; BORRADAILE, Fauna Maldive and Laccadive Archip. i: *T. alcocki*, Ternate, p. 646, *kükenthali* (loc. ?), p. 650; DE MAN, Abh. Senckenb. Ges. xxv: **n. spp.**

Trapezia guttata, p. 640, pl. xxi, fig. 25; DE MAN, t. c.

Xanthias alcocki, Maldive Is., p. 128, figg. 9 & 10; RATHBUN, Bull. Mus. Harvard xxxix, **n. sp.**

Xanthidæ, key to subfamilies, notes on habits etc., p. 238; BORRADAILE, Fauna Maldive and Laccadive Archip. i.

Xantho scaber, notes, p. 540; LANCHESTER, P. Zool. Soc. London 1901 (ii): *X. gaudichaudii*, p. 760; LENZ, Zool. Jahrb. Suppl. v: *X. subacutus*, p. 595, pl. xxi, fig. 21, *bidentatus*, p. 600; DE MAN, Abh. Senckenb. Ges. xxv.

X. frontalis, p. 251, fig. 50 (loc. ?); BORRADAILE, Fauna Maldive and Laccadive Archip. i, **n. sp.**

†*Zanthopsis cretacea*, N. E. Brazil, Cretaceous, pp. 43 & 44, pl. 5; RATHBUN in BRANNER, Bull. Geol. Soc. Amer. xiii, **n. sp.**

Zozymus gemmula, p. 588, pl. xxi, fig. 20; DE MAN, Abh. Senckenb. Ges. xxv.

Z. kükenthali, Amboina, p. 593; DE MAN, t. c. **n. sp.**

CATOMETOPA.

Cardiosoma carnifex, p. 546, *hirtipes*, p. 548, pl. xx, fig. 14; DE MAN, Abh. Senckenb. Ges. xxv.

Cyclograpsus punctatus, p. 766; LENZ, Zool. Jahrb. Suppl. v.

Gelasimus [see also *Uca*] *chlorophthalmus*, p. 484, pl. xix, fig. 4, *dussumieri*, p. 486, *marionis*, p. 487, sp. ?, p. 489, pl. xix, figg. 5 & 5*a*; DE MAN, Abh. Senckenb. Ges. xxv: *G. pugilator*, variation, pp. 417–442; YERKES, P. Amer. Ac. xxxvi, No. 24.

Goneplax angulata, p. 15; STEBBING, S. African Crust. ii.

G. maldivensis, Maldive Is., p. 124, figg. 3–5; RATHBUN, Bull. Mus. Harvard xxxix, **n. sp.**

Grapsus gracilipes, p. 502; DE MAN, Abh. Senckenb. Ges. xxv.

Heterograpsus sanguineus, p. 765; LENZ, Zool. Jahrb. Suppl. v.

Hymenosoma lacustris, p. 59, pl. viii; FULTON & GRANT, P. Soc. Victoria xv.

Liolophus abbreviatus, p. 544, pl. xx, fig. 13; DE MAN, Abh. Senckenb. Ges. xxv.

Macrophthalmus carinimanus, p. 492, *convexus*, p. 493, pl. xix, figg. 6 & 6*a*, sp. p. 495; DE MAN, t. c.

Metopograpsus oceanicus, p. 503; DE MAN, t. c.

Ocypoda ceratophthalma, p. 477, pl. xix, fig. 1 & 1*a*; DE MAN, t. c.

O. nobilii, Borneo, p. 478, pl. xix, figg. 2 & 3; DE MAN, t. c. **n. sp.**

Ostracotheres politus, p. 765, pl. xxiii, figg. 9 & 9*a*; LENZ, Zool. Jahrb. Suppl. v.

Palicus, key to some spp., p. 41, *cristatipes*, p. 42, pl. vii, figg. 1–5, *affinis*, p. 46, pls. vii, figg. 6–11, viii, figg. 1 & 2, *agassizi*, p. 47, pl. viii, figg. 5–12, *blakei*, p. 48, pl. viii, figg. 13–16, *rathbuni*, p. 50, pl. ix, figg. 1–7, *obesus*, p. 51, pl. ix, figg. 8–14, *dentatus*, p. 53, pls. ix, figg. 15–17, x, figg. 1–6, xi, figg. 1–3, *sicus*, p. 56, pls. x, figg. 7–11, xi, fig. 9, *depressus*, p. 58, pl. xi, figg. 4–8, *gracilipes*, p. 59, pl. xi, figg. 10–14, *acutifrons*, p. 62, pl. xii, figg. 1–5, *cursor*, p. 64, pl. xii, figg. 6–14; MILNE EDWARDS & BOUVIER, Mem. Mus. Harvard xxvii, No. 1.

P. contractus, Maldive Is., p. 126, figg. 7 & 8; RATHBUN, Bull. Mus. Harvard xxxix, **n. sp.**

Pinnixa transversalis, p. 764; LENZ, Zool. Jahrb. Suppl. v.

Pinnotheres socius, Penang, p. 551, pl. xxxiii, fig. 3; LANCHESTER, P. Zool. Soc. London 1901 (ii), **n. sp.**

Pseudograpsus crassus, p. 506; DE MAN, Abh. Senckenb. Ges. xxv.

Ptychognathus barbatus, p. 505; DE MAN, t. c.

Sesarma (*Metasesarma*) *aubryi*, p. 507, (*Sesarma*) *gracilipes*, p. 507, pl. xix, fig. 7, *edwardsi* var. *brevipes*, p. 509, *brockii*, p. 516, *maculata*, p. 517, *nodulifera*, p. 519, *weberi*, p. 520, *demani*, p. 521, *ocypoda* var. *gracillima* **n. var.**, p. 522, pl. xix, figg. 9–11, *impressa*, p. 527, *trapezoidea*, p. 532, (*Parasesarma*) *quadrata*, p. 533, *leptosoma*, p. 534, *calypso* var. *kükenthali* **n. var.**, p. 534, *lenzii* var., p. 536, (*Perisesarma*) sp. ?, p. 537, *semperi*, p. 542; DE MAN, t. c.: *S. trapezoidea*, p. 545, *impressa*, p. 546, *quadrata*, p. 549, *maculata*, p. 550, pl. xii, fig. 19*a*; SCHENKEL, Verh. Ges. Basel xiii.

S. (*Sesarma*) *modesta*, Ternate, p. 511, pl. xix, fig. 8; DE MAN, Abh. Senckenb. Ges. xxv: *S.* (*Geosesarma*) *celebensis*, p. 552, pl. xii, figg. 18 & 19*b*, *clavicruris*, p. 556, pl. xii, fig. 19*c*, *leprosa*, p. 557, pl. xii, figg. 19*d* & 20, Celebes; SCHENKEL, Verh. Ges. Basel xiii : **n. spp.**
Trigonoplax sp., p. 500; DE MAN, Abh. Senckenb. Ges. xxv.
Uca [see also *Gelasimus*] *tetragonon*, p. 124, notes; RATHBUN, Bull. Mus Harvard xxxix.
U. galapagensis, p. 275, pl. xii, figg. 1 & 2, *helleri*, p. 277, pl. xii, figg. 3 & 4, Galapagos Is.; RATHBUN, P. Washington Ac. iv : **n. spp.**
Varuna litterata, p. 504; DE MAN, Abh. Senckenb. Ges. xxv.

OXYSTOMATA.

Acanthocarpus bispinosus, p. 127, pls. xxiv, fig. 12, xxv, figg. 4–6; MILNE EDWARDS & BOUVIER, Mem. Mus. Harvard xxvii, No. 1.
Calappa angusta, p. 123, pls. xxiv, figg. 5–8, xxv, figg. 1–3; MILNE EDWARDS & BOUVIER, t. c.
Clythrocerus **n. g.** *nitidus*, p. 90, pl. xviii; MILNE EDWARDS & BOUVIER, t. c.
Corycodus, p. 86, *bullatus*, p. 86, pl. xvii; MILNE EDWARDS & BOUVIER, t. c.
Cyclodorippe, p. 94, *agassizi*, p. 94, pls. xix, figg. 1–7, xx, figg. 1–3, *antennaria*, p. 99, pls. xix, fig. 8, xx, figg. 4–12; MILNE EDWARDS & BOUVIER, t. c.
Cyclodorippinæ (or Dorippidés peditrèmes), characters, p. 71, key to genera, p. 72; MILNE EDWARDS & BOUVIER, t. c.
Cyclois bairdii, p. 18, pl. ii, figg. 1 & 2; VERRILL, Tr. Connect. Ac. xi.
Cymonomus, p. 80, *quadratus*, p. 81, pl. xvi; MILNE EDWARDS & BOUVIER, t. c.
Cymopolus asper, p. 74, pls. xiv, figg. 1–6, xv, fig. 7, *agassizi*, p. 78, pls. xiv, figg. 7–9, xv, figg. 1–6; MILNE EDWARDS & BOUVIER, t. c.
Dorippidæ, characters and classification, p. 36, affinities, p. 103; MILNE EDWARDS & BOUVIER, t. c.
Dorippinæ (or Dorippidés sternitrèmes), characters, p. 38, key to genera, p. 39; MILNE EDWARDS & BOUVIER, t. c.
Ebalia stimpsoni, p. 118, pls. xxiii, figg. 6 & 7, xxiv, fig. 2; MILNE EDWARDS & BOUVIER, t. c.
Ethusa americana, p. 67, pl. xiii, figg. 1–4, *truncata*, p. 69, pl. xiii, figg. 5–8; MILNE EDWARDS & BOUVIER, t. c.
Leucosia perlata, p. 683; DE MAN, Abh. Senckenb. Ges. xxv.
Lithadia rotundata, p. 113, pls. xxii, figg. 6 & 7, xxiii, figg. 1 & 2, *granulosa*, p. 116, pls. xxii, figg. 8 & 9, xxiii, figg. 3–5, xxiv, fig. 1; MILNE EDWARDS & BOUVIER, Mem. Mus. Harvard xxvii, No. 1.
Matuta picta, p. 685; DE MAN, Abh. Senckenb. Ges. xxv.
Matuta banksii, notes, p. 552; LANCHESTER, P. Zool. Soc. London 1901 (ii).
Myropsis quinquespinosa, p. 110, *constricta*, p. 110, pls. xxi, figg. 4–6, xxii, figg. 1–5, *goliath*, p. 111, pl. xxi, figg. 1–3; MILNE EDWARDS & BOUVIER, Mem. Mus. Harvard xxvii, No. 1.
Nucia pfefferi, 684; DE MAN, Abh. Senckenb. Ges. xxv.
Palicus [see Catometopa].
Philyra platychira, p. 8; NOBILI, Annuario Mus. Napoli i, No. 3: *P. punctata*, p. 17; STEBBING, S. African Crust. ii.
Spelæophorus triangulus, p. 120, pl. xxiv, figg. 3 & 4; MILNE EDWARDS & BOUVIER, Mem. Mus. Harvard xxvii, No. 1.

Dromiacea.

Acanthodromia, p. 22, *erinacea*, p. 23, pls. iii, figg. 5–15, iv, figg. 1–4, text-figg. 7 & 8, Milne Edwards & Bouvier, Mem. Mus. Harvard xxvii, No. 1.
Conchœcetes artificiosus, p. 19; Stebbing, S. African Crust. ii.
Cryptodromia tumida, p. 688; de Man, Abh. Senckenb. Ges. xxv.
C. wilsoni, Victoria, p. 61, pl. ix; Fulton & Grant, P. Soc. Victoria xv, **n. sp.**
Dicranodromia, p. 14, *ovata*, p. 15, pls. ii & iii, figg. 1–4, text-figg. 5 & 6; Milne Edwards & Bouvier, Mem. Mus. Harvard xxvii, No. 1.
Dromia erythropus, p. 132; Benedict, Bull. U. S. Fish Comm. xx (2).
Dromidia antillensis, p. 132; Benedict, t. c.
Homola orientalis, p. 651, pl. iv, figg. 5 & 6; Doflein, Abh. Bayer. Ak. xxi: *H. vigil*, p. 27, pls. iii, figg. 16–18, iv, figg. 5–9, v, figg. 1–10, text-fig. 9; Milne Edwards & Bouvier, Mem. Mus. Harvard xxvii, No. 1: *H. barbata*, p. 22; Stebbing, S. African Crust. ii.
Homolodromia, characters and affinities with fossil genera, p. 9, *paradoxa*, p. 11, pl. i, text-figg. 1 & 2; Milne Edwards & Bouvier, Mem. Mus. Harvard xxvii, No. 1.
Homologenus, p. 29, *rostratus*, p. 30, pls. v, figg. 11–16, vi, figg. 9–13; Milne Edwards & Bouvier, t. c.
Hypoconcha sabulosa, p. 133, *arcuata*, p. 133; Benedict, Bull. U. S. Fish Comm. xx (2).
Latreillia elegans, p. 24; Stebbing, S. African Crust. ii.
Latreillopsis bispinosa, p. 650, pl. iv, figg. 3 & 4; Doflein, Abh. Bayer. Ak. xxi.
Platydromia **n. g.** (*Dromiidæ*), p. 57, *thomsoni*, Victoria, p. 57, pl. v, figg. 1–4; Fulton & Grant, P. Soc. Victoria (2) xiv, **n. sp.**

Incertæ Sedis.

Cryptochirus coralliodytes, habits, p. 271; Borradaile, Fauna Maldive and Laccadive Archip. i.

b. ANOMURA.

Galatheidea.

Ægleidæ, discussion of geograph. distrib. p. 295; Ortmann, P. Amer. Phil. Soc. xli.
Cervimunida **n. g.** *princeps*, Japan, p. 249, fig. 3; Benedict, P. U. S. Mus. xxvi, **n. sp.**
Galacantha faxoni **nom. nov.** pro *G. rostrata* Faxon, p. 304; Benedict, t. c.
Galathea, key to some spp., p. 246; Benedict, P. U. S. Mus. xxvi: *G. latirostris*, p. 742; Lenz, Zool. Jahrb. Suppl. v: *G. australiensis*, p. 710, *affinis*, p. 711, *orientalis* var., p. 714; de Man, Abh. Senckenb. Ges. xxv.
Galathea californiensis, off California, p. 247, fig. 1, *integra*, Japan, p. 248, *paucilineata*, near Galapagos Is., p. 249, fig. 2; Benedict, P. U. S. Mus. xxvi: *G. formosa*, Ternate, p. 717, pl. xxiii, fig. 40, *consobrina*, Ternate, p. 720, pl. xxiii, fig. 41; de Man, Abh. Senckenb. Ges. xxv: **n. spp.**
Galatheidæ, list of species, pp. 300–334; Benedict, P. U. S. Mus. xxvi.
Megalobrachium poeyi, p. 136, pl. iii, fig. 8; Benedict, Bull. U. S. Fish Comm. xx (2).

Munida, key to some spp., p. 251, *gregaria*, p. 308, figg. 45 & 46; BENEDICT, P. U. S. Mus. xxvi: *M. affinis*, p. 147, *stimpsoni*, p. 147, *longipes*, p. 147; BENEDICT, Bull. U. S. Fish Comm. xx (2): *M. subrugosa*, p. 232; HODGSON, Crustacea "Southern Cross": *M. japonica*, p. 724; DE MAN, Abh. Senckenb. Ges. xxv: *M. sancti-pauli*, p. 30; STEBBING, S. African Crust. ii.

M. angulata [locality ?], p. 252, fig. 4, *curvatura*, Japan, p. 253, fig. 5, *curcipes*, Patagonia, p. 254, fig. 6, *debilis*, off W. Coast of Mexico, p. 256, fig. 7, *decora*, S. of Cuba, p. 257, fig. 8, *flinti*, Gulf of Mexico, p. 258, fig. 9, *hispida*, Galapagos Is., etc., p. 259, fig. 10, *honshuensis*, Japan, p. 261, fig. 11, *media*, Habana, p. 262, fig. 12, *mexicana*, W. Mexico, etc., p. 264, fig. 13, *nuda*, Gulf of Mexico, p. 265, fig. 14, *perlata*, Galapagos Is., p. 266, fig. 15, *pusilla*, Gulf of Mexico, etc., p. 268, p. 16, *quadrispina* [localities ?], p. 269, fig. 17, *sculpta*, Caribbean Sea, etc., p. 270, fig. 18, *simplex*, Cuba, p. 272, fig. 19, *tenella*, Gulf of California, p. 274, fig. 20; BENEDICT, P. U. S. Mus. xxvi: *M. evermanni*, Porto Rico, p. 146, pl. v, fig. 4; BENEDICT, Bull. U. S. Fish Comm. xx (2): *M. sagamiensis*, Sagami Bay, p. 623, pl. iii, fig. 9; DOFLEIN, Abh. Bayer. Ak. xxi: *M. elegantissima* (loc. ?), p. 726, pl. xxiv, fig. 42; DE MAN, Abh. Senckenb. Ges. xxiv: **n. spp.**

Munidopsis, key to some spp., p. 275, *M. acutispina* **nom. nov.** for *M. aculeata* A. M.-Edw. & Bouvier non Henderson, p. 315, *bairdii*, p. 317, fig. 47, *ciliata*, p. 318, *trifida*, p. 329, *tomentosa* **nom. nov.** for *M. trifida* Alc. & And. non Henderson, p. 329; BENEDICT, P. U. S. Mus. xxvi: *M.* (*Orophorhynchus*) *platirostris*, p. 148; BENEDICT, Bull. U. S. Fish Comm. xx (2).

M. acuminata, p. 277, fig. 21, *bahamensis*, Florida, p. 278, fig. 22, *beringana*, Bering Sea, p. 279, fig. 23, *cylindropus*, Japan, p. 281, fig. 24, *espinis*, Yucatan, p. 282, fig. 25, *expansa*, Florida, p. 282, fig. 26, *gilli*, Bahama Is., p. 283, fig. 27, *hastifer*, Japan, p. 284, fig. 28, *mina*, Galapagos Is., p. 285, fig. 29, *modesta*, Galapagos Is., p. 286, fig. 30, *opalescens*, Patagonia, p. 287, fig. 31, *tenuirostris*, off Georgia, p. 289, fig. 32, *townsendi* [locality ?], p. 290, fig. 33, *verrilli*, off S. California, p. 291, fig. 34; BENEDICT, P. U. S. Mus. xxvi, **n. spp.**

Pachycheles rugimanus, p. 136, pl. iii, fig. 9, *ackleianus*, p. 136; BENEDICT, Bull. U. S. Fish Comm. xx (2): *P. grossimanus*, p. 748; LENZ, Zool. Jahrb. Suppl. v: *P. sculptus*, p. 701, *pisum ?*, p. 702; DE MAN, Abh. Senckenb. Ges. xxv.

Petrolisthes sexspinosus, p. 133, *armatus*, p. 133, *tridentatus*, p. 134, pl. iii, fig. 2, *marginatus*, p. 134, pl. iii, fig. 1, *nodosus*, p. 134, *jugosus*, p. 134, (?) *amœnus*, p. 135, pl. iii, fig. 3; BENEDICT, Bull. U. S. Fish Comm. xx (2): *P. violaceus*, p. 745, *spinifrons*, p. 746, pl. xxiii, fig. 3, *patagonicus*, p. 748, pl. xxiii, fig. 3 [4]; LENZ, Zool. Jahrb. Suppl. v: *P. inermis*, p. 691, pl. xxiii, fig. 36, n. sp. ?, p. 692, pl. xxiii, fig. 37, *asiaticus*, p. 694, *scabriculus*, p. 697; DE MAN, Abh. Senckenb. Ges. xxv: *P. rufescens*, colouration, p. 7; NOBILI, Annuar. Mus. Univ. Napoli i, No. 3.

P. quadratus, Porto Rico, p. 134, pl. iii, fig. 4; BENEDICT, Bull. U. S. Fish Comm. xx (2), **n. sp.**

Pisosoma glabra, p. 135, pl. iii, fig. 5; BENEDICT, t. c.

P. angustifrons, Trinidad, p. 135, pl. iii, fig. 6, *serrata*, Porto Rico, p. 135, pl. iii, fig. 7; BENEDICT, t. c. **n. spp.**

Polyonyx macrocheles, p. 138; BENEDICT, Bull. U. S. Fish. Comm. xx (2): *P. obesulus*, p. 704, pl. xxiii, fig. 39, *tuberculosus*, p. 706, *acutifrons*, p. 709; DE MAN, Abh. Senckenb. Ges. xxv: *Polynyx* [*Polyonyx*] *biunguiculatus*, p. 7; NOBILI, Annuar. Mus. Univ. Napoli i, No. 3.

Porcellana sayana, p. 137, pl. iii, fig. 10, *stimpsoni*, p. 137, *sigsbeiana*, p. 137, *soriata*, p. 137, *pilosa*, p. 137, pl. iii, fig. 11; BENEDICT, Bull.

U. S. Fish Comm. xx (2): *P. dehaanii*, p. 28; STEBBING, S. African Crust. ii.

P. pygmæa, Ternate, p. 698, pl. xxiii, fig. 38; DE MAN, Abh. Senckenb. Ges. xxv, **n. sp.**

Ptychogaster defensa, Galapagos Is., pp. 299, fig. 44; BENEDICT, P. U. S. Mus. xxvi, **n. sp.**

Uroptychus, key to some spp., p. 292; BENEDICT, t. c.: *U. uncifer*, p. 148; BENEDICT, Bull. U. S. Fish Comm. xx (2): *U. nitidus*, p. 32; STEBBING, S. African Crust. ii.

U. brevis, Yucatan, p. 292, fig. 35, *capillatus*, Yucatan, p. 293, fig. 36, *granulatus*, Galapagos Is., p. 293, fig. 37, *Jamaicensis*, Caribbean Sea, p. 294, fig. 38, *minutus*, Trinidad, p. 296, fig. 39, *princeps*, Lesser Antilles, p. 296, fig. 40, *scambus*, Japan, p. 297, fig. 41, *scandens*, Japan, p. 298, fig. 42, *spiniger*, Habana, p. 298, fig. 43; BENEDICT, P. U. S. Mus. xxvi, **n. spp.**

PAGURIDEA.

Birgus latro, habits; HORST, Notes Leyden Mus. xxiii, p. 143.

Calcinus sulcatus, p. 141, pl. v, figg. 3 & 3*a*; BENEDICT, Bull. U. S. Fish Comm. xx (2): *C. sulcatus*, pl. i, fig. 4; VERRILL, Tr. Connect. Ac. xi.

Cancellus ornatus, Gulf of Mexico, p. 772, figg. 1 & 2, *spongicola*, W. Indies, p. 773, figg. 3 & 4; BENEDICT, P. U. S. Mus. xxiii, **n. spp.**

Catapagurus dœderleini, Sagami Bay, p. 624, pl. vi, figg. 4 & 5, text-fig. c; DOFLEIN, Abh. Bayer. Ak. xxi, **n. sp.**

Cenobita (sic) *diogenes*, p. 139; BENEDICT, Bull. U. S. Fish Comm. xx (2).

Cœnobita clypeatus, p. 741, pl. xxiv, fig. 44, *compressus*, p. 742, pl. xxiv, fig. 45, *cavipes*, p. 743, pl. xxiv, fig. 46; DE MAN, Abh. Senckenb. Ges. xxv.

C. longitarsis (loc.?), p. 746, pl. xxiv, fig. 47; DE MAN, Abh. Senckenb. Ges. xxv, **n. sp.**

Clibanarius tricolor, p. 142, pl. vi, fig. 2, *antillensis*, p. 142, pl. vi, fig. 1, *sclopetarius*, p. 142; BENEDICT, Bull. U. S. Fish Comm. xx (2): *C. verrillii*, p. 18, pl. viii, figg. 2 & 3; VERRILL, Tr. Connect. Ac. xi.

Dardanus sp. descr., p. 137; RATHBUN, Bull. Mus. Harvard xxxix.

Eupagurus [see also *Pagurus*]; *gracilipes*, p. 647, pl. vi, figg. 6–8; DOFLEIN, Abh. Bayer. Ak. xxi: *E. prideauxi*, structure of mid-gut; LÉGER & DUBOSCQ, Arch. Zool. exp. (3) x, p. xxxviii: *E. barbiger*, p. 737, *perlatus*, p. 738, *edwardsi*, p. 739, pl. xxiii, fig. 1; LENZ, Zool. Jahrb. Suppl. v: *E.* sp. *α*, p. 730, sp. *β*, p. 730; DE MAN, Abh. Senckenb. Ges. xxv: *E.* sp., autotomy; MORGAN, Amer. J. Physiol. vi, pp. 278–282.

E. lepidochirus, Sagami Bay, p. 623; DOFLEIN, Abh. Bayer. Ak. xxi, **n. sp.**

Mixtopagurus gilli, West Indies, p. 777, fig. 7; BENEDICT, P. U. S. Mus. xxiii, **n. sp.**

Pagurias **nom. nov.** for *Pagurus* auctt., p. 141, *insignis*, p. 141; BENEDICT, Bull. U. S. Fish Comm. xx (2): *P. insignis*, pl. i, fig. 3; VERRILL, Tr. Connect. Ac. xi.

Paguristes, key to W. Indian spp., p. 143, *sayi*, p. 144, pl. iv, fig. 2, *depressus*, p. 144, pl. iv, fig. 5, *spinipes*, p. 145, pl. iv, fig. 6, *lymani*, p. 145, pl. iv, fig. 8, *triangulatus*, p. 146, pl. iv, fig. 9; BENEDICT, Bull. U. S. Fish Comm. xx (2).

P. tenuirostris, G. of Mexico, p. 143, pl. iv, fig. 1, *moorei*, Porto Rico, p. 144, pl. iv, fig. 3, *puncticeps*, Jamaica, p. 144, pl. iv, fig. 4, *rectifrons*, Porto Rico, p. 145, pl. iv, fig. 7, *grayi*, Porto Rico, p. 146, pl. v, figg. 1 & 1*a*; BENEDICT, Bull. U. S. Fish Comm. xx (2): *P. kükenthali*, Ternate, p. 733, pl. xxiv, fig. 43; DE MAN, Abh. Senckenb. Ges. xxv: **n. spp.**

Pagurus [see also *Pagurias*], *striatus*, structure of mid-gut; LÉGER & DUBOSCQ, Arch. Zool. exp. (3) x, p. xxxviii: *P. guttatus*, p. 738; DE MAN, Abh. Senckenb. Ges. xxv.

Pagurus [see also *Eupagurus*], key to some spp., p. 451, *bernhardus*, p. 452, fig., *alaskensis*, p. 456, fig., *aleuticus*, p. 460, fig., *ochotensis*, p. 463, fig., *patagonensis*, p. 465, fig., *barbiger*, p. 466; BENEDICT, P. U. S. Mus. xxiii.

Pagurus (=*Eupagurus*) *marshi*, Porto Rico, p. 139, text-figg. on p. 140; BENEDICT, Bull. U. S. Fish Comm. xx (2): *P. acadianus*, E. coast of N. America, p. 454, figg.; BENEDICT, P. U. S. Mus. xxxiii : **n. spp.**

Petrochirus bahamensis, p. 140; BENEDICT, Bull. U. S. Fish Comm. xx (2).

Porcellanopagurus platei, Juan Fernandez, p. 740, pl. xxiii, fig. 2; LENZ, Zool. Jahrb. Suppl. v, **n. sp.**

Pylocheles partitus, W. Indies, p. 775, figg. 5 & 6; BENEDICT, P. U. S. Mus. xxiii, **n. sp.**

Xylopagurus rectus, p. 143; BENEDICT, Bull. U. S. Fish Comm. xx (2).

HIPPIDEA.

Albunea gibbesii, p. 139, *oxyophthalma*, p. 139; BENEDICT, Bull. U. S. Fish Comm. xx (2): *A. oxycephala* (corrected to *oxyophthalma* on p. 62), p. 18, pl. viii, fig. 1; VERRILL, Tr. Connect. Ac. xi.

Eremita (Gronovius 1763), name revived for *Hippa* auctt., *talpoida*, p. 138; BENEDICT, Bull. U. S. Fish Comm. xx (2).

Euceramus prælongus, p. 138, pl. iii, fig. 12; BENEDICT, t. c.

Hippa [see *Eremita*].

Hippa (=*Remipes*) *cubensis*, p. 138; BENEDICT, t. c.

Lepidopa chilensis, Iquique, p. 749, pl. xxiii, figg. 5 & 5*a*; LENZ, Zool. Jahrb. Suppl. v, **n. sp.**

Remipes [see also *Hippa*] *alcimede*, Ternate, p. 690; DE MAN, Abh. Senckenb. Ges. xxv, **n. sp.**

c. MACRURA.

NEPHROPSIDEA (ASTACIDEA).

Astacinæ, notes on characters, distribution, &c., of many spp.; FAXON, P. U. S. Mus. xx (1898), pp. 644–667.

Astacus (=*Potamobius*) *fluviatilis*, structure of chitin; BIEDERMANN, Anat. Anz. xxi, p. 485: general account of anatomy; BOURNE, Introd. Comp. Anat. Animals ii, p. 112: histology of nervous system; HALPERN, Arb. Inst. Wien xiv, p. 423: functions of "liver"; JORDAN, Verh. Deutsch. zool. Ges. 1902, p. 183: spermatogenesis, p. 445, pl. xxv; PROWAZEK, Zeitschr. wiss. Zool. lxxi: abnormal mitoses in testis; MRÁZEK, SB. Bohmisch. Ges. 1901 (v).

Cambarus spp. in Kansas; HARRIS, Kansas Univ. Bull. i, pp. 3–11 with map: *C. carolinus*, synonymy; HAY, P. Soc. Washington xv, p. 38: *C. pellucidus*, habits, p. 230; *bartoni* subsp. *tenebrosus* **n. subsp.**, p. 232, *C. bartoni* subsp. *cavatus* **n. subsp.**, p. 435, *C. hamulatus*, habits etc., p. 435, fig. 8, *C. latimanus* subsp. *striatus* **n. subsp.**, p. 437; HAY, P. U. S. Mus. xxv: *C. acherontis*, p. 645, pl. lxii, figg. 1–5, *pellucidus testii*, p. 647, *palmeri longimanus* **n. subsp.**, p. 655, pl. lxiv, figg. 1–6, *montezumæ dugesii* **n. subsp.**, p. 660, pl. lxvi, fig. 1, *m. areolatus*, p. 661, pl. lxvi, fig. 2, *m. occidentalis* **n. subsp.**, p. 661, pl. lxvi, figg. 3 & 4; FAXON, P. U. S. Mus. xx (1898).

C. carinatus, Mexico, p. 648, pl. lxiii, *longidigitus*, Arkansas, p. 653, pl. lxii, figg. 6–9, *difficilis*, Indian Territory, Arkansas, p. 656, pl. lxv, figg. 1–4,

meeki, Arkansas, p. 657, pl. lxv, figg. 5–9, *erichsonianus*, Tennessee and Alabama, p. 659, pl. lxiv, figg. 7–12, *chapalanus*, Mexico, p. 661, pl. lxvii, figg. 1 & 2; FAXON, P. U. S. Mus. xx (1898): *C. gallinus*, New Mexico, p. 434, fig.; COCKERELL & PORTER, P. Ac. Philad. 1900: **n. spp.**

Homarus vulgaris, structure of chitin; BIEDERMANN, Anat. Anz. xxi, p. 485: structure of mid-gut; LÉGER & DUBOSCQ, Arch. Zool. exp. (3) x, p. xxxviii: habits, rate of growth, regeneration of appendages; PRZIBRAM, Zool. Anz. xxv, pp. 76–82: artificial hatching; [CUNNINGHAM], Rep. Cornwall Soc. lxix, 1901, p. 25.

Homarus americanus, migrations; BUMPUS, Bull. U. S. Fish Comm. xix, pp. 225–230: fishery in Maine, U. S.; COBB, Bull. U. S. Fish Comm. xix, pp. 241–265, pls. xxvi–xxxii: biology in relation to fishery legislation; FIELD, Science (n. s.) xv, pp. 612–616: reproductive period; HERRICK, Bull. U. S. Fish Comm. xxi, pp. 161–166, 5 figg.

Nephrops norvegicus, variation of ♂ gen. apertures; MARSHALL, P. Zool. Soc. London 1902, i, p. 2.

Nephropsis atlantica, p. 34; STEBBING, S. African Crust. ii.

Paranephrops, revision of New Zealand spp.; FAXON, P. U. S. Mus. xx (1898), p. 677.

Parastacidæ, list of gg. and spp. with remarks on synonymy and discussion of geograph. distrib., p. 291; ORTMANN, P. Amer. Phil. Soc. xli: *Parastacinæ*, notes on characters, habits, distribution &c. of many spp.; FAXON, P. U. S. Mus. xx (1898), pp. 668–692.

Parastacus, p. 683, *saffordi*, Uruguay, p. 683, pl. lxviii, *varicosus*, Mexico, p. 685, pl. lxix, *defossus*, Uruguay, p. 686, pl. lxvii, figg. 3 & 4, *hassleri*, Chile, p. 687, pl. lxx, figg. 1–3, *agassizii*, Chile, p. 690, pl. lxx, figg. 4 & 5; FAXON, P. U. S. Mus. xx (1898), **n. spp.**

Potamobiidæ, list of gg. and spp., discussion of geograph. distrib., p. 276; ORTMANN, P. Amer. Phil. Soc. xli.

ERYONIDEA.

Polycheles sculptus, p. 30; STEBBING, S. African Crust. ii.

LORICATA.

Jasus lalandii, p. 38; STEBBING, S. African Crust. ii.

J. parkeri, S. Africa, p. 39, pl. vii; STEBBING, t. c. **n. sp.**

Palinurus frontalis, case of lateral hermaphroditism, distribution of sp., p. 702; BÜRGER, Zeitschr. wiss. Zool. lxxi.

Pseudibacus pfefferi, descr., p. 285; RATHBUN, P. Washington Ac. iv.

Senex ornatus var. *lævis* **n. var.**, Singora, p. 557; LANCHESTER, P. Zool. Soc. London 1901 (ii).

THALASSINIDEA.

Axius spinulicauda, California, p. 886; RATHBUN, P. U. S. Mus. xxiv, **n. sp.**

Calastacus quinqueseriatus, California, p. 887; RATHBUN, t. c. **n. sp.**

Callianassa, list of Indo-Pacific spp., p. 758, *armata*, p. 754, *novæguineæ*, p. 757; DE MAN, Abh. Senckenb. Ges. xxv.

Callianassa secura, Kelantan, p. 555, pl. xxxiv, fig. 2; LANCHESTER, P. Zool. Soc. London 1901 (ii).

C. goniophthalma, California, p. 886; RATHBUN, P. U. S. Mus. xxiv: *C. rotundicaudata*, S. Africa, p. 41, pl. viii; STEBBING, S. African Crust. ii: **n. spp.**

Callianidea typa, p. 751; DE MAN, Abh. Senckenb. Ges. xxv.

Calocaris macandreæ, occurrence in Firth of Forth ; T. SCOTT, Ann. Scott. Nat. Hist. x, p. 240. [Misplaced under *Amphipoda*, Zool. Rec. 1901.]
Gebiopsis intermedia var. *amboinensis*, p. 759; DE MAN, t. c.
Naushonia crangonoides, occurrence at Woods Hole; GRAY, Bull. U. S. Fish Comm. xix, p. 307: larval stages ; THOMPSON, Science xv, p. 578.
Oodeopus sp., larva of some form allied to *Calocaris*, p. 438; LO BIANCO, Mt. Stat. Neapel xv.
Thalassina anomala, p. 760; DE MAN, Abh. Senckenb. Ges. xxv.
Upogebia simsoni, p. 61, pl. v, figg. 5 & 6; FULTON & GRANT, P. Soc. Victoria (2) xiv.

CARIDEA.

Caridea, key to Norwegian genera and spp., p. 21; WOLLEBÆK, Rep. Norwegian Fish. Invest. i, No. 4.
Alpheus ruber, larva identified with *Diaphoropus*, p. 438; LO BIANCO, Mt. Stat. Neapel xv: *A. bouvieri* var. *chilensis* **n. var.**, p. 732; COUTIÈRE, in LENZ, Zool. Jahrb. Suppl. v: *A. lævis*, p. 861, *macrochirus*, p. 863, *gracilipes*, p. 864, *insignis*, p. 864, pl. xxvi, fig. 60, *malleo-digitus*, p. 866, *pachychirus*, p. 875, *latifrons*, p. 876, *brevirostris*, p. 877, *crassimanus*, p. 880, pl. xxvii, fig. 62, sp.?, p. 884, *parvirostris*, p. 886, *acuto-femoratus*, p. 886; DE MAN, Abh. Senckenb. Ges. xxv.
A. acanthomerus, var. *inermis* **n. var.**, p. 564; LANCHESTER, P. Zool. Soc. London 1901 (ii): *A. lævis*, notes, p. 2; NOBILI, Annuar. Mus. Univ. Napoli i, No. 3: *A. stimpsoni*, var.?, p. 567, pl. xiii, figg. 22*a–c*; SCHENKEL, Verh. Ges. Basel xiii.
A. alcyone, Ternate, p. 870, pl. xxvii, fig. 61; DE MAN, Abh. Senckenb. Ges. xxv, **n. sp.**
Ancylocaris, **n. g.** (*Palæmonidæ*) *brevicarpalis*, Celebes, p. 563, pl. xiii, figg. 21*a–m*; SCHENKEL, Verh. Ges. Basel xiii, **n. sp.**
Atya moluccensis, p. 893; DE MAN, Abh. Senckenb. Ges. xxv: *A. armata*, notes, p. 559; LANCHESTER, P. Zool. Soc. London 1901 (ii): *A. brevirostris*, p. 500, pl. ix, fig. 6; SCHENKEL, Verh. Ges. Basel xiii.
Atyephyra compressa, segmentation of egg; ISHIKAWA, Arch. Entwickmech. xv, pp. 535–542, pl. xix.
Automate dolichognatha, p. 564, pl. xxxiv, fig. 3; LANCHESTER, P. Zool. Soc. London 1901 (ii).
Automate gardineri, Minikoi, p. 337, *talismani*, Azores, p. 340, *rugosa*, Gulf of Panama, p. 341; COUTIÈRE, Bull. Mus. Paris viii, **n. spp.**
Axius plectrorhynchus, p. 60, pl. v, figg. 7 & 8; FULTON & GRANT, P. Soc. Victoria (2) xiv.
Bythocaris simplicirostris, p. 39, fig. 1, *leucopis*, p. 40, *payeri*, p. 41; OHLIN, Bih. Svenska. Ak. xxvii (4) viii.
Caridina nilotica, var. *minahassæ* **n. var.**, p. 895; DE MAN, Abh. Senckenb. Ges. xxv: *C. denticulata*, p. 632, text-fig. D; DOFLEIN, Abh. Bayer. Ak. xxi: *C. wyckii*, p. 497, var. *gracilipes*, p. 498, pl. viii, fig. 5, *weberi*, var. *celebensis*, **n. var.**, p. 499; SCHENKEL, Verh. Ges. Basel xiii.
C. gracillima, Lingora, p. 560, pl. xxxiv, fig. 1; LANCHESTER, P. Zool. Soc. London 1901 (ii): *C. ensifera*, p. 490, pl. viii, fig. 1, *sarasinorum*, p. 492, pl. viii, fig. 2, *acutirostris*, p. 496, pl. viii, fig. 3, Celebes; SCHENKEL, Verh. Ges. Basel xiii : **n. spp.**
Chlorotocus spinicauda, Ternate, p. 856, pl. xxvi, fig. 59; DE MAN, Abh. Senckenb. Ges. xxv, **n. sp.**
Coralliocaris graminea, p. 840, *lamellirostris*, p. 842, pl. xxvi, fig. 55; DE MAN, Abh. Senckenb. Ges. xxv: *C. macrophthalma*, p. 2; NOBILI, Annuar. Mus. Univ. Napoli i, No. 3.
C. lucina, Erythrea, p. 5; NOBILI, t. c. **n. sp.**

Crangonidæ, characters and distribution of Scottish species; SCOTT, Ann. Scott. Nat. Hist. 1902, pp. 225–231.

Crangon, g. subdivided into groups, p. 888; RATHBUN, P. U. S. Mus. xxiv.

C. alaskensis elongata, California, p. 888, *franciscorum angustimana*, Washington (W. America), p. 889; RATHBUN, t. c., **n. subspp.**

C. holmesii, California, p. 888, *dalli*, Alaska, p. 889, *resima*, California, p. 889, *abyssorum*, Bering Sea, p. 890, *acclivis*, California, p. 890, *variabilis*, Alaska, p. 890, *spinosissima*, California, p. 891, *spinirostris*, Unalaska, p. 891; RATHBUN, t. c., **n. spp.**

Diaphoropus=larva of *Alpheus ruber*, p. 438; LO BIANCO, Mt. Stat. Neapel xv.

Discias **n. g.** (*Discidæ*), *serrifer*, Galapagos Is., p. 290, figg. 1–4; RATHBUN, P. Washington Ac. iv, **n. sp.**

Discidæ, **fam. nov.**, p. 289; RATHBUN, t. c.

Gnathophyllum americanum, p. 19; VERRILL, Tr. Connect. Ac. xi.

Harpilius consobrinus, Ternate, p. 836, pl. xxvi, fig. 54; DE MAN, Abh. Senckenb. Ges. xxv, **n. sp.**

Hippolyte, notes on Arctic spp., p. 43; OHLIN, Bih. Svenska Ak. xxvii (4) viii.

Hymenocera elegans, p. 822, pl. xxv, fig. 52; DE MAN, Abh. Senckenb. Ges. xxv.

Hymenodora frontalis, Unalaska, p. 904; RATHBUN, P. U. S. Mus. xxiv, **n. sp.**

Latreutes, key to spp., p. 638, *mucronatus*, p. 638, pl. v, fig. 6; DOFLEIN, Abh. Bayer. Ak. xxi.

Leander pacificus, p. 806, *concinnus*, p. 807, *debilis*, p. 808; DE MAN, Abh. Senckenb. Ges. xxv: *L. carinatus*, p. 639, pl. v, fig. 2, *paucidens*, p. 640; DOFLEIN, Abh. Bayer. Ak. xxi: *L. fabricii*, fishery in Norway, development, p. 5, pl. ii; WOLLEBÆK, Norsk Fiskeritidende 1901, 8de Hefte.

Leptochela robusta, p. 902; DE MAN, Abh. Senckenb. Ges. xxv.

Lysmata seticaudata var. *ternatensis* **n. var.**, p. 846; DE MAN, t. c.

Merhippolyte orientalis, p. 849, pl. xxvi, fig. 56; DE MAN, t. c.

M. australis, Auckland Is., p. 233, pl. xxix; HODGSON, Crustacea "Southern Cross," **n. sp.**

Nectocrangon dentata, Alaska, p. 892, *orifer*, Alaska, p. 892, *californiensis*, California, p. 892, *levior*, Puget Sound, p. 892; RATHBUN, P. U. S. Mus. xxiv, **n. spp.**

Palæmon, list of known spp. to May 1900, p. 60; DE MAN, Tr. Linn. Soc. London (2) viii: *P.* (*Eupalæmon*) *carcinus*, p. 763, *elegans*, p. 764, *dispar*, p. 766, *sundaicus* var., p. 769, *lar*, p. 774, (*Macrobrachium*) *latimanus*, p. 780, sp.?, p. 791, *latidactylus*, p. 802, sp.?, p. 805; DE MAN, Abh. Senckenb. Ges. xxv: *P.* (*Parapalæmon*) *dolichodactylus*, p. 516; COUTIÈRE, Bull. Mus. Paris viii: *P. carcinus*, p. 565, *equidens*, p. 565, *nipponensis*, p. 566, *pilimanus*, p. 567, *sundaicus*, p. 568, *lampropus*, p. 568, notes; LANCHESTER, P. Zool. Soc. London 1901 (ii): *P. carcinus*, p. 504, *lar*, p. 505, *dispar*, p. 508, *horstii*, p. 509, *lampropus*, p. 511, *bariensis*, p. 511, *latimanus*, p. 512, *lepidactyloides*, p. 513, notes and measurements; SCHENKEL, Verh. Ges. Basel xiii.

P. (*Eupalæmon*) *foai*, p. 517, *P.* sp.?, p. 519, Upper Congo; COUTIÈRE, Bull. Mus. Paris viii: *P.* (*Macrobrachium*) *quelchi*. Mt. Roraima, p. 57, pl. vi, figg. 1–8; DE MAN, Tr. Linn. Soc. London (2) viii: *P.* (*Eupalæmon*) *robustus*, Halmahera, p. 771, pl. xxiv, fig. 48, (*Macrobrachium*) *œnone*, Halmahera, p. 784, pl. xxv, fig. 49, *clymene*, Borneo, p. 794; DE MAN, Abh. Senckenb. Ges. xxv: *P. paucidens*, Lingora, p. 568, pl. xxxiii, fig. 4; LANCHESTER, P. Zool. Soc. London 1901 (ii): *P. spinipes*, Celebes, p. 501, pl. ix, fig. 7; SCHENKEL, Verh. Ges. Basel xiii: **n. spp.**

Palæmonella amboinensis, p. 811; DE MAN, Abh. Senckenb. Ges. xxv.
Palæmonetes antrorum, p. 93, pl. xvii; ULRICH, Tr. Amer. micr. Soc. xxiii: structure of eye; NEHER, P. Indiana Ac. 1901, pp. 96–101, 6 figg.
P. kadiakensis, Alaska, p. 903; RATHBUN, P. U. S. Mus. xxiv, **n. sp.**
Palæmonias **n. g.** (*Atyidæ*), p. 179, *ganteri*, p. 180, Mammoth Cave, Kentucky; HAY, P. Biol. Soc. Washington xiv: HAY, P. U. S. Mus. xxv, p. 226, text-figg., **n. sp.**
Pandalopsis aleutica, Aleutian Is., p. 901, *longirostris*, Unalaska, p. 902, *dispar*, Unalaska, p. 902; RATHBUN, P. U. S. Mus. xxiv, **n. spp.**
Pandalus hypsinotus, p. 635, pl. iii, figg. 1 & 2, *platyceros*, p. 635, pl. i, figg. 1 & 2; DOFLEIN, Abh. Bayer. Ak. xxi: *P. paucidens*, p. 734; LENZ, Zool. Jahrb. Suppl. v: *P. borealis*, p. 59, fig. 2; OHLIN, Bih. Svenska Ak. xxvii (4) viii: *P. borealis*, descr., p. 31, pls. ix & x, development, p. 5, pls. i–vii, *montagui*, development, p. 23, pls. vii & viii, (*Pandalina*) *brevirostris*, development, p. 27, pl. viii, (*Dichelopandalus*) *bonnieri*, development, p. 28, pl. viii; SARS, Rep. Norwegian Fish. Invest. i, No. 3: *P. borealis*, fishery in Norway, development etc., p. 7, pls. iii–vi; WOLLEBÆK, Norsk Fiskeritidende 1901, 8de Hefte.
P. montagui tridens, Alaska, p. 901; RATHBUN, P. U. S. Mus. xxiv, **n. subsp.**
P. pacificus, Yesso, p. 619, pl. iv, fig. 1; DOFLEIN, Abh. Bayer. Ak. xxi: *P. jordani*, California, p. 900, *stenolepis*, Straits of Fuca, p. 901; RATHBUN, P. U. S. Mus. xxiv: **n. spp.**
Parapasiphæ serrata, California, p. 904; RATHBUN, t. c. **n. sp.**
Pasiphæa faxoni, **nom. nov.** for *P. acutifrons* Faxon non Bate, p. 905; RATHBUN, t. c.
P. pacifica, *emarginata*, *corteziana*, *affinis*, California, p. 905; RATHBUN, t. c. **n. spp.**
Periclimenes petitthouarsii var. *spinifera* **n. var.**, p. 824, *ensifrons*, p. 826, sp.?, p. 833; DE MAN, Abh. Senckenb. Ges. xxv.
P. amymone, Ternate, p. 829, pl. xxv, fig. 53; DE MAN, t. c. **n. sp.**
Plesionika spinipes var. *grandis* **n. var.**, p. 618, pl. iii, figg. 3–5; DOFLEIN, Abh. Bayer. Ak. xxi.
P. hypanodon, p. 615, pl. iii, fig. 1, *ortmanni*, p. 616, pl. iii, fig. 2, Sagami Bay; DOFLEIN, t. c. **n. spp.**
Pontocaris habereri, Sagami Bay, p. 620, pl. i, figg. 4 & 5, text-fig. A; DOFLEIN, t. c. **n. sp.**
Pontonia californiensis, California, p. 902; RATHBUN, P. U. S. Mus. xxiv, **n. sp.**
Pontophilus japonicus, Sagami Bay, p. 621, pl. iii, fig. 6, text-fig. B; DOFLEIN, Abh. Bayer. Ak. xxi: *P. obliquus*, p. 63, pl. x, fig. 1, *victoriensis*, p. 65, pl. x, fig. 2, *flindersi*, p. 67, pl. x, fig. 3, Victoria; FULTON & GRANT, P. Soc. Victoria (2) xv: **n. spp.**
Sabinea septemcarinata, p. 35; OHLIN, Bih. Svenska. Ak. xxvii (4) viii.
Saron gibberosus, p. 852, pl. xxvi, fig. 57; DE MAN, Abh. Senckenb. Ges. xxv.
S. neglectus, Ternate, p. 854, pl. xxvi, fig. 58; DE MAN, t. c. **n. sp.**
Sclerocrangon alata, Puget Sound, p. 891; RATHBUN, P. U. S. Mus. xxiv, **n. sp.**
Spirontocaris, g. subdivided into groups, p. 893, *arcuata*, Washington Sound, p. 893, *murdochi*, Okhotsk Sea, p. 893, *truncata*, Oregon, p. 894, *snyderi*, California, p. 894, *sica*, California, p. 894, *dalli*, Alaska, p. 894, *unalaskensis*, Unalaska, p. 895, *vivina*, Unalaska, p. 895, *washingtoniana*, Washington (W. America), p. 895, *flexa*, Alaska, p. 896, *decora*, California, p. 896, *tridens*, Puget Sound, p. 896, *townsendi*, Washington Sound, p. 897, *moseri*, Aleutian Is., p. 897, *maxillipes*, Aleutian Is., p. 898, *brachydactyla*, California, p. 898,

kincaidi, California, p. 899, *biunguis*, British Columbia, p. 899, *stoneyi*, Bering Sea, p. 899, *macrophthalma*, Washington, p. 900; RATHBUN, t. c. **n. spp.**

Stylodactylus sp., p. 897, pl. xxvii, fig. 64; DE MAN, Abh. Senckenb. Ges. xxv.

Synalpheus neomeris, p. 891; DE MAN, t. c.: *S. triunguiculatus*, p. 2; NOBILI, Annuar. Mus. Univ. Napoli i, No. 3: *S. neptunus*, notes, p. 289; RATHBUN, P. Washington Ac. iv.

Thor floridanus, p. 19; VERRILL, Tr. Connect. Ac. xi.

Tozeuma carolinensis, p. 19; VERRILL, t. c.

Urocaris psamathe, Ternate, p. 816, pl. xxv, fig. 51; DE MAN, Abh. Senckenb. Ges. xxv; *U. infraspinis*, Gulf of California, p. 903; RATHBUN, P. U. S. Mus. xxiv: **n. spp.**

STENOPIDEA.

Stenopus tenuirostris var. *intermedia* **n. var.** p. 761; DE MAN, Abh. Senckenb. Ges. xxv.

PENÆIDEA.

Amalopenæus elegans, notes, p. 435; LO BIANCO, Mt. Stat. Neapel xv.

Aristeus antennatus, supposed "Mysis"-larva described, p. 30; MONTICELLI & LO BIANCO, Monit. Zool. ital. xiii, suppl.

Gennadas borealis, Kamchatka, p. 887; RATHBUN, P. U. S. Mus. xxiv, **n. sp.**

Parapenæus kishinouyei, Galapagos Is., p. 288, pl. xii, figg. 13–15; RATHBUN, P. Washington Ac. iv, **n. sp.**

Penæus lamellatus, p. 631, DOFLEIN, Abh. Bayer. Ak. xxi: *P. semisulcatus*, p. 570, *velutinus*, p. 570, *canaliculatus* var. ?, p. 571, "sp. ?", p. 571, pl. xxxiv, fig. 7, *affinis*, p. 572, notes; LANCHESTER, P. Zool. Soc. London 1901 (ii): *P. canaliculatus* var. *australiensis*, p. 905, *P.* sp. ?, p. 906, pl. xxvii, figg. 65; DE MAN, Abh. Senckenb. Ges. xxv: *P. brevirostris*, notes, p. 287; RATHBUN, P. Washington Ac. iv.

Penæus mutatus, Malay Peninsula, p. 572, pl. xxxiv, figg. 6; LANCHESTER, P. Zool. Soc. London 1901 (ii), **n. sp.**

Sergia magnifica, notes, p. 434; LO BIANCO, Mt. Stat. Neapel xv.

Solenocera siphonocera, notes, p. 437; LO BIANCO, t. c.

INCERTÆ SEDIS.

Amphion, anatomy and systematic position, p. 262, synopsis of species, p. 295; KOEPPEL, Arch. Naturg. lxviii (1).

2. SCHIZOPODA.

(Including *Syncarida* Packard = *Simplicipoda* Fritsch.)

†*Simplicipoda* **n. sub-order** of *Podophthalma*, p. 66, list of genera, p. 75; FRITSCH, Fauna der Gaskohle iv (3).

†*Acanthotelson* sp., p. 74, text-figg. 378; FRITSCH, Fauna der Gaskohle iv (3).

Amblyops crozetii, p. 74; OHLIN, Bih. Svenska Ak. xxvii (4) viii.

Amblyops sarsii, Spitzbergen, p. 75, fig. 4; OHLIN, t. c. **n. sp.**

Anaspides, affinities with fossil forms; CALMAN, Zool. Anz. xxv, pp. 65 & 66.

Arachnomysis leuckartii, notes, p. 440; LO BIANCO, Mt. Stat. Neapel xv.

Boreomysis nobilis, p. 70, fig. 3, *scyphops*, distribution, p. 71; OHLIN, Bih. Svenska. Ak. xxvii (4) viii.
Euphausia glacialis, Antarctic Seas, p. 236, pl. xxx, *australis*, Antarctic Seas, p. 238; HODGSON, Crustacea, "Southern Cross," **n. spp.**
†*Gampsonyx fimbriatus*, p. 140, footnote; JAEKEL, Zeitschr. Deutsch. geol. Ges. liii (1901).
†*Gampsonychus fimbriatus*, p. 72, pl. 159, text-fig. 377; FRITSCH, Fauna der Gaskohle iv (3).
†*Gampsonychus* = *Uronectes*; CALMAN, Zool. Anz. xxv, pp. 65 & 66.
†*Gasocaris* [? **n. g.**] *krejčii*, p. 66, pls. 156–158, text-figg. 371–376; FRITSCH, Fauna der Gaskohle iv (3).
†*Gasocaris*; CALMAN, Zool. Anz. xxv, pp. 65 & 66.
Gnathomysis [? **n. g.**] *gerlachei* commensal with *Pagurus brevipes*, Massowa, Red Sea, p. 117; BONNIER & PÉREZ, C.R. Ac. Sci. cxxxiv, **n. sp.**
Lophogaster typicus, p. 43; STEBBING, S. African Crust. ii.
Michtheimysis **n. g.** (*Mysidæ*) for *M. mixta*, p. 477; NORMAN, Ann. Nat. Hist. (7) x.
Mesomysis ullskyi, in Volga; ZYKOFF, Zool. Anz. xxv, p. 275: SKORIKOW, Zool. Anz. xxv, p. 530.
Mysis relicta: in lakes of N. Germany, p. 222; SAMTER & WELTNER, Zool. Anz. xxv: in Lake Furesö, Denmark; WESENBERG-LUND, Ov. Danske Selsk. 1902, p. 267.
Nyctiphanes norwegica, off coast of Brittany; CLIGNY, C.R. Ass. Franc. Ajaccio 1901, ii, p. 713.
†*Palæocaris*; CALMAN, Zool. Anz. xxv, pp. 65 & 66.
†*Palæorchestia parallela*, p. 73; FRITSCH, Fauna der Gaskohle iv (3).
Pseudomma théeli, E. Greenland, p. 78, fig. 5; OHLIN, Bih. Svenska Ak. xxvii (4) viii, **n. sp.**
Pseudomysis abyssi, p. 90, fig. 6; OHLIN, t. c.
Thysanopoda obtusifrons, notes, p. 440; LO BIANCO, Mt. Stat. Neapel xv.
†*Uronectes*, affinities and systematic position; CALMAN, Zool. Anz. xxv, pp. 65 & 66.

3. STOMATOPODA.

Chloridella chlorida, notes, p. 554; LANCHESTER, P. Zool. Soc. London 1901 (ii).
Gonodactylus, def. and char. of larvæ, p. 151, *ærstedii*, p. 152, figg. 1 & 2; BIGELOW, R., Bull. U. S. Fish Comm. xx (2): *G. chiragra* var. *affinis* **n. var.**, p. 912, var. *confinis* **n. var.**, p. 912, pl. xxvii, fig. 66, *glabrous* var. *ternatensis* **n. var.**, p. 913, pl. xxvii, fig. 67; DE MAN, Abh. Senckenb. Ges. xxv: *Gonodactylus graphurus brooksii* **n. subsp.**, p. 17; NOBILI, Annuar. Mus. Univ. Napoli i, No. 3.
G. drepanophorus, Ternate, p. 914, pl. xxvii, fig. 68; DE MAN, Abh. Senckenb. Ges. xxv, **n. sp.**
Lysiosquilla spinosa, notes, p. 554; LANCHESTER, P. Zool. Soc. London 1901 (ii): *L. maculata*, p. 910; DE MAN, Abh. Senckenb. Ges. xxv: *L. maculata*, p. 46; STEBBING, S. African Crust. ii.
Lysiosquilla, def. and char. of larva, p. 156, *plumata*, Porto Rico, p. 156, figg. 5–9, *maiaguesensis*, Porto Rico, p. 158, figg. 10–13; BIGELOW, R., Bull. U. S. Fish Comm. xx (2), **n. sp.**
Protosquilla trispinosa var. *pulchella*, p. 920, *cerebralis*, p. 921; DE MAN, Ab. Senckenb. Ges. xxv.
Pseudosquilla, def. and char. of larva, p. 154, *ciliata*, p. 154, figg. 3 & 4; BIGELOW, R., Bull. U. S. Fish Comm. xx (2): *P. stylifera*, p. 768; LENZ, Zool. Jahrb. Suppl. v: *P. ciliata*, p. 20; VERRILL, Tr. Connect. Ac. xi.

Squilla desmaresti, in North Sea; BELL, J. Mar. Biol. Ass. vi, pp. 387 & 388, Nature lxv, p. 366: *S.* g. def. and char. of larva, p. 159, *intermedia*, p. 159; BIGELOW, R., Bull. U. S. Fish Comm. xx (2): *S. affinis*, p. 911; DE MAN, Abh. Senckenb. Ges. xxv: *S. armata*, p. 45; STEBBING, S. African Crust. ii.

4. CUMACEA (SYMPODA).

Cyclaspis argus, p. 444, figg. A–C, *bistriata*, p. 447, figg. D–F, New Zealand; ZIMMER, Zool. Jahrb. Syst. xvii, **n. spp.**

Diastylis rathkii var. *sarsi* **nom. nov.**, p. 478; NORMAN, Ann. Nat. Hist. (7) x.

D. hammoniæ, S. Atlantic, p. 6, figg. 8–10; ZIMMER, Cumaceen Hamb. Magalh. Sammelreise, **n. sp.**

Eudorella splendida, S. Georgia, p. 5, figg. 6 & 7; ZIMMER, t. c. **n. sp.**

Leptostylis manca (?), p. 8, figg. 11–13; ZIMMER, t. c.

L. thileniusi, New Zealand, p. 449, figg. G–W; ZIMMER, Zool. Jahrb. Syst. xvii: *L. annulata*, S. Georgia, p. 10, figg. 15–17, *ovalis*, Tierra del Fuego, p. 11, figg. 18–21, *robusta*, Str. of Magellan, p. 13, figg. 22–31; ZIMMER, Cumaceen Hamb. Magalh. Sammelreise, **n. spp.**

Leucon septemdentatus, S. Tierra del Fuego, p. 3, figg. 1–5; ZIMMER, t. c. **n. sp.**

Pseudocuma latiaculeata, Sea of Azov; ZERNOV, Annuaire Mus. St. Petersb. vi, No. 4, p. 570, pl. xxii, figg. 21–24, **n. sp.**

5. TANAIDACEA.

Apseudes espinosus, Porto Rico, p. 164, pl. vii, figg. 1–6; MOORE, Bull. U. S. Fish Comm. xx (2): *A. triangulata*, Bermudas, p. 280, pl. xxxvii, figg. 1–5, *propinquus*, Bermudas, p. 281, pl. xxxvii, figg. 6–9; RICHARDSON, Tr. Connect. Ac. xi, **n. spp.**

Leptochelia dubia, p. 279; RICHARDSON, t. c.

L. incerta, Porto Rico, p. 165, pl. vii, figg. 7–13; MOORE, Bull. U. S. Fish Comm. xx (2), **n. sp.**

Parapseudes goodei, Bermudas, p. 283, pl. xxxvii, figg. 10–14; RICHARDSON, Tr. Connect. Ac. xi, **n. sp.**

Paratanais antarctica, Cape Adare, p. 240, pl. xxxi; HODGSON, Crustacea "Southern Cross," **n. sp.**

6. ISOPODA.

ASELLOTA.

Asellus aquaticus, blind albino form, p. 37; LEPRI, Monit. Zool. ital. xiii, Suppl.: *A. attenuatus*, p. 552, figg. 26–28; RICHARDSON, P. U. S. Mus. xxiii.

Cæcidotea, characters discussed, p. 420, *richardsonæ*, p. 424, figg. 2, 5*c* & *f*, *nickajackensis*, p. 426, figg. 1, 3, 5*b*, *d* & *e*, *stygia*, p. 428, figg. 4, 5*a* & *g*, habits, p. 225; HAY, P. U. S. Mus. xxv.

C. richardsonæ, Nickajack Cave, Tennessee, p. 180; HAY, P. Biol. Soc. Washington xiv: *C. smithii*, from well, San Marcos, Texas, p. 93, pl. xvi, figg. 10–18; ULRICH, Tr. Amer. micr. Soc. xxiii, **n. spp.**

Carpias **n. g.** (*Janiridæ*), p. 294, *bermudensis*, Bermudas, p. 294, pls. xxxix, figg. 42–45, xl, fig. 41; RICHARDSON, Tr. Connect. Ac. xi, **n. sp.**

Echinozone spinosa, Cape Adare, p. 255, pls. xxxviii & xxxix; HODGSON, Crustacea "Southern Cross," **n. sp.**
Eurycope caribbea, Windward Is., p. 558, fig. 29; BENEDICT in RICHARDSON, P. U. S. Mus. xxiii, **n. sp.**
Haliacris australis, Cape Adare, p. 253, pls. xxxiv, fig. 1, xxxvii; HODGSON, Crustacea, "Southern Cross," **n. sp.**
Jæropsis rathbunæ, Bermudas, p. 298, pl. xl, figg. 53, 54, 55*a–c*; RICHARDSON, Tr. Connect. Ac. xi, **n. sp.**
Janira minuta, Bermudas, p. 297, pl. xxxix, figg. 50 & 52; RICHARDSON, t. c. **n. sp.**
Mancasellus danielsi, Indiana, p. 505, figg. 1–4; RICHARDSON, P. U. S. Mus. xxv, **n. sp.**
M. macrourus, p. 423, fig. 1, habits, p. 225; HAY, P. U. S. Mus. xxv.
Notasellus australis, Cape Adare, p. 251, pl. xxxvi; HODGSON, Crustacea, "Southern Cross," **n. sp.**
Stenasellus virei, p. 604, figg. 1 & 2; VIRÉ, Bull. Mus. Paris viii.
Stenetrium stebbingi, Bermudas, p. 295, pl. xxxix, figg. 46–49; RICHARDSON, Tr. Connect. Ac. xi, **n. sp.**

PHREATOICOIDEA.

Hypsimetopus, **n. g.** (*Phreatoicidæ*), p. 219, *intrusor*, Tasmania, p. 219, pls. xviii & xix; SAYCE, P. Soc. Victoria xiv, **n. sp.**

FLABELLIFERA.

Ægа ecarinata, p. 171, pl. x, fig. 1; MOORE, Bull. U. S. Fish Comm. xx (2).
Ægathoa medialis, p. 527, fig. 11; RICHARDSON, P. U. S. Mus. xxiii.
A. linguifrons, Trinidad, p. 526, fig. 10; RICHARDSON, t. c. **n. sp.**
Alcirona krebsii, p. 290, pl. xxxviii, figg. 38*a* & *b*; RICHARDSON, Tr. Connect. Ac. xi.
A. hirsuta, Porto Rico, p. 170, pl. ix, figg. 6–10; MOORE, Bull. U. S. Fish Comm. xx (2), **n. sp.**
Anilocra laticauda, p. 172, pl. x, figg. 3 & 4; MOORE, t. c.
Anthelura affinis, Bermudas, p. 288, pl. xxxviii, figg. 29–32; RICHARDSON, Tr. Connect. Ac. xi, **n. sp.**
Bathygnathia **n. g.** (*Gnathiidæ*) for *B. bathybia* Beddard, p. 240; DOLLFUS, Bull. Soc. zool. France xxvi. [Omitted in 1901.]
Bathynomus, characters and affinities, p. 165, *giganteus*, p. 141, pls. i–vi, *döderleini*, p. 159, pls. vii & viii; MILNE EDWARDS & BOUVIER, Mem. Mus. Harvard xxvii, No. 2.
Branchuropus **n. g.** (*Cirolanidæ*), p. 167, *littoralis*, Porto Rico, p. 168, pls. viii, figg. 13–21, ix, fig. 1; MOORE, Bull. U. S. Fish Comm. xx (2), **n. sp.**
Bregmocerella grayanus, p. 274; WHITELEGGE, Mem. Austral. Mus. iv.
Cæcognathia **n. g.** (*Gnathiidæ*), p. 240, *sarsi*, p. 244, fig. 3; DOLLFUS, Bull. Soc. zool. France xxvi, **n. sp.** [Omitted in 1901.]
Cæcosphæroma bericum, occurrence, p. 177, fig.; FABIANI, Atti Ist. Veneto lxii.
Calathura crenulata, Bahamas & Yucatan, p. 509, figg. 1–3; RICHARDSON, P. U. S. Mus. xxiii, **n. sp.**
Cassidina lunifrons, p. 533, fig. 14; RICHARDSON, P. U. S. Mus. xxiii.
Cerceis nasuta, N. S. Wales, p. 277, figg. 36*a* & *b*; WHITELEGGE, Mem. Austral. Mus. iv, **n. sp.**
Chitinopsis **n. g.** (*Sphæromidæ*), p. 278, *spatulifrons*, N. S. Wales, p. 279, figg. 38*a–g*; WHITELEGGE, t. c. **n. sp.**
Cilicæa caudata, p. 172, pl. x, figg. 5–8; MOORE, Bull. U. S. Fish Comm. xx (2): *C. carinata*, p. 535, figg. 17–19; RICHARDSON, P. U. S. Mus.

xxiii: *C. spinulosa*, p. 265, fig. 31, *crassicaudata*, p. 273, fig. 35; WHITELEGGE, Mem. Austral. Mus. iv.

Cilicœa linguicauda, Yucatan, p. 536, fig. 20; RICHARDSON, P. U. S. Mus. xxiii: *C. stylifera*, p. 267, figg. 32 *a* & *b*, *ornata*, p. 269, figg. 33 *a* & *b*, *granulata*, p. 271, figg. 34 *a* & *b*; WHITELEGGE, Mem. Austral. Mus. iv : **n. spp.**

Cirolana mayana, p. 166, pl. viii, figg. 1–5, *parva*, p. 167, pl. viii, figg. 6–8, *obtruncata*, p. 167, pl. viii, figg. 9–12; MOORE, Bull. U. S. Fish Comm. xx (2): *C. virginiana*, p. 512, fig. 5; RICHARDSON, P. U. S. Mus. xxiii.

C. obtruncata, Jamaica, p. 514, fig. 6, *albida*, Florida, p. 514, fig. 7; RICHARDSON, P. U. S. Mus. xxiii: *C. venusticauda*, Table Bay, p. 49, pl. ix, *fluviatilis*, Buffalo River, p. 52; STEBBING, S. African Crust. ii : **n. spp.**

Cirolanides texensis, p. 88, pl. xv, figg. 1–17; ULRICH, Tr. Amer. micr. Soc. xxiii.

Colanthura **n. g.** (*Anthuridæ*), p. 287, *tenuis*, Bermudas, p. 287, pl. xxxviii, figg. 23–28; RICHARDSON, Tr. Connect. Ac. xi, **n. sp.**

Colopisthus **n. g.** (*Cirolanidæ*) *parvus*, Bermudas, p. 289, pl. xxxviii, figg. 33–36; RICHARDSON, t. c. **n. sp.**

Corallana tricornis, p. 169, pl. ix, figg. 2–5; MOORE, Bull. U. S. Fish Comm. xx (2).

C. sexticornis, Florida, p. 518, fig. 9; RICHARDSON, P. U. S. Mus. xxiii, **n. sp.**

Cymodoce tuberculosa, p. 258, fig. 28, *convexa*, p. 260, fig. 29, *aculeata*, p. 262; WHITELEGGE, Mem. Austral. Mus. iv.

Cymodocea antarctica, Auckland Is., p. 243, pl. xxxiii, fig. 2, *australis*, Cape Adare, p. 245, pls. xxxiii, fig. 3, xxxiv, fig. 3; HODGSON, Crustacea, "Southern Cross": *C. uncinata*, S. Africa, p. 73, pl. xiv; STEBBING, S. African Crust. ii: *C. inornata*, New South Wales, p. 263, fig. 30; WHITELEGGE, Mem. Austral. Mus. iv : **n. spp.**

Dynamene perforata, p. 291, pl. xxxix, fig. 39; RICHARDSON, Tr. Connect. Ac. xi.

D. perforata, Porto Rico, p. 173, pl. x, figg. 9–19; MOORE, Bull. U. S. Fish Comm. xx (2): *D. angulata*, Florida, p. 534, fig. 16; RICHARDSON, P. U. S. Mus. xxiii : **n. spp.**

Eurydice convexa, p. 516, fig. 8; RICHARDSON, P. U. S. Mus. xxiii.

Exosphæroma gigas, p. 69; STEBBING, S. African Crust. ii.

E. amplifrons, Algoa Bay, p. 64, pl. xi, *validum*, Algoa Bay, p. 67, pl. xii *a*, *setulosum*, Algoa Bay, p. 68, pl. xii B; STEBBING, t. c. **n. spp.**

Gnathia polaris, Cape Adare, p. 241, pl. xxxii; HODGSON, Crustacea, "Southern Cross," **n. sp.**

Meinertia transversa, p. 529, figg. 12 & 13; RICHARDSON, P. U. S. Mus. xxiii.

Nalicora **n. g.** (*Alcironidæ*) *rapax*, Porto Rico, p. 169, pl. ix, figg. 11–22; MOORE, Bull. U. S. Fish Comm. xx (2), **n. sp.**

Nerocila cephalotes, p. 55; STEBBING, S. African Crust. ii.

Paranthura infundibulata, Bermudas, p. 284, pl. xxxviii, figg. 15–20, *verrillii*, Bermudas, p. 286, pl. xxxviii, figg. 21 & 22; RICHARDSON, Tr. Connect. Ac. xi, **n. spp.**

Parasphæroma **n. g.** (*Sphæromidæ*), p. 70, *prominens*, S. Africa, p. 70, pl. xiii; STEBBING, S. African Crust. ii, **n. sp.**

Rocinela signata, p. 171, pl. x, fig. 2; MOORE, Bull. U. S. Fish Comm. xx (2): *R. dumerilii*, p. 53; STEBBING, S. African Crust. ii.

Sphæroma crenulatum, Bermudas, p. 292, pl. xxxix, fig. 40; RICHARDSON, Tr. Connect. Ac. xi: *S. yucatanum*, Yucatan, p. 534, fig. 15; RICHARDSON, P. U. S. Mus. xxiii: *S. australis*, p. 250, figg. 24 *a* & *b*, *latifrons*, p. 252, figg. 25 *a* & *b*, *plumosa*, p. 254, figg. 26 *a* *c*, New South Wales; WHITELEGGE, Mem. Austral. Mus. iv : **n. spp.**

Zuzara emarginata, p. 257, fig. 27; WHITELEGGE, Mem. Austral. Mus. iv.

VALVIFERA.

Anarcturus **n. g.**, p. 686, *oryx*, near Bouvet I., p. 686, fig. 3; ZUR STRASSEN, Zool. Anz. xxv, **n. sp.**

Antares [see *Pleuroprion*], **n. g.** (*Arcturidæ*), p. 687, *chuni*, Agulhas bank, p. 687, fig. 4; ZUR STRASSEN, t. c. **n. sp.**

Arcturidæ, characters of genera, p. 683; ZUR STRASSEN, t. c.

Arcturus americanus, p. 269, pl. xx, fig. 3; OHLIN, Svenska Exp. Magellan ii: *A. floridanus*, p. 548, fig. 25; RICHARDSON, P. U. S. Mus. xxiii: *A.*, notes on g., p. 683, *baffini*, p. 683, fig. 1; ZUR STRASSEN, Zool. Anz. xxv.

Arcturus polaris, D. of York I., p. 247, pls. xxxiv, fig. 2, xxxv, *adareanus*, Cape Adare, p. 249, pl. xxxiii, fig. 1, *franklini*, Franklin I., p. 250; HODGSON, Crustacea, "Southern Cross": *A. patagonicus*, p. 271, pl. xx, fig. 4, *kophameli*, p. 272, pl. xx, fig. 5, off mouth of R. Plata; OHLIN, Svenska Exp. Magellan ii: *A. caribbæus*, Caribbean Sea, p. 546, fig. 24; RICHARDSON, P. U. S. Mus. xxiii : **n. spp.**

Astacilla falclandica, Falkland Is, p. 266, pl. xx, fig. 1, *magellanica*, Str. of Magellan, p. 267, pl. xx, fig. 2; OHLIN, Svenska Exp. Magellan ii, **n. spp.**

Cleantis planicauda, p. 174, pl. xi, figg. 1–6; MOORE, Bull. U. S. Fish Comm. xx (2): *C. granulosa*, p. 304, pl. xxv, fig. 15; OHLIN, Svenska Exp. Magellan ii: *C. planicauda*, p. 544, fig. 22; RICHARDSON, P. U. S. Mus. xxiii.

Edotea tuberculata, p. 292, pl. xxiii, fig. 10, *magellanica*, p. 295, pls. xxiii & xxiv, fig. 11; OHLIN, Svenska Exp. Magellan ii: *E. acuta*, p. 544, fig. 23; RICHARDSON, P. U. S. Mus. xxiii.

E. lilljeborgi, Patagonia, p. 297, pl. xxiv, fig. 12, *oculata*, Patagonia, p. 298, pls. xxiv & xxv, fig. 13; OHLIN, Svenska Exp. Magellan ii, **n. spp.**

Erichsonella **nom. nov.** (for *Erichsonia* preocc.), *floridana*, Florida, p. 543, fig. 21; BENEDICT in RICHARDSON, P. U. S. Mus. xxiii, **n. sp.**

Erichsonia [see *Erichsonella*] *nordenskjöldi*, Patagonia, p. 302, pl. xxv, fig. 14; OHLIN, Svenska Exp. Magellan ii, **n. sp.**

Glyptidotea **n. g.** (*Idoteidæ*), p. 56, *lichtensteinii*, p. 57, pl. x; STEBBING, S. African Crust. ii.

Idothea brevicauda, p. 284, pl. xxi, fig. 7; OHLIN, Svenska Exp. Magellan ii: *I. granulosa*, p. 479, pl. xxv, fig. 41; SCOTT, T., Rep. Fish. Board Scotland xx (3): *I. indica*, p. 62; STEBBING, S. African Crust. ii.

Macrochiridothea **n. g.** (*Idotheidæ*), p. 286, *michaelseni*, Magellan Str., p. 287, pls. xxi & xxii, fig. 8, *stebbingi*, Tierra del Fuego, p. 289, pl. xxii, fig. 9; OHLIN, Svenska Exp. Magellan ii, **n. spp.**

Pleuroprion **nom. nov.** for *Antares* preocc., p. 31; ZUR STRASSEN, Zool. Anz. xxvi.

Pseudidothea **n. g.** (*Pseudidotheidæ*) p. 276, *bonnieri*, off Patagonia, p. 276, pl. xxi, fig. 6; OHLIN, Svenska Exp. Magellan ii, **n. sp.**

Pseudidotheidæ **n. fam.** (*Valvifera*), p. 274; OHLIN, Svenska Exp. Magellan ii.

Synidotea, p. 59, *hirtipes*, p. 60; STEBBING, S. African Crust. ii.

EPICARIDEA.

Classification of *Epicaridea*:

i. *Cryptoniscinæ*

Families: *Microniscidæ*, *Hemioniscidæ*, *Cyproniscidæ*, *Liriopsidæ*, *Asconiscidæ*, *Crinoniscidæ*, *Podasconidæ*, *Cabiropsidæ*;

ii. *Bopyrinæ*

Families: *Dajidæ*, *Phryxidæ*, *Bopyridæ*, *Entoniscidæ*;

BONNIER, Trav. Stat. Zool. Wimereux viii, pp. 173–223.

Argeia, p. 737, *pugettensis*, p. 327, text-fig. 55, *pauperata*, p. 328; BONNIER, Trav. Stat. Zool. Wimereux viii.
A. calmani (on *Crangon affinis*), Puget Sound [not descr.], p. 329; BONNIER, t. c. **n. sp.**
Asconiscidæ, p. 198; BONNIER, t. c.
Bathygyge, p. 290, *grandis*, p. 291, text-fig. 53; BONNIER, t. c.
Bopyrella **n. g.** (*Bopyridæ*), p. 347, *thomsoni* (on *Alpheus strenuus*), Friendly Is., p. 348, pl. xxxiii; BONNIER, t. c. **n. sp.**
B. (?) *palæmonis*, p. 351, (?) *alphei*, p. 352, (?) *nitescens*, p. 352; BONNIER, t. c.
Bopyridæ, p. 218, list of gg. and spp., p. 221, key to gg., p. 237; BONNIER, t. c.
Bopyrina, p. 364, *virbii*, p. 368, text-fig. 59, *ocellata*, p. 369, text-fig. 60; *latreuticola*, p. 370, text-fig. 61; BONNIER, t. c.
B. giardi (on *Virbius varians*), Wimereux, p. 365, pls. xxxix & xl; BONNIER, t. c. **n. sp.**
Bopyroides, p. 373, *hippolytes*, p. 373, text-fig. 62, *acutimarginatus*, p. 375; BONNIER, t. c.
B. sarsi (on *Spirontocaris spinus*), N. Atlantic and Arctic Seas, p. 376, pl. xli; BONNIER, t. c. **n. sp.**
Bopyrus, p. 357, *fougerouxi*, p. 358, pls. xxxv–xxxvii, *helleri*, p. 362, pl. xxxvii, *xiphias*, p. 363, pl. xxxvii; BONNIER, t. c.
Branchiophryxus **n. sp.** (no name), brief descr., p. 445; LO BIANCO, Mt. Stat. Neapel xv.
Cabiropsidæ, p. 205, list of gg. and spp., p. 208; BONNIER, Trav. Stat. Zool. Wimereux viii.
Cancricepon, p. 257, *elegans*, p. 257, pls. v–vii; BONNIER, t. c.
Cepon, p. 250, *typus*, p. 251, text-fig. 44; BONNIER, t. c.
C. (?) *naxiæ* (on *Naxia diacantha*), Hong Kong, p. 254; BONNIER, t. c. **n. sp.**
Crinoniscidæ, p. 200; BONNIER, t. c.
Cryptione, p. 284, *elongata*, p. 285, text-fig. 51; BONNIER, t. c.
Cyproniscidæ, p. 190, list of spp. p. 194; BONNIER, t. c.
Cyproniscus, p. 75, *crossophori* (on *Crossophorus africanus*), S. Africa, p. 76, pl. xv B; STEBBING, S. African Crust. ii.
Dajidæ, p. 209, list of gg. and spp., p. 211; BONNIER, Trav. Stat. Zool. Wimereux viii.
Entoniscidæ, p. 223, list of gg. and spp., p. 227; BONNIER, t. c.
Gigantione, p. 276, *mœbii*, p. 276, text-figg. 48 & 49; BONNIER, t. c.
G. bouvieri (on *Pilumnus hirtellus* var. *inermis*), Azores, p. 278; BONNIER, t. c. **n. sp.**
Gyge, p. 353, *branchialis*, p. 353, pl. xxxiv, *galatheæ*, p. 356, text-fig. 58; BONNIER, t. c.
Grapsicepon, p. 262, *edwardsi*, p. 263, pls. viii & ix, *messoris*, p. 266, text-fig. 46; BONNIER, t. c.
Hemioniscidæ, p. 186, list of spp., p. 190; BONNIER, t. c.
Ione, p. 238, *thoracica*, p. 238, pls. i–iii, figg. 1–6, *vicina*, p. 247, pl. iii, figg. 7–15; BONNIER, t. c.
Ione brevicauda (on *Callianassa*), S. Francisco and G. of Georgia, p. 248, pl. iv; BONNIER, t. c. **n. sp.**
Ionella **n. g.** (*Bopyridæ*), p. 322, *agassizii* (on *Callianassa uncinata*), Chile, p. 322, pls. xxiii & xxiv; BONNIER, t. c. **n. sp.**
Leidya, p. 255, *distorta*, p. 255, text-fig. 45; BONNIER, t. c.
Lepomiscus alepadis (on *Alepas minuta*), Cape Bojador and Gulf of Lions, p. 34, pl. i; GRUVEL, Cirrhipèdes Travailleur. Cf. also (101A). **n. sp.**
Liriopsidæ, p. 194, list of gg. and spp., p. 197; BONNIER, Trav. Stat. Zool. Wimereux viii.
Microniscidæ, p. 178, list of spp., p. 181; BONNIER, t. c.

Munidion, p. 287, *princeps*, p. 287, text-fig. 52 ; BONNIER, t. c.
Orbione **n. g.** (*Bopyridæ*), p. 280, *penei* (on *Penæus* sp.), Hongkong, p. 280, pl. xii, *incerta* (host ?), Madagascar, p. 282, text-fig. 50 ; BONNIER, t. c. **n. spp.**
Palægyge, p. 332, *borrei*, p. 333, pl. xxx, figg. 7–11, *bonnieri*, p. 335, pls. xxv & xxvi, *de mani*, p. 340, pl. xxix, *fluviatilis*, p. 341, pl. xxx, figg. 1–6 ; BONNIER, t. c.
P. weberi (on *Palæmon dispar*), Flores, p. 337, pl. xxvii, *brevipes* (on *Palæmon endehensis*), Flores, p. 338, pl. xxviii, *incerta* (on *Palæmon bariensis*), Flores, p. 339, pl. xxviii, figg. 7–12 ; BONNIER, t. c. **n. spp.**
Parargeia, p. 329, *ornata*, p. 329, text-fig. 56 ; BONNIER, t. c.
Phryxidæ, p. 211, list of gg. and spp., p. 217 ; BONNIER, t. c.
Pleurocrypta, p. 309, *galatheæ*, p. 310, pl. xiii, *intermedia*, p. 313, pls. xiv & xv, *hendersoni*, p. 315, pl. xv, *marginata*, p. 315, *longibranchiata*, p. 316, *porcellanæ*, p. 317, pl. xvi ; BONNIER, t. c. : *P. longibranchiata*, p. 1, pl. i, figg. 1 & 2 ; SCOTT, T., Ann. Nat. Hist. (7) x.
P. patiencei (on *Caridion gordoni*), Clyde, p. 3, pl. i, figg. 3 & 4, *cluthæ* (on *Pandalina brevirostris*), Clyde, p. 4, pl. i, fig. 5 ; SCOTT, T., t. c. **n. spp.**
Pleurocryptella **n. g.** (*Bopyridæ*), p. 318, *formosa*, p. 319 ; BONNIER, Trav. Stat. Zool. Wimereux viii.
Podasconidæ, p. 202, list of spp., p. 205 ; BONNIER, t. c.
Portunicepon, p. 272, *cervicornis*, p. 272, text-fig. 47, *hendersoni*, p. 274, pl. xi ; BONNIER, t. c.
Probopyrus, p. 342, *palæmoneticola*, p. 342, text-fig. 57, *ascendens*, p. 345, pl. xxxii, figg. 7–9, *giardi*, p. 347, pl. xxxii, figg. 1–6 ; BONNIER, t. c.
Pseudione, p. 292, *dohrni*, p. 293, pl. xxi, *hyndmanni*, p. 295, pl. xviii, *giardi*, p. 299, *fraissei*, p. 300, *insignis*, p. 301, pl. xxii, *crenulata*, p. 303, *confusa*, p. 304, *galacanthæ*, p. 304, text-fig. 54, *affinis*, p. 306, pl. xx, *hoylei*, p. 308, pl. xix ; BONNIER, t. c. : *P. proxima*, **nom. nov.** (= *P. hyndmanni* G. O. Sars, pro parte, non Spence Bate & Westwood), p. 298, *dubia*, not descr., p. 299 ; BONNIER, t. c.
Stegophryxus **n. g.** (*Epicaridea*, near *Phryxus*), *hyptius* (on *Pagurus longicarpus*), Woods Hole, p. 53, pls. ix & x ; THOMPSON, Bull. U. S. Fish Comm. xxi, **n. sp.**
Trapezicepon **n. g.** (*Bopyridæ*), p. 269, *amicorum*, p. 269, pl. x ; BONNIER, Trav. Stat. Zool. Wimereux viii.

ONISCOIDEA.

Oniscoidea, structure and physiology of alimentary system, p. 284 ; MURLIN, P. Ac. Philad. liv.
Oniscoidea, synopsis of families, p. 103, key to New Zealand genera, p. 104 ; CHILTON, Tr. Linn. Soc. London (2) viii.
Oniscoidea, various notes ; VERHOEFF, Berlin. ent. Zeitschr. xlvi, p. 17.

Actæcia, characters, p. 130, *euchroa*, p. 130, pl. xv, fig. 3 ; CHILTON, Tr. Linn. Soc. London (2) viii.
A. opihensis, New Zealand, p. 132, pls. xv, fig. 4, xvi, fig. 1 ; CHILTON, t. c. **n. sp.**
Armadillidium, key to sections and spp. of subgenus *Armadillidium*, p. 242, sect. *Duplocarinatæ* **nov.**, sect. *Scalulatæ* **nov.**, sect. *Appressæ* **nov.**, p. 242, sect. *Typicæ* **nov.**, sect. *Marginiferæ* **nov.**, p. 243 ; VERHOEFF, Zool. Anz. xxv.
A. vulgare, p. 142 ; CHILTON, Tr. Linn. Soc. London (2) viii : *A. frontetriangulum continuatum* **n. subsp.**, Epirus, p. 243, *opacum dollfusi*, **n. subsp.**, Spezzia, p. 251 ; VERHOEFF, Zool. Anz. xxv.
A. stagnoense, Dalmatia, p. 242, *arcadicum*, Arcadia, p. 243, *thessalorum*, Epirus, p. 244, *messenicum*, Kalamata, *tripolitzense*, Arcadia, p. 246,

baldense, Mt. Baldo Maggiore, *marinense*, Albania, p. 248, *lobocurvum*, Peloponnesus, p. 249, *fossuligerum*, Thessaly, p. 250, *florentinum*, Florence, p. 251, *pseudovulgare*, Lamia, *janinense*, Janina, p. 252, *veluchiense*, Thessaly, p. 253; VERHOEFF, t. c. **n. spp.**

Armadilliidæ, characters, p. 141; CHILTON, Tr. Linn. Soc. London (2) viii.

Armadillo, key to New Zealand spp., p. 144, *ambitiosus*, p. 144, pl. xvi, fig. 5, *danæ*, p. 145, *speciosus*, p. 146, pl. xvi, fig. 6, *rugulosus*, p. 147, pl. xvi, fig. 7, *monolinus*, p. 148, *spinosus*, p. 150; CHILTON, t. c.

A. hamiltoni, p. 148, *macmahoni*, p. 149, pl. xvi, fig. 8, New Zealand; CHILTON, t. c. **n. spp.**

Brackenridgia **n. g.** (aff. *Titanethes*), p. 90, *cavernarum*, in caves, San Marcos, Texas, p. 91, pl. xvi, figg. 1–9; ULRICH, Tr. Amer. micr. Soc. xxiii, **n. sp.**

Haplophthalmus, p. 119, *helmsii*, New Zealand, p. 119, pl. xii, fig. 3; CHILTON, Tr. Linn. Soc. London (2) viii, **n. sp.**

Leptotrichus granulatus, Bermudas, p. 303, pl. xl, fig. 58; RICHARDSON, Tr. Connect. Ac. xi, **n. sp.**

Ligia, characters, p. 106, *novæ-zealandiæ*, descr. and detailed account of external anatomy, p. 107, pl. xi, fig. 1; CHILTON, Tr. Linn. Soc. London (2) viii: *L. baudiniana*, p. 306, pl. xl, fig. 61; RICHARDSON, Tr. Connect. Ac. xi.

L. gracilis, Porto Rico, p. 175, pl. xi, figg. 7–12; MOORE, Bull. U. S. Fish Comm. xx (2), **n. sp.**

Ligiidæ, characters, p. 105; CHILTON, Tr. Linn. Soc. London (2) viii.

Metoponorthus pruinosus, p. 141; CHILTON, t. c.

Oniscidæ, characters, p. 133; CHILTON, t. c.

Oniscus punctatus, p. 133, pl. xvi, fig. 2, *cookii*, p. 136; CHILTON, t. c.: *O. asellus*, spermatogenesis; NICHOLS, P. Amer. Phil. Soc. xli, pp. 77–112, pls. xi–xviii.

O. kenepurensis, New Zealand, p. 135, pl. xvi, fig. 3; CHILTON, Tr. Linn. Soc. London (2) viii, **n. sp.**

Philoscia pubescens, p. 136, pl. xvi, fig. 4, *novæ-zealandiæ*, p. 138; CHILTON, t. c.

P. culebræ, Culebra, p. 176, pl. xi, figg. 13–17; MOORE, Bull. U. S. Fish Comm. xx (2): *P. richmondi*, Porto Rico, p. 564, figg. **32** & **33**; RICHARDSON, P. U. S. Mus. xxiii: **n. spp.**

Porcellio grangei [corrected to *graniger*=*scaber*], displacing ants in New Zealand; SMITH, Ent. Mag. (2) xiii, pp. 132 & 266, EATON, t. c. p. 160: *P. scaber*, p. 139; CHILTON, Tr. Linn. Soc. London (2) viii.

P. parvicornis, Bermudas, p. 302, pl. xl, fig. 57; RICHARDSON, Tr. Connect. Ac. xi: *P.*, sect. *Agabiformes* **nov.**, *syrensis*, I. of Syra, p. 255; VERHOEFF, Zool. Anz. xxv: **n. spp.**

Pseudarmadillo gillianus, Isla de Pinos, Cuba, p. 509, figg. 1–4; RICHARDSON, P. U. S. Mus. xxv, **n. sp.**

Scyphacidæ **n. fam.** (*Oniscoidea*), p. 121; CHILTON, Tr. Linn. Soc. London (2) viii.

Scyphax, p. 122, *ornatus*, p. 123, pls. xiv, fig. 2, xv, fig. 1, *aucklandiæ*, p. 126, pl. xv, fig. 2; CHILTON, t. c.

Scyphoniscus **n. g.** (*Scyphacidæ*) *waitatensis*, New Zealand, p. 128, pl. xiv, fig. 1; CHILTON, t. c. **n. sp.**

Sphæroniscus portoricensis, Porto Rico, p. 573, fig. 34; RICHARDSON, P. U. S. Mus. xxiii, **n. sp.**

Synuropus **n. g.** (*Oniscidæ*), p. 563, *granulatus*, Porto Rico, p. 563, figg. 30 & 31; RICHARDSON, t. c. **n. sp.**

Trichoniscidæ, characters, p. 114; CHILTON, Tr. Linn. Soc. London (2) viii.

Trichoniscus, characters, p. 114, key to New Zealand spp. p. 115, *thomsoni*, p. 118, pl. xiii, fig. 1; CHILTON, t. c.: *T. roseus*, in Dublin; PRAEGER, Irish Natural. xi, p. 323.

T. phormianus, p. 115, pl. xii, fig. 1, *otakensis*, p. 117, pl. xii, fig. 2, New Zealand; CHILTON, Tr. Linn. Soc. London (2) viii, **n. spp.**
Tylidæ, characters, p. 120; CHILTON, t. c.
Tylos latreilli, p. 300, pl. xl, fig. 56; RICHARDSON, Tr. Connect. Ac. xi.
T. neozelanicus, New Zealand, p. 120, pl. xiii, fig. 2; CHILTON, Tr. Linn. Soc. London (2) viii, **n. sp.**
Uropodias **n. g.** (*Armadillididæ*), p. 304, *bermudensis*, Bermudas, p. 304, pl. xl, figg. 59 & 60; RICHARDSON, Tr. Connect. Ac. xi, **n. sp.**

7. AMPHIPODA.

GAMMARINA.

Acanthogammarinæ **n. subfam.** of *Gammaridæ*, pp. 14 & 60; GHARYAEV, Trudui Kazan. Univ. xxxv (6).
Ampelisca spinimana, p. 39, pl. vi, fig. 2, *uncinata*, p. 42, pl. vi, fig. 3; CHEVREUX, Amphip. Hirondelle.
Amphilochoides longimanus, p. 50, pl. vii, fig. 3; CHEVREUX, t. c.
Amphilochus anomalus, Bay of Biscay, p. 48, pl. vii, fig. 2; CHEVREUX, t. c. **n. sp.**
Amphithoe vaillanti, p. 100; CHEVREUX, t. c.
A. alluaudi, Seychelles, p. 418, figg. 40–45; CHEVREUX, Mem. Soc. zool. France xiv, **n. sp.**
Aristias topsenti, off Newfoundland, p. 18, pl. iii, fig. 2; CHEVREUX, Amphip. Hirondelle, **n. sp.**
Atyloides fontana, Victoria, p. 49, pl. v; SAYCE, P. Soc. Victoria xv, **n. sp.**
Audulla **n. g.**, p. 431, *chelifera*, Seychelles, p. 432, figg. 56–65; CHEVREUX, Mem. Soc. zool. France xiv, **n. sp.**
Bonnierella **n. g.** (*Photidæ*) *abyssi*, p. 97, pl. xi, fig. 3; CHEVREUX, Amphip. Hirondelle.
Bouvierella **n. g.** (*Calliopidæ*) *carcinophila*, p. 71, pl. ix, fig. 3; CHEVREUX, t. c.
Byblis guernei, p. 45, pl. vii, fig. 1; CHEVREUX, t. c.
Centromedon crenulatum, off Cape Finisterre, p. 26, pl. v, fig. 3; CHEVREUX, t. c. **n. sp.**
Chiltonia australis, p. 47; SAYCE, P. Soc. Victoria xv.
C. subtenuis, Victoria, p. 48, pl. iv; SAYCE, t. c. **n. sp.**
Corophium acherusicum, p. 109; CHEVREUX, Amphip. Hirondelle.
Crangonyx vitreus, habits, p. 225; HAY, P. U. S. Mus. xxv.
C. bowersii, artesian well, San Marcos, Texas, p. 85, pl. xiv; ULRICH, Tr. Amer. micr. Soc. xxiii, **n. sp.**
Ctenacanthus **n. g.** (*Gammaridæ*, *Acanthogammarinæ*), pp. 15 & 61, *ruber*, p. 17, pls. ii, figg. 9 & 10, iii, figg. 22–26, *roseus*, p. 19, pls. ii, fig. 11, iii, figg. 27–31, Lake Baikal; GHARYAEV, Trudui Kasan. Univ. xxxv (6), **n. spp.**
Cyclocaris gulielmi, p. 20, pls. ii & iii; SARS, Norw. N. Polar Exp. Crust.
Cyphocaris micronyx, p. 165, pl. xiv, fig. 11; CHEVREUX, Amphip. Hirondelle.
Dautzenbergia **n. g.** (*Calliopidæ*), *grandimana*, p. 73, pl. x, fig. 1; CHEVREUX, t. c.
Dulichia monacantha, occurrence in Firth of Forth; SCOTT, T., Ann. Scott. Nat. Hist. x, p. 241. [Misplaced under *Copepoda*, Zool. Rec. 1901].
Dybowskia **n. g.** (*Acanthogammarinæ*), pp. 31 & 61, *viridis*, p. 32, pls. ii, fig. 18, iii, figg. 63–67, *dryshenkii*, p. 33, pls. ii, fig. 19, iii, figg. 68–72, *meyerii*, p. 36, pls. ii, fig. 17, iii, figg. 58–62, Lake Baikal; GHARYAEV, Trudui Kazan. Univ. xxxv (6), **n. spp.**
D. armata var. *ongureni* **n. var.**, p. 38, pls. ii, fig. 20, iii, figg. 73–78; GHARYAEV, Trudui Kazan. Univ. xxxv (6).

Elasmopus insignis, Seychelles, p. 406, figg. 24–31; CHEVREUX, Mem. Soc. zool. France xiv, **n. sp.**
Eriopisa sechellensis, Seychelles, p. 403, figg. 19–23; CHEVREUX, t. c. **n. sp.**
Eugammarinæ **n. subfam.** of *Gammaridæ*, pp. 14 & 60; GHARYAEV, Trudui Kazan. Univ. xxxv (6).
Euryporeia gryllus, p. 24, pl. xiv, fig. 4; CHEVREUX, Amphip. Hirondelle.
Eusiroides sarsi, Azores, p. 65, pl. ix, fig. 2; CHEVREUX, t. c. **n. sp.**
Gammaropsis dentata, Azores, p. 93, pl. xii, fig. 1; CHEVREUX, t. c. **n. sp.**
Gammarus guernei, p. 76, pl. x, fig. 2; CHEVREUX, Amphip. Hirondelle: *G. australis*, p. 51; SAYCE, P. Soc. Victoria xv.
G. tetrachantus, Müggel See; GARBINI, Zool. Anz. xxv, p. 153, fig. 1: *G. purpurascens*, Tennessee, p. 433, fig. 7*a–n*, *propinquus*, Kentucky, p. 224; HAY, P. U. S. Mus. xxv: *G. haasei*, Victoria, p. 53, pl. vi; SAYCE, P. Soc. Victoria xv: **n. spp.**
Grubia microphthalma, Seychelles, p. 422, figg. 46–49; CHEVREUX, Mem. Soc. zool. France xiv, **n. sp.**
Haploops tubicola, p. 46; CHEVREUX, Amphip. Hirondelle.
Harpinia excavata, p. 37, pl. vi, fig. 1; CHEVREUX, t. c.
Hirondellea trioculata, p. 20, pls. iv, fig. 1, xiv, fig. 3; CHEVREUX, t. c.
Hoplonyx exiguus, Mediterranean, p. 696, pl. v, fig. 1 *a—k*; CHEVREUX, C.R. Ass. Franc. Ajaccio 1901, ii, **n. sp.**
Hyale prevosti, p. 7, pl. i, fig. 3, *stebbingi*, p. 8, pl. ii, fig. 1, *grimaldii*, p. 10, pl. ii, fig. 2, *camptonyx*, p. 12, pl. ii, fig. 3; CHEVREUX, Amphip. Hirondelle: *H. macrodactylus*, p. 397, figg. 13 & 14; CHEVREUX, Mem. Soc. zool. France xiv.
H. brevipes, Seychelles, p. 400, figg. 15–18; CHEVREUX, Mem. Soc. zool. France xiv, **n. sp.**
Hyalella dentata, habits; HOLMES, Science (n. s.) xv, pp. 529 & 530.
H. richardi, Alboran I., p. 223, figg. 1 & 2; CHEVREUX, Bull. Soc. zool. France xxvii, **n. sp.**
Ischyrocerus anguipes, note and fig.; T. SCOTT, Rep. Fish. Board Scotland xix, p. 264, pl. xviii, fig. 29. [Misplaced under *Ostracoda*, Zool. Rec. 1901.]
I. commensalis, off Newfoundland, p. 104, pl. xii, fig. 2; CHEVREUX, Amphip. Hirondelle, **n. sp.**
Jassa [= *Podocerus* auctt.] *falcatus*, pp. 106 & 165; CHEVREUX, Amphip. Hirondelle.
Lepidepecreum clypeatum, p. 28, pl. iv, fig. 2; CHEVREUX, t. c.
Leptocheirus pilosus, p. 90, pl. xi, fig. 2; CHEVREUX, t. c.
Lilljeborgia fissicornis, p. 88, pl. xiv, fig. 6; CHEVREUX, t. c.
Lysianax ceratinus, p. 16, pl. v, fig. 1; CHEVREUX, t. c.
Mœra hirondellei, Azores, p. 84, pl. xi, fig. 1; CHEVREUX, t. c. **n. sp.**
Mœra loveni, note and fig.; T. SCOTT, Rep. Fish. Board Scotland xix (iii), p. 264, pl. xviii, figg. 27 & 28. [Misplaced under *Ostracoda*, Zool. Rec. 1901.]
Melita richardi, Azores, p. 81, pl. x, fig. 3; CHEVREUX, Amphip. Hirondelle, **n. sp.**
Metaphoxus pectinatus, p. 33; CHEVREUX, t. c.
Monoculodes gibbosus, p. 59, pl. viii, fig. 3; CHEVREUX, t. c.
Neoniphargus fultoni, Victoria, p. 57, pl. vii; SAYCE, P. Soc. Victoria xv, **n. sp.**
Niphargus, characters discussed, p. 429, *antennatus*, p. 430, figg. 6*a–m*, ii; HAY, P. U. S. Mus. xxv: *N.*, list of French spp. and varr.; VIRÉ, Bull. Mus. Paris viii, pp. 94 & 95.
Orchestia attacked by parasitic mite *Uropoda orchestiidarum*, p. 38; TROUESSART, Bull. Soc. zool. France xxvii: *O. littorea*, p. 2, pl. xiv, fig. 1, *chevreuxi*, p. 3, pl. i, fig. 1, *mediterranea*, p. 5, pl. xiv, fig. 2, *guernei*, p. 6, pl. i, fig. 2; CHEVREUX, Amphip. Hirondelle.

O. excavata, Upper Zambesi, p. 521; CHEVREUX, Bull. Mus. Paris viii: *O. anomala*, Seychelles, p. 393, figg. 8–12; CHEVREUX, Mem. Soc. zool. France xiv, **n. spp.**

Pachygammarinæ **n. subfam.** of *Gammaridæ*, pp. 14 & 60; GHARYAEV, Trudui Kazan. Univ. xxxv (6).

Pallasiella quadrispinosa in lakes of N. Germany, p. 222; SAMTER & WELTNER, Zool. Anz. xxv.

Paradulichia typica, ♂ observed for first time; ORTMANN, P. Ac. Philad. 1901, p. 154. [Misplaced under *Copepoda*, Zool. Rec. 1901.]

Paragrubia **n. g.** (*Amphithoidæ*), p. 426, *vorax*, Seychelles, p. 427, figg. 50–55; CHEVREUX, Mem. Soc. zool. France xiv, **n. sp.**

Paraphoxus maculatus, p. 34, pl. v, fig. 5; CHEVREUX, Amphip. Hirondelle.

Parelasmopus setiger, Seychelles, p. 412, figg. 32–39; CHEVREUX, Mem. Soc. zool. France xiv, **n. sp.**

Pleonexes gammaroides, p. 101; CHEVREUX, Amphip. Hirondelle.

P. ferox, Mediterranean, p. 697, pl. v, figg. 2*a–i*; CHEVREUX, C.R. Ass. Franc. Ajaccio 1901, ii, **n. sp.**

Pleuracanthus **n. g.** (*Acanthogammarinæ*), pp. 40 & 61, *niger*, p. 40, pls. ii, fig. 21, iii, figg. 79–83, Lake Baikal; GHARYAEV, Trudui Kasan. Univ. xxxv (6), **n. sp.**

Podocerus [=*Platophium*] *chelonophilus*, pp. 115 & 166, pls. xiii, fig. 2, xiv, fig. 7; CHEVREUX, Amphip. Hirondelle.

Polyacanthus **n. g.** (*Acanthogammarinæ*), pp. 21 & 61, *belkinii*, p. 21, pls. i, fig. 1, ii, fig. 15, iii, figg. 46–51, *maximus*, p. 23, pls. ii, fig. 13, iii, figg. 37–40, *flavus*, p. 25, pls. ii, fig. 12, iii, fig. 32–36, *korotneffi*, p. 27, pls. ii, fig. 16, iii, figg. 53–57, *albus*, p. 29, pls. ii, fig. 14, iii, figg. 41–45, Lake Baikal; GHARYAEV, Trudui Kazan. Univ. xxxv (6), **n. spp.**

Pontoporeia affinis in lakes of N. Germany, p. 222; SAMTER & WELTNER, Zool. Anz. xxv.

Pseudalibrotus nanseni, p 26, pls. iv & v, *glacialis*, p. 31, pl. vi, Polar Sea; SARS, Norw. N. Polar Exp. Crust., **n. spp.**

Rachotropis grimaldii, p. 68, pl. ix, fig. 1; CHEVREUX, Amphip. Hirondelle.

Seba, g. notes, *armata*, p. 111, pl. xiii, fig. 1; CHEVREUX, t. c.

Sophrosyne hispana, p. 13, pl. iii, fig. 1; CHEVREUX, t. c.

Stegocephaloides christianiensis (?), p. 478, pl. xxv, figg. 34–40; SCOTT, T., Rep. Fish. Board Scotland xx (3).

Stenothoe dollfusi, p. 53, pl. viii, fig. 1; CHEVREUX, Amphip. Hirondelle.

Stenothoides **n. g.** (*Stenothoidæ*) *perrieri*, off Newfoundland, p. 55, pl. viii, fig. 2; CHEVREUX, t. c. **n. sp.**

Sthenometopa **nom. nov.** for *Metopina* Norman, preocc., p. 481; NORMAN, Ann. Nat. Hist. (7) x.

Sunamphithoe pelagica, p. 102, pl. xi, fig. 4; CHEVREUX, Amphip. Hirondelle.

Talitrus, attacked by parasitic mite *Uropoda orchestiidarum*, p. 38; TROUESSART, Bull. Soc. zool. France xxvii: *T. alluaudi*, p. 389, figg. 1–6 in text; CHEVREUX, Mem. Soc. zool. France xiv.

Urothoe elegans, p. 30, *poucheti*, p. 31, pl. v, fig. 4; CHEVREUX, Amphip. Hirondelle.

HYPERINA.

Hyperina of abyssal pelagic fauna, notes on spp., p. 446; LO BIANCO, Mt. Stat. Neapel xv.

Hyperia schizogeneios, p. 139, pl. xvii, fig. 1; CHEVREUX, Amphip. Hirondelle.

Hyperioides **n. g.** (*Hyperiidæ*) *longipes*, Atlantic, p. 143, pl. xvii, fig. 2; CHEVREUX, t. c. **n. sp.**

Lanceola clausi, p. 15, pl. i; SARS, Norw. N. Polar Exp. Crust.: *L. sayana*, p. 134, pl. xiv, fig. 10; CHEVREUX, Amphip. Hirondelle.
Lycæa bovallii, Atlantic, p. 157, pl. xviii, fig. 3; CHEVREUX, t. c. **n. sp.**
Oxycephalus piscator, p. 12; SENNA, Bull. Soc. ent. Ital. xxxiv.
Phorcorrhaphis zamboangæ, p. 148, pl. xviii, fig. 1; CHEVREUX, Amphip. Hirondelle.
Scina marginata, p. 122, pls. xiv, fig. 8, xv, fig. 1, *rattrayi*, pl. xv, fig. 2; CHEVREUX, t. c.
S. incerta, Atlantic, p. 123, pl. xiv, figg. 9 & 12; CHEVREUX, Amphip. Hirondelle, **n. sp.**
Streetsia, key to spp. p. 28, *porcella*, p. 19; SENNA, Bull. Soc. ent. Ital. xxxiv.
S. stebbingi, Atlantic, p. 161, pl. xviii, fig. 4; CHEVREUX, Amphip. Hirondelle: *S. washingtoni*, Mediterranean, p. 24, pl. ii; SENNA, Bull. Soc. ent. Ital. xxxiv : **n. spp.**
Thamneus recurvirostris, Atlantic, p. 154, pl. xviii, fig. 2; CHEVREUX, Amphip. Hirondelle, **n. sp.**
Vibilia jeangerardi, p. 125, pl. xv, fig. 3; CHEVREUX, t. c.
V. hirondellei, p. 126, pl. xv, fig. 4, *dentata*, p. 129, pl. xvi, fig. 1, *grandicornis*, p. 131, pl. xvi, fig. 2, Atlantic; CHEVREUX, t. c. **n. spp.**

CAPRELLINA.

Caprella acutifrons, p. 12, pl. ii, figg. 1 & 2, *tuberculata*, p. 13, pl. ii, figg. 3 & 4, *acuminifera*, p. 13, pl. ii, fig. 5; SOKOLOWSKY, Wiss. Meersuntersuch. v, Abth. Helgoland.
Cyamus fascicularis, on Sperm Whale, Bermudas, p. 21, pl. viii, fig. 4; VERRILL, Tr. Connect. Ac. xi, **n. sp.**

8. PHYLLOCARIDA.

†*Phyllocarida*, Palæozoic, in Scotland, p. 369; PEACH, P. Phys. Soc. Edinb. xiv (4), p. 369.
†*Phyllocarida*, PEACH, Fauna...of Clyde Area, p. 450, JONES & KIRKBY, t. c. p. 491.
†*Anomalocaris canadensis*, p. 17, fig. 7; WOODWARD, Geol. Mag. (4) ix.
†*Caryocaris angusta*, Lr. Ordovician, Victoria, p. 113, pl. xviii, fig. 10; CHAPMAN, P. Soc. Victoria xv, **n. sp.**
†*Echinocaris socialis*, p. 441, pls. xvii & xviii, figg. 1–7; BEECHER, Quart. J. Geol. Soc. lviii: *E. whidbornei*, p. 307, pl. xvii, fig. 7; PARTRIDGE, Geol. Mag. (4) ix.
†*E. randalli*, p. 443, pl. xviii, fig. 8, *clarkii*, p. 444, pl. xviii, fig. 9, Lower Carboniferous, Pennsylvania; BEECHER, Quart. J. Geol. Soc. lviii: *E. sloliensis*, Marwood Beds near Barnstaple, p. 307, pl. xvii, figg. 8 & 9; PARTRIDGE, Geol. Mag. (4) ix : **n. spp.**
†*Elymocaris siliqua*, p. 447, pl. xix, figg. 7 & 8; BEECHER, Quart. J. Geol. Soc. lviii.
†*Rhinopterocaris* **n. g.** *maccoyi*, p. 114, pl. xviii, figg. 9, 16 & 17; CHAPMAN, P. Soc. Victoria xv.
†*Saccocaris tetragona*, Lr. Ordovician, Victoria, p. 113, pl. xviii, fig. 11; CHAPMAN, P. Soc. Victoria xv, **n. sp.**
†*Tropidocaris*, p. 444, *bicarinata*, p. 445, pl. xix, figg. 1–5, *alternata*, p. 447, pl. xix, fig. 6; BEECHER, Quart. J. Geol. Soc. lviii.

B. ENTOMOSTRACA.

1. PHYLLOPODA.

a. BRANCHIOPODA.

Apus cancriformis: central nervous system of larva and adult, p. 514; SPENCER, Zeitschr. wiss. Zool. lxxi: general account of anatomy; BOURNE, Introd. Comp. Anat. Animals ii, p. 90.

Artemia salina, variation in relation to environment; SAMTER & HEYMONS, Abh. Ak. Berlin 1902, Anh. ii, 62 pp.: hatching; OSTROUMOV, Protok. Kazan. Univ. 1901–1902, No. 198: maturation of parthenogenetic eggs; PETRUNKEWITSCH, Anat. Anz. xxvi, p. 256: central nervous system, p. 517, "frontal organ," p. 519; SPENCER, Zeitschr. wiss. Zool. lxxi.

Branchinecta granulosa, Patagonia, p. 288, pls. xiii, figg. 3–14, xiv, figg. 1 & 2; DADAY, Termes. Fuzetek xxv, **n. sp.**

Branchipus grubii and *torticornis*, central nervous system, pp. 513 & 517, "frontal organ," p. 519; SPENCER, Zeitschr. wiss. Zool. lxxi: *B. grubei*, protozoan parasite of; STEMPELL, Zool. Jahrb. Syst. xv, pp. 591–595, pl. xxxi.

Estheria ticinensis, central nervous system of larva, p 512; SPENCER, Zeitschr. wiss. Zool. lxxi.

†*E. palæoniscorum*, p. 77, pl. 161, figg. 6–8, *calcarea*, p. 78, pls. 160, figg. 9 & 10, 161, fig. 4, *ultima*, p. 78, pl. 161, figg. 9–11, *cyanea*, p. 78, pl. 160, figg. 4 & 5; FRITSCH, Fauna der Gaskohle iv (3).

†*E. triangularis*, p. 77, pls. 160, figg. 1–3, 161, fig. 1–3, *concretionum*, p. 77, pl. 161, figg. 6 & 6[1], *paupera*, p. 78, pl. 161, fig. 5, Permian, Bohemia; FRITSCH, t. c. **n. spp.**

Eulimnadia brasiliensis, from mud from S. Paulo and Ipiranga, Brazil, p. 4, pl. i; SARS, Arch. Naturv. Christian. xxiv, No. 6, **n. sp.**

Limnetis rotundirostris, Patagonia, p. 286, pls. xii, figg. 10–17, xiii, figg. 1 & 2; DADAY, Termes. Fuzetek xxv, **n. sp.**

Lynceus, priority over *Limnetis*; STEBBING, Zoologist (4) vi, p. 101.

Polyartemia hazeni, redescr. p. 5, pls. i & ii, figg. 1–5, *forcipata*, anatomy, p. 12, pls. ii–iv, figg. 6–16, text-fig. 1; EKMAN, Bih. Svenska Ak. xxviii (4), No. 11.

b. CLADOCERA.

Alona poppei, p. 264; DADAY, Termes. Fuzetek xxv: *A. guttata*, var. *spinulosa*, **n. var.**, pp. 12 & 18, figg. 3 & 3*a*; LINKO, Trudui St. Peterb. Obshch. xxx (4): *A. falcata*, p. 317, pl. xvii, fig. 317; STINGELIN, Rev. Suisse Zool. ix.

Apagis, g. notes, p. 37, *longicaudata*, p. 38, pl. i, figg. 10–13, Caspian Sea; SARS, Annuaire Mus. St. Petersb. vii, **n. sp.**

Bosmina maritima, p. 11, figg. 20 & 21; APSTEIN, Nordisches Plankton vii: *B. coregoni*, var. *chilensis*, **n. var.**, p. 444, fig. 3; DADAY, Termes. Fuzetek xxv: *B. micropterа*, pp. 71 & 84, fig. 5, *coregoni*, var. *gibberoides*, **n. var.**, pp. 72 & 85, figg. 6 & 7, var. *warpachowskii*, **n. var.**, pp. 73 & 85, figg. 8 & 9, var. *monstrosa*, **n. var.**, pp. 74 & 86, figg. 10 & 11, var. *kiri*, **n. var.**, pp. 75 & 87, figg. 12 & 13, var. *kessleri*, pp. 76 & 88, figg. 13 & 14; LINKO, Trudui St. Peterb. Obshch. xxxi (4).

Bythotrephes longimanus, variation and distribution; EKMAN, Zool. Anz. xxv, pp. 268 & 269.

Camptocercus australis, p. 266, pl. x, figg. 2–5; DADAY, Termes. Fuzetek xxv.

Cercopagis, g. notes, p. 34, *neonilæ*, p. 36, pl. i, figg. 1–4, *gracillima*, p. 37, pl. i, figg. 5–9, Caspian Sea; SARS, Annuaire Mus. St. Petersb. vii, **n. spp.**

Ceriodaphnia dubia, p. 277; DADAY, Termes. Fuzetek xxv.

C. silvestrii, Patagonia, p. 276, pl. xi, figg. 6–10; DADAY, t. c. **n. sp.**

Chydorus patagonicus, p. 261; DADAY, t. c.

Corniger horribilis, p. 570, pl. xxi, figg. 10–14, *bicornis*, p. 570, pl. xxi, figg. 15 & 16, Sea of Azov; ZERNOV, Annuaire Mus. St. Petersb. vi, No. 4, **n. spp.**

Daphnia hastata, p. 279, pl. xi, figg. 11 & 12, *pulex*, p. 282, pls. xi, figg. 17 & 18, xii, fig. 12; DADAY, Termes. Fuzetek xxv: *D. pulex*, experiments on regeneration, p. 466; HÜBNER, Zool. Jahrb. Syst. xv: *D. magna* var., pp. 67 & 82, figg. 1 & 2; LINKO, Trudui St. Peterb. Obshch. xxxi (4): *D. magna*, phototropism, p. 352; SCHOUTEDEN, Ann. Soc. ent. Belgique xlvi.

D. silvestrii, p. 281, pl. xi, figg. 13–16, *sarsii*, p. 283, pl. xii, figg. 3–9 Patagonia; DADAY, Termes. Fuzetek xxv, **n. spp.**

Diaphanosoma chilense, Chile, p. 446, fig. 4; DADAY, t. c. **n. sp.**

Evadne nordmanni, p. 12, fig. 22, *spinifera*, p. 13, fig. 23; APSTEIN, Nordisches Plankton vii: *E. nordmanni*, seasonal distribution &c. p. 67; GRAN, Rep. Norwegian Fishery Invest. ii, No. 5: *E.* g. notes, p. 40, *anonyx*, p. 41; SARS, Annuaire Mus. St. Petersb. vii.

E. trigona, forma typica, p. 49, pl. iv, fig. 6, *trigonoides*, p. 50, pl. iv, fig. 7, *intermedia*, p. 51, pl. iv, fig. 8, *pusilla*, p. 51, pl. iv, fig. 9, Caspian Sea; SARS, Annuaire Mus. St. Petersb. vii, **n. subspp.**

E. camptonyx, forma typica, p. 45, pl. iii, fig. 5, *attenuata*, p. 45, pl. iii, fig. 6, *angusta*, p. 46, pl. iii, fig. 7, *similis*, p. 47, pl. iv, fig. 1, *orthonyx*, p. 47, pl. iv, fig. 3, *macronyx*, p. 47, pl. iv, fig. 4, *hamulus*, p. 48, pl. iv, fig. 2, *podonoides*, p. 48, pl. iv, fig. 5, Caspian Sea; SARS, t. c. **n. subspp.**

E. maximovitschi, p. 42, pl. ii, figg. 3–6, *hircus*, p. 43, pl. iii, figg. 1–4, Caspian Sea; SARS, Annuaire Mus. St. Petersb. vii, **n. spp.**

Hyalodaphnia jardinei var. *obtusa*, **n. var.**, pp. 69 & 83, fig. 3; LINKO, Trudui St. Peterb. Obshch. xxxi (4).

Leydigia leidigi, p. 265, pl. x, fig. 1; DADAY, Termes. Fuzetek xxv.

Lynceidæ, ephippia; SCOURFIELD, J. Quekett Club (2) viii, pp. 217–244, pls. x–xii.

Lynceus, name of g. belongs properly to a Branchiopod; STEBBING, Zoologist (4) vi, p. 101.

Macrothrix magna, p. 269, pl. x, figg. 6–12, *inflata*, p. 271, pls. x, figg. 13–16, xi, fig. 1, *odontocephala*, p. 272, pl. ix, figg. 18–20, Patagonia; DADAY, Termes. Fuzetek xxv, **n. spp.**

Moina rectirostris, in Finland; LEVANDER, Medd. Soc. Faun. Fenn. xxviii A, p. 32.

Monospilus dispar, p. 318, pl. xvii, figg. 2 & 3; STINGELIN, Rev. Suisse Zool. ix.

Ophryoxus gracilis, pp. 10 & 19, figg. 2 & 2*a*—*c*; LINKO, Trudui St. Peterb. Obshch. xxx (4).

Pleuroxus scopulifer, p. 262; DADAY, Termes. Fuzetek xxv.

Podon leuckarti, p. 13, fig. 24, *intermedius*, p. 14, *polyphemoides*, p. 15; APSTEIN, Nordisches Plankton vii: *P. leuckartii*, p. 476, pl. xxv, figg. 23 & 24, *intermedius*, p. 476, pl. xxv, figg. 25 & 26; SCOTT, T., Rep. Fish. Board Scotland xx (3).

P. ovum, p. 568, pl. xx, figg. 6 & 7, *triangulus*, p. 569, pl. xx, fig. 8, Sea of Azov; ZERNOV, Annuaire Mus. St. Petersb. vi, No. 4, **n. spp.**

Scapholeberis mucronata var. *intermedia*, p. 274, pl. xi, figg. 2–5; DADAY, Termes. Fuzetek xxv.

S. reticulata, Solowetzky Is., pp. 7 & 17, figg. 1*a*—*c*; LINKO, Trudui St. Peterb. Obshch. xxx (4), **n. sp.**

Simocephalus simus, experiments on regeneration, p. 466; HÜBNER, Zool. Jahrb. Syst. xv: *S. sibiricus* (?), pp. 70 & 83, fig. 4; LINKO, Trudui St. Peterb. Obshch. xxxi (4).

2. COPEPODA.

Copepoda parasita, notes on nomenclature and synonymy, p. 8; POCHE, Zool. Anz. xxvi.

Copepoda, key to pelagic gg. and spp. of Woods Hole Region, many spp. described and figured; WHEELER, Bull. U. S. Fish Comm. xix, pp. 157–192, 30 figg.

Parasitic copepod, descr. but not named, from *Cynscion regalis*, Woods Hole, Mass., p. 285, pl. xxxiii, figg. 1–5; LINTON, Bull. U. S. Fish Comm. xix.

Achteres sandræ (on *Lucioperca sandra*), Finland, p. 99; GADD, Medd. Soc. Faun. Fenn. xxvii, **n. sp.**

Acrocalanus gibber, p. 36, pl. ii, figg. 1–16; CLEVE, Svenska Ak. Handl. xxxv, No. 5.

A. pediger, Indo-Malay Seas, p. 31, pl. i, figg. 1–20; CLEVE, t. c. **n. sp.**

Ægisthus atlanticus, Faröe Channel, p. 364; WOLFENDEN, J. Mar. Biol. Ass. vi, **n. sp.**

Amallophora, p. 50, *magna*, p. 51, pls. xxxiv & xxxv, *brevicornis*, p. 53, pl. xxxvi; SARS, Crust. Norway iv.

Ameira amphibia, coast of Co. Down, p. 57, pl. i, figg. 1–11; BRADY, Nat. Hist. Tr. Northumb. xiv: *A. tenuicornis*, F. of Forth, p. 459, pl. xxiv, figg. 1–9, *propinqua*, F. of Forth, p. 460, pl. xxiv, figg. 10–18; SCOTT, T., Rep. Fish. Board Scotland xx (3), **n. spp.**

Anchorella denticis, p. 42, pl. i, figg. 14 & 15; BRIAN, Atti Soc. Ligustica xiii.

Anomalocera, p. 138, *patersoni*, p. 139, pls. xcii & xciv; SARS, Crust. Norway iv.

Arietellidæ **n. fam.**, p. 123; SARS, t. c.

Augaptilus glacialis, Polar Sea, p. 88, pls. xxvi & xxvii; SARS, Norw. N. Polar Exp. Crust.: *A. zetesios*, Faröe Channel, p. 369, pl. iii; WOLFENDEN, J. Mar. Biol. Ass. vi, **n. spp.**

Boeckella, key to spp., p. 234, *dubia*, p. 236, pl. vi, figg. 1 & 2, *entzii*, p. 239, pl. vi, figg. 3–9, *longicauda*, p. 243, pl. vi, figg. 10–14 & 16, *brasiliensis*, p. 247, pls. vi, fig. 15, vii, figg. 1–6, *silvestrii*, p. 251, pl. vii, figg. 7–15; DADAY, Termes. Fuzetek xxv.

Boeckellina **n. g.** (*Centropagidæ*), p. 11, *michaelseni*, S. Tierra del Fuego, p. 11, pls. i, figg. 5, 10, 20 & 23, ii, figg. 31, 33 & 36, iii, figg. 47, 48 & 54; MRÁZEK, Copep. Hamb. Magalh. Sammelreise, **n. sp.**

Boeckellopsis **n. g.** (*Centropagidæ*), p. 6, *bergi* (Richard), p. 7, pls. i, figg. 1–4, ii, figg. 35 & 37, iii, figg. 42–44 & 49; MRÁZEK, t. c.

Bomolochus unicirrus, p. 30, pl. i, figg. 1–8; BRIAN, Atti Soc. Ligustica xiii: *B.*, p. 288, *soleæ* var. (on Ling) p. 288, pl. xiii, figg. 13–18; SCOTT, T., Rep. Fish. Board Scotland xx (3).

B. onosi, Scotland (on *Onos mustelus*), p. 289, pl. xiii, figg. 19–22, *zeugopteri*, Clyde (on *Zeugopterus punctatus*), p. 290, pl. xiii, figg. 23–25; SCOTT, T., t. c. **n. spp.**

Brachiella thynni, abnormality; BRIAN, Bull. Mus. Genova, No. 104 (1901).

Bryaxis **n. g.** (Boeck MS.) (*Ætideidæ*) *brevicornis* (Boeck MS.), Norway, p. 35, pls. xxii & xxiii; SARS, Crust. Norway iv, **n. sp.**

Calanopia elliptica, p. 40, pls. iii, figg. 11–19, iv, figg. 1 & 2; CLEVE, Svenska Ak. Handl. xxxv, No. 5.

C. aurivillii, Indo-Malay Seas, p. 37, pls. ii, figg. 17–23, iii, figg. 1–10; CLEVE, t. c.: *C. minor*, Red Sea and Indian Ocean, p. 406, pl. i, figg. 1–5; SCOTT, A., P. Liverp. biol. Soc. xvi, **n. spp.**

Calanus finmarchicus, seasonal distribution etc., p. 56; GRAN, Rep. Norwegian Fishery Invest. ii, No. 5: variation, p. 502, text-figg. 1–4; MRÁZEK, Fauna Arctica ii: *C. propinquus*, p. 16, pl. i, figg. 1–8; GIESBRECHT, Copepoden, "Belgica."

C. simillimus (= *C. propinquus* Giesbrecht, 1902, non Brady), S.W. Atlantic, p. 16, pl. i, fig. 9, *acutus*, Antarctic Seas, p. 17, pl. i, figg. 10–14; GIESBRECHT, t. c. **n. spp.**

Caligus minimus, p. 349, pl. 1, figg. 1–8; SCOTT, A., P. Liverp. biol. Soc. xv: *C. lacustris*, in lake Furesö; WESENBERG-LUND, Ov. Danske Selsk. 1902, p. 277.

C. brevicaudatus (on *Trigla gurnardus*), Liverpool Bay, p. 349, pl. ii, figg. 7–10; Scott, A., P. Liverp. biol. Soc. xv: *C. labracis*, Clyde (on *Labrax mixtus*), p. 291, pl. xiii, figg. 26–29; SCOTT, T., Rep. Fish. Board Scotland xx (3): **n. spp.**

Cancerilla tubulata, p. 473, pl. xxv, fig. 7; SCOTT, T., t. c.

Candacia, p. 133, *norvegica*, p. 134, pls. lxxxix & xc, *armata*, p. 135, pl. xci; SARS, Crust. Norway iv.

C. bradyi, Aden, p. 406, pl. i, figg. 9–12; SCOTT, A., P. Liverp. biol. Soc. xvi, **n. sp.**

Candaciidæ, p. 132; SARS, Crust. Norway iv.

Canthocamptus trispinosus, p. 211, pl. ii, figg. 1 & 2, *northumbricus*, p. 211, pl. iii, figg. 3–10; DADAY, Termes. Fuzetek xxv: *C.*, p. 4, *staphylinus*, p. 5, pl. i, figg. 1–6, *horridus*, p. 10, pl. i, figg. 7–9, *trispinosus*, p. 13, pl. i, figg. 10–12, *minutus*, p. 20, pl. ii, figg. 1–4, *crassus*, p. 22, pl. ii, figg. 5–7, *gracilis*, p. 26, pl. ii, figg. 8–13, *pygmæus*, p. 33, pl. ii, figg. 20–22, *duthiei*, p. 41, pl. iii, figg. 5–10, *brevipes*, p. 44, pl. iii, figg. 11–14, *schmeilii*, p. 48, pl. iii, figg. 15–18, (*Nitocra*) *hibernicus*, p. 57, pl. iv, figg. 6–9; LILLJEBORG, Svenska Ak. Handl. xxxvi (1).

C. longisetosus, Patagonia, p. 213, pl. ix, figg. 2–8; DADAY, Termes. Fuzetek xxv: *C. rubellus*, p. 16, pl. i, figg. 13–16, *megalops*, p. 30, pl. ii, figg. 14–19, *arcticus*, p. 37, pls. ii, fig. 23, iii, figg. 1–4, *insignipes*, p. 53, pl. iv, fig. 1–5, Sweden; LILLJEBORG, Svenska Ak. Handl. xxxvi (1): *C. glacialis*, Nova Zembla, p. 3, pl. i, figg. 1–6, *nordenskiöldii*, N. Siberia, p. 8, pls. i, fig. 7, ii, figg. 1–7, *similis*, Nova Zembla, p. 14, pl. iii, figg. 1–11; LILLJEBORG, Bih. Svenska Ak. xxviii (4), No. 9: *C. crenulatus*, Chile, p. 21, pl. iv, figg. 63–70, *lanatus*, Uruguay, p. 22, pl. iv, figg. 71 & 72; MRÁZEK, Copep. Hamb. Magalh. Sammelreise: **n. spp.**

Centropages, p. 74, *typicus*, p. 75, pls. xlix–li, *hamatus*, p. 76, pl. lii; SARS, Crust. Norway iv: *C. elongatus*, p. 404, pl. i, figg. 13 & 14; SCOTT, A., P. Liverp. biol. Soc. xvi.

C. bradyi, Woods Hole, p. 174, figg. 12*a–f*; WHEELER, Bull. U. S. Fish Comm. xix, **n. sp.**

Centropagidæ, p. 73; SARS, Crust. Norway iv.

Chiridius tenuispinus, p. 30, pl. xviii; SARS, t. c.: *C. armatus*, p. 64, pl. xvii; SARS, Norw. N. Polar Exp. Crust.

C. obtusifrons, Norwegian Seas, p. 29, pl. xvii; SARS, Crust. Norway iv: *C. tenuispinus*, p. 67, pl. xviii, *brevispinus*, p. 68, pl. xix, Polar Sea; SARS, Norw. N. Polar Exp. Crust.: **n. spp.**

Chondracanthus ornatus, p. 298, pl. xiii, figg. 34; SCOTT, T., Rep. Fish. Board Scotland xx (3).

Clavella labracis, p. 292, pl. xiii, figg. 10–12; SCOTT, T., t. c.

C., p. 37, *sargi* ("Valle, nondum descripta") (on *Sargus Salviani* etc.), Genoa, p. 36, pl. i, fig. 9–13; BRIAN, Atti Soc. Ligustica xiii: *C. cluthæ*, Clyde (on *Ctenolabrus rupestris*), p. 292, pl. xii, figg. 26–31; SCOTT, T., Rep. Fish. Board Scotland xx (3): **n. spp.**

Cletodes longicaudata, p. 465, pl. xxiii, figg. 26–33; SCOTT, T., t. c.
Corycæus gibbulus, p. 41, pl. iv, figg. 3–10, *gracilicaudatus*, p. 42, pl. iv, figg. 11–15; CLEVE, Svenska Ak. Handl. xxxv, No. 5.
Corynura bumpusii, Woods Hole, p. 184, figg. 21*a–g*; WHEELER, Bull. U. S. Fish Comm. xix, **n. sp.**
Cyclopina belgicæ, Antarctic Seas, p. 30, pl. vii, figg. 1–15; GIESBRECHT, Copepoden, "Belgica," **n. sp.**
Cyclops prasinus, p. 206, pl. iii, figg. 3–10, *vernalis*, p. 208, pl. ii, fig. 11, *anceps*, p. 443; DADAY, Termes. Fuzetek xxv: *C. viridis* and *C. fuscus*, experiments on regeneration, p. 469; HÜBNER, Zool. Jahrb. Syst. xv: *C. strenuus*, oogenesis and spermatogenesis; LERAT, Anat. Anz. xxvi, p. 407: *C. vernalis* var., p. 17, pl. iv, figg. 61 & 62, *mendocinus*, p. 18, pls. iii, fig. 55, iv, fig. 56, *anceps*, p. 20; MRÁZEK, Copep. Hamb. Magalh. Sammelreise.
C. eboracensis, Yorkshire coast, p. 56, pl. i, figg. 12–14; BRADY, Nat. Hist. Tr. Northumb. xiv: *C. spinifer*, Patagonia, p. 208, pl. ii, figg. 12–18; DADAY, Termes. Fuzetek xxv: *C. michaelseni*, Falkland Is., p. 17, pl. iv, figg. 57–60; MRÁZEK, Copep. Hamb. Magalh. Sammelreise: *C. cavernarum*, p. 95, pl. xv, fig. 18, *learii*, p. 95, pl. xv, fig. 19, in well, San Marcos, Texas; ULRICH, Tr. Amer. micr. Soc. xxiii, **n. spp.**
Dactylopus platycheles, coast of Durham, p. 61, pl. iii, figg. 1–10; BRADY, Nat. Hist. Tr. Northumb. xiv: *D. crassus*, Punta Arenas, p. 33, pl. x, figg. 14–23, *antarcticus*, Antarctic Seas, p. 34, pl. x, figg. 1–13; GIESBRECHT, Copepoden, "Belgica": *D. robinsonii*, Indian Ocean, p. 415, pl. iii, figg. 1–5; SCOTT, A., P. Liverp. biol. Soc. xvi, **n. spp.**
Deguernea **nom. nov.** for *Guernea* Thomson, preocc., p. 465; THOMSON, Ann. Nat. Hist. (7) x.
Delavalia inopinata, Red Sea and Indian Ocean, p. 411, pl. iii, figg. 19–22, *minuta*, Red Sea and Indian Ocean, p. 412, pl. iii, figg. 15–18; SCOTT, A., P. Liverp. biol. Soc. xvi, **n. spp.**
Diaptomidæ **n. fam.**, p. 83; SARS, Crust. Norway iv.
Diaptomus, p. 84, *castor*, p. 85, pls. lvii & lviii, *denticornis*, p. 87, pl. lix, *baccillifer*, p. 88, pl. lx, *laticeps*, p. 90, pl. lxi, *laciniatus*, p. 91, pl. lxii, *gracilis*, p. 92, pl. lxiii, *graciloides*, p. 94, pl. lxiv; SARS, Crust. Norway iv: *D. castor* and *D. gracilis*, experiments on regeneration, p. 469; HÜBNER, Zool. Jahrb. Syst. xv: *D. denticornis* and *laciniatus*, development of genital cells; HÄCKER, Anat. Anz. p. 440.
D., n. sp., Argentina, p. 14, pl. i, figg. 17 & 18, *michaelseni*, Argentina, p. 15, pls. i, figg. 19 & 22, ii, figg. 40 & 41; MRÁZEK, Copep. Hamb. Magalh. Sammelreise, **n. spp.**
Diaxidæ **n. fam.**, p. 57; SARS, Crust. Norway iv.
Diaxis **n. g.** (*Diaxidæ*) p. 58, *hibernica*, p. 59, pls. xxxix & xl; SARS, t. c.
Echinocheres **n. g.** (*Asterocheridæ*) *globosus* (parasitic in spines of *Culveria gracilis*), Philippine Is., p. 437, pl. xv; HANSEN, Vid. Medd. 1902, **n. sp.**
Ectinosoma edwardsi, p. 66; LILLJEBORG, Svenska Ak. Handl. xxxvi (1): *E. melaniceps*, (?) var., p. 457, pl. xxii, figg. 10–16; SCOTT, T., Rep. Fish. Board Scotland xx (3).
E. antarcticum, Antarctic Seas, p. 31, pl. xii, figg. 7–17; GIESBRECHT, Copepoden, "Belgica," **n. sp.**
Ergasilus trisetaceus (?), p. 440, fig. 2*a–h*; DADAY, Termes. Fuzetek xxv.
E. biuncinatus (on *Gasterosteus aculeatus* and *G. pugnitius*), Finland, p. 98; GADD, Medd. Soc. Faun. Fenn. xxvii, **n. sp.**
Euchætidæ (= *Euchætinæ* Giesbrecht), p. 36; SARS, Crust. Norway iv.
Euchæta, p. 37, *norvegica*, p. 38, pls. xxiv–xxvi, *glacialis*, p. 40, pl. xxvii, *barbata*, p. 41, pl. xxviii; SARS, t. c.
E. antarctica, Antarctic Seas, p. 21, pl. iii, figg. 1–8, *austrina*, Antarctic Seas, p. 22, pl. iii, figg. 9–16; GIESBRECHT, Copepoden, "Belgica," **n. spp.**

Euchirella (?) *rostrata* (var.), p. 367; WOLFENDEN, J. Mar. Biol. Ass. vi.
E. carinata, Faröe Channel, p. 366; WOLFENDEN, t. c. **n. sp.**
Eudactylina acuta, p. 293, pl. xii, figg. 20–25, *acanthii*, p. 296, pl. xiii, figg. 1–9; SCOTT, T., Rep. Fish. Board Scotland xx (3).
E. similis, Scotland (on *Raia radiata*), p. 295, pl. xii, figg. 1–19; SCOTT, T., t. c. **n. sp.**
Eurytemora, p. 99, *velox*, p. 100, pls. lxvii & lxviii, *hirundoides*, p. 102, pl. lxix, *lacustris*, p. 103, pl. lxx; SARS, Crust. Norway iv.
Fultonia **n. g.** (*Harpacticidæ*), p. 465, *hirsuta*, F. of Forth, p. 466, pl. xxiii, figg. 5–12; SCOTT, T., Rep. Fish. Board Scotland xx (3), **n. sp.**
Gaidius tenuispinus, p. 512, text-figg. 7–9; MRÁZEK, Fauna Arctica ii.
G. boreale, Faröe Channel, p. 365; WOLFENDEN, J. Mar. Biol. Ass. vi, **n. sp.**
Haloptilus, p. 120, *longicornis*, p. 121, pls. lxxxii & lxxxiii, fig. 1, *acutifrons*, p. 122, pl. lxxxiii, fig. 2; SARS, Crust. Norway iv.
Harpacticidæ, key to Swedish fresh-water gg. and spp., p. 4; LILLJEBORG, Svenska Ak. Handl. xxxvi (1).
Harpacticus gracilis, p. 62, pl. iv, figg. 4–12; BRADY, Nat. Hist. Tr. Northumb. xiv: *H. chelifer*, p. 35, pl. viii, figg. 1–12, *brevicornis*, p. 36, pl. ix, figg. 1–14; GIESBRECHT, Copepoden, "Belgica": *H. chelifer* var. *Scotti* **nom. nov.** for var. *arcticus*, Scott non Poppe, p. 518; MRÁZEK, Fauna Arctica ii.
H. furcifer, Antarctic Seas, p. 37, pl. ix, figg. 15–19; GIESBRECHT, Copepoden, "Belgica," **n. sp.**
Hatschekia **nom nov.** for *Clavella* Bassett-Smith non Oken, p. 16; POCHE, Zool. Anz. xxvi.
Hemicalanus spinifrons, Polar Sea, p. 95, pl. xxviii; SARS, Norw. N. Polar Exp. Crust. **n. sp.**
Herpyllobius, structure and systematic place; HANSEN, Danmarks Stilling og Tilstand ii, pp. 124–205.
Heterarthrandria, p. 72; SARS, Crust. Norway iv.
Heterochæta norvegica, p. 79, pl. xxiii; SARS, Norw. N. Polar Exp. Crust.
H. compacta, p. 83, pls. xxiv & xxv, Polar Sea; SARS, t. c.: *H. zetesios*, Faröe Channel, p. 367; WOLFENDEN, J. Mar. Biol. Ass. vi: **n. spp.**
Heterocope, p. 104, *saliens*, p. 106, pls. lxxi & lxxii, *borealis*, p. 107, pl. lxxiii, *appendiculata*, p. 109, pl. lxxiv; SARS, Crust. Norway iv: *H. saliens*, development of genital cells; HÄCKER, Anat. Anz. p. 440.
Heterorhabdidæ **n. fam.**, p. 117; SARS, Crust. Norway iv.
Heterorhabdus, p. 117, *norvegicus*, p. 118, pls. lxxx & lxxxi; SARS, t. c.
H. austrinus, Antarctic Seas, p. 28, pl. vi, figg. 1–9; GIESBRECHT, Copepoden, "Belgica," **n. sp.**
Idya tenuimana, Antarctic Seas, p. 38, pl. xi, figg. 8–13, *racovitzai*, p. 38, pl. xi, figg. 1–7; GIESBRECHT, t. c. **n. spp.**
Iliophilus **n. g.** (*Harpacticidæ*, *Nannopodina*), p. 61, *flexibilis*, Sweden, p. 62, pl. iv, figg. 10–24; LILLJEBORG, Svenska Ak. Handl. xxxvi (i), **n. sp.**
Isias, p. 78, *clavipes*, p. 79, pls. liii & liv; SARS, Crust. Norway iv.
Isokerandria **n. sect.** of *Copepoda Calanoida*, p. 56; SARS, t. c.
Labidocera, p. 141, *wollastoni*, p. 142, pls. xcv & xcvi; SARS, t. c.
L. æstiva, Woods Hole, p. 178, figg. 16*a–f*; WHEELER, Bull. U. S. Fish Comm. xix, **n. sp.**
Laophonte subsalsa, Irish Coast, p. 60, pl. ii, figg. 1–11; BRADY, Nat. Hist. Tr. Northumb. xiv: *L. inornata*, Red Sea, p. 413, pls. i, fig. 16, ii, figg. 9–14, *herdmani*, Red Sea, p. 414, pls. i, fig. 15, ii, figg. 3–8; SCOTT, A., P. Liverp. biol. Soc. xvi, **n. spp.**
Leptopontia **n. g.** (*Harpacticidæ*), p. 462, *curvicauda*, F. of Forth, p. 463, pl. xxii, figg. 26–35; SCOTT, T., Rep. Fish. Board Scotland xx (3), **n. sp.**
Lernæopoda extumescens (on *Coregonus* spp.), Finland, p. 100; GADD, Medd. Soc. Faun. Fenn. xxvii, **n. sp.**

Lichomolgus minor, Red Sea, p. 417, pls. i, fig. 17, ii, figg. 15–24; SCOTT, A., P. Liverp. biol. Soc. xvi, **n. sp.**

Limnocalanus, distribution; STEUER, Zool. Jahrb. Syst. xv, p. 142, pl. ix. [Misplaced under *Cladocera*, Zool. Rec. 1901.]

L. sarsii, p. 256, pls. vii, figg. 16–20, viii, figg. 1–13; DADAY, Termes. Fuzetek xxv: *L.*, p. 80, *macrurus*, p. 81, pls. lv & lvi; SARS, Crust. Norway iv.

Lubbockia glacialis, Polar Sea, p. 114, pl. xxxiii; SARS, Norw. N. Polar Exp. Crust., **n. sp.**

Mesochra deitersi, p. 215, pls. iii, figg. 11–18, iv, figg. 1–5; DADAY, Termes. Fuzetek xxv.

Metacalanus **n. g.** (*Calanidæ* or *Centropagidæ* near *Augaptilus* and *Paramisophria*), p. 43, *aurivillii*, Indo-Malay Seas, p. 43, pls. iv, figg. 16–25, v, figg. 1–6; CLEVE, Svenska Ak. Handl. xxxv, No. 5, **n. sp.**

Metridiidæ **n. fam.**, p. 110; SARS, Crust. Norway iv.

Metridia longa, p. 99, pl. xxix; SARS, Norw. N. Polar Exp. Crust.: *M.*, p. 110, *longa*, p. 112, pls. lxxv & lxxvi, *lucens*, p. 113, pl. lxxvii; SARS, Crust. Norway iv: *M. longa*, p. 454, pl. xxii, figg. 1–4; SCOTT, T., Rep. Fish. Board Scotland xx (3).

M. gerlachei, Antarctic Seas, p. 27, pl. v, figg. 6–14; GIESBRECHT, Copepoden, "Belgica," **n. sp.**

Monstrilla grandis (?), p. 64, pl. iv, figg. 1–3; BRADY, Nat. Hist. Tr. Northumb. xiv: *M. longiremis*, p. 469, pl. xxv, figg. 3 & 4; SCOTT, T., Rep. Fish. Board Scotland xx (3).

M. conjunctiva, Antarctic Seas, p. 40, pl. xii, figg. 1–6; GIESBRECHT, Copepoden, "Belgica," **n. sp.**

Monstrillidæ, p. 468; SCOTT, T., Rep. Fish. Board Scotland xx (3).

Mormonilla polaris, Polar Sea, p. 120, pl. xxxiv; SARS, Norw. N. Polar Exp. Crust., **n. sp.**

Mytilicola **n. g.** (*Dichelestiidæ*) *intestinalis* (in *Mytilus galloprovincialis*), Trieste, p. 635, figg. 1 & 2; STEUER, Zool. Anz. xxv, **n. sp.**

Nannopus palustris, p. 466, pl. xxiii, figg. 13–25; SCOTT, T., Rep. Fish. Board Scotland xx (3).

Nereicola concinna, W. Scotland (on *Eulalia viridis*), p. 455, pl. xxv, figg. 8–14; SCOTT, T., t. c. **n. sp.**

Nitocra gracillimana, Antarctic Seas, p. 32, pl. xi, figg. 14–21; GIESBRECHT, Copepoden, "Belgica," **n. sp.**

Normanella attennuata, p. 464, pl. xxiii, figg. 2–4; SCOTT, T., Rep. Fish. Board Scotland xx (3).

Oithona rigida, p. 45, pl. v, figg. 7–18; CLEVE, Svenska Ak. Handl. xxxv, No. 5: *O. similis*, p. 28; GIESBRECHT, Copepoden, "Belgica."

O. frigida, Antarctic Seas, p. 29, pl. vi, figg. 10–16; GIESBRECHT, t. c. **n. sp.**

Oncæa notopus, p. 41, pl. xiii, figg. 1–6, *conifera* with 3 varr., p. 41, pl. xiii, figg. 7–11; GIESBRECHT, t. c.: *O. notopus*, p. 107, pl. xxxii, figg. 1–14, *conifera*, p. 113, pl. xxxii, figg. 15 & 16; SARS, Norw. N. Polar Exp. Crust.

O. curvata, Antarctic Seas, p. 42, pl. xiii, figg. 12–17; GIESBRECHT, Copepoden, "Belgica," **n. sp.**

Orthagoriscicola **nom. nov.** for *Læmargus* Kröyer, p. 15; POCHE, Zool. Anz. xxvi.

Paraboeckella **n. g.** (*Centropagidæ*), p. 8, *brevicaudata* (Brady), p. 8, pls. i, figg. 6, 7, 12 & 21, ii, figg. 26, 27 & 29, iii, figg. 45, 46, 50 & 52; MRÁZEK, Copep. Hamb. Magalh. Sammelreise.

Parabroteas **n. g.** (*Centropagidæ*) *michaelseni*, S. Patagonia, p. 12, pls. i, figg. 8, 9, 15 & 16, ii, 25, 28, 32 & 38, iii, figg. 51 & 53; MRÁZEK, t. c. **n. sp.**

Paracalanus aculeatus, p. 47, pl. vi, figg. 1–10; CLEVE, Svenska Ak. Handl. xxxv, No. 5.

Paramisophria, p. 127, *cluthæ*, p. 128, pls. lxxxvi & lxxxvii; SARS, Crust. Norway iv.

Parastephos **n. g.** (*Stephidæ*), p. 65, *pallidus*, Norway, p. 65, pl. xliv; SARS, t. c. **n sp.**

Paratachidius **n. g.** (not *Paratachidius* Brady and Robertson 1873, cf. p. 68) (aff. *Tachidius*) p. 58, *inermis*, Yorkshire coast, p. 59, pls. ii, figg. 12–17, iv, figg. 13 & 14; BRADY, Nat. Hist. Tr. Northumb. xiv, **n. sp.**

Phaënna zetlandica, Shetland, p. 453, pl. xxii, figg. 5–7; SCOTT, T., Rep. Fish. Board Scotland xx (3), **n. sp.**

Phaënnidæ, **n. fam.**, p. 43; SARS, Crust. Norway iv.

Platypsyllus **n. g.** (*Ascidicolidæ*) p. 455, *minor*, F. of Forth, p. 455, pl. xxv, figg. 15 & 16; SCOTT, T., Rep. Fish. Board Scotland xx (3), **n. sp.**

Pleuromamma, p. 114, *robusta*, p. 115, pls. lxxviii & lxxix; SARS, Crust. Norway iv.

Pontella meadii, Woods Hole, p. 180, fig. 17 *a—e*; WHEELER, Bull. U. S. Fish Comm. xix, **n. sp.**

Pontellidæ (= *Pontellina* Giesbrecht), p. 137; SARS, Crust. Norway iv.

Pontellopsis krümeri, p. 423, pls. i, figg. 7 & 8, ii, figg. 1 & 2; SCOTT, A., P. Liverp. biol. Soc. xvi.

Pseudoboeckella **n. g.** (*Centropagidæ*), p. 5, *brasiliensis* (Lubbock), p. 5, pls. i, fig. 13, ii, figg. 24 & 30; MRÁZEK, Copep. Hamb. Magalh. Sammelreise.

Pseudoboeckella **n. g.** (aff. *Boeckella*), p. 218, key to spp. p. 218, *bergi*, p. 220, pl. iv, figg. 6–19, *gracilipes*, p. 224, pl. v, figg. 1–7, *pygmæa*, p. 231, pl. v, figg. 8–12; DADAY, Termes. Fuzetek xxv.

P. gracilis, Patagonia, p. 227, pl. ix, figg. 1, 9–17; DADAY, Termes. Fuzetek xxv, **n. sp.**

Pseudocalanus pygmæus, p. 20, pl. ii, figg. 1–5; GIESBRECHT, Copepoden, "Belgica": *P. elongatus*, p. 507, text-figg. 5 & 6, *pygmæus*, p. 508, pl. v, figg. 3 & 11; MRÁZEK, Fauna Arctica ii.

P. major, p. 69, pl. xx, *pygmæus*, p. 73, pl. xxi; SARS, Norw. N. Polar Exp. Crust. **n. spp.**

Pseudocaligus **n. g.** (*Caligidæ*), p. 350, *brevipedes*, p. 350, pl. ii, figg. 1–6; SCOTT, A., P. Liverp. biol. Soc. xv.

Pseudocyclops, p. 130, *obtusatus*, p. 131, pl. lxxxviii; SARS, Crust. Norway iv.

Pseudocyclopidæ, p. 129; SARS, t. c.

Pseudocyclopiidæ, **n. fam.**, p. 69; SARS, t. c.

Pseudocyclopia, p. 70, *stephoides*, p. 71, pls. xlvii & xlviii; SARS, t. c.

P. giesbrechtii, Shetland, p. 370, pl. iv; WOLFENDEN, J. Mar. Biol. Ass. vi, **n. sp.**

Pseudodiaptomus richardi, p. 13, pls. i, fig. 14, ii, fig. 39; MRÁZEK, Copep. Hamb. Magalh. Sammelreise: *P. serricaudatus*, p. 404, pl. i, fig. 6; SCOTT, A., P. Liverp. biol. Soc. xvi.

P. aurivillii, Indo-Malay Seas, p. 48, pls. vi, figg. 11–22, vii, figg. 1 & 2; CLEVE, Svenska Ak. Handl. xxxv, No. 5, **n. sp.**

Pseudomesochra **n. g.** (*Harpacticidæ*), p. 461, *longifurcata*, W. Scotland, p. 462, pl. xxiv, fig. 27–35; SCOTT, T., Rep. Fish. Board Scotland xx (3), **n. sp.**

Pseudophaënna **n. g.** (*Phaënnidæ*), p. 43, *typica*, Norway, p. 44, pls. xxix & xxx; SARS, Crust. Norway iv, **n. sp.**

Pseudopsyllus **n. g.** (*Lichomolgidæ*), p. 471, *elongatus*, F. of Forth, p. 471, pl. xxiv, figg. 36–42; SCOTT, T., Rep. Fish. Board Scotland xx (3), **n. sp.**

Pseudothalestris monensis, I. of Man, p. 59, pl. iii, figg. 11–16; BRADY, Nat. Hist. Tr. Northumb. xiv, **n. sp.**

Racovitzanus **n. g.** (*Calanidæ*), p. 26, *antarcticus*, Antarctic Seas, p. 26, pls. iv, figg. 8–13, v, figg. 1–5; GIESBRECHT, Copepoden, "Belgica," **n. sp.**

Rebelula **nom. nov.**, for *Lophoura* Kölliker non Fleming, p. 17; POCHE, Zool. Anz. xxvi.
Reticulina aurivillii, Indo-Malay Seas, p. 50, pl. vii, figg. 3–10; CLEVE, Svenska Ak. Handl. xxxv, No. 5, **n. sp.**
Rhincalanus grandis, Antarctic Seas, p. 18, pl. i, figg. 15–18; GIESBRECHT, Copepoden, "Belgica," **n. sp.**
Rhizorhina, structure and systematic place; HANSEN, Danmarks Stilling og Tilstand ii, pp. 124–205.
Salenskya tuberosa, p. 474, pl. xxv, figg. 17–22; SCOTT, T., Rep. Fish. Board Scotland xx (3).
Scaphocalanus **n. g.** (*Scolecithricidæ*) p. 35, *acrocephalus*, Polar Sea, p. 36, pls. vii, viii, ix; SARS, Norw. N. Polar Exp. Crust. **n. sp.**
Scolecithricella **n. g.** (*Scolethricidæ*), p. 54, *minor*, p. 55, pls. xxxvii & xxxviii; SARS, Crust. Norway iv.
Scolecithricidæ **fam nov.**, p. 49; SARS, t. c.
Scolecithrix brevicornis, p. 452, pl. xxv, figg. 1 & 2; SCOTT, T., Rep. Fish. Board Scotland xx (3).
S. glacialis, Antarctic Seas, p. 25, pl. iv, figg. 1–7; GIESBRECHT, Copepoden, "Belgica": *S. römeri*, Arctic Sea, p. 513, pl. vi, text-fig. 10–13; MRÁZEK, Fauna Arctica ii: *S. brevicornis*, Polar Sea, p. 46, pl. x; SARS, Norw. N. Polar Exp. Crust.: **n. spp.**
Scottocheres stylifer, Antarctic Seas, p. 39, pl. vii, figg. 16–23; GIESBRECHT, Copepoden, "Belgica," **n. sp.**
Scottula **n. g.** (*Arietellidæ*), p. 124, *inæquicornis*, p. 125, pls. lxxxiv & lxxxv; SARS, Crust. Norway iv, **n. sp.**
Spinocalanus schaudinni, 81° 32′ N. Lat., p. 509, pls. iv & v, fig. 1; MRÁZEK, Fauna Arctica ii: *S. longicornis*, Polar Sea, p. 75, pl. xxii; SARS, Norw. N. Polar Exp. Crust.: **n. spp.**
Staurosoma parasiticum, parasitic in *Anemonia sulcata*; CAULLERY & MESNIL, C.R. Ac. Sci. cxxxiv, p. 1314; C.R. Soc. Biol. liv, pp. 629–632, figg. 1–3.
Stenhelia hispida (?) p. 457, pl. xxiv, figg. 19–26; SCOTT, T., Rep. Fish. Board Scotland xx (3).
S. irrasa, Red Sea, p. 410, pl. iii, figg. 6–10, *erythræa*, Red Sea, p. 411, pl. iii, figg. 11–14; SCOTT, A., P. Liverp. biol. Soc. xvi: *S. confusa*, F. of Forth, p. 459, pl. xxii, figg. 17–25; SCOTT, T., Rep. Fish. Board Scotland xx (3): **n. spp.**
Stephidæ **n. fam.**, p. 60; SARS, Crust. Norway iv.
Stephos, p. 61, *lamellatus*, p. 62, pls. xli & xlii, *scotti*, p. 63, pl. xliii, Norway; SARS, t. c.: *Stephus longipes*, Antarctic Seas, p. 20, pl. ii, figg. 6–14; GIESBRECHT, Copepoden, "Belgica": **n. spp.**
Temora, p. 96, *longicornis*, p. 97, pls. lxv & lxvi; SARS, Crust. Norway iv.
Temoridæ **n. fam.**, p. 95; SARS, t. c.
Temorites **n. g.** (*Temoridæ*) *brevis*, Polar Sea, p. 100, pls. xxx & xxxi; SARS, Norw. N. Polar Exp. Crust., **n. sp.**
Tharybis **n. g.** *macrophthalma*, Norway, p. 68, pls. xlv & xlvi; SARS, Crust. Norway iv, **n. sp.**
Tharybidæ **n. fam.**, p. 66; SARS, t. c.
Thaumaleus thompsoni, p. 470, pl. xxv, figg. 5 & 6; SCOTT, T., Rep. Fish. Board Scotland xx (3).
Tortanus gracilis, p. 51, pl. vii, figg. 11–14; CLEVE, Svenska Ak. Handl. xxxv, No. 5.
Undeuchæta spectabilis, p. 59, pls. xv & xvi, Polar Sea; SARS, Norw. N. Polar Exp. Crust., **n. sp.**
Undinella **n. g.** (*Scolecithricidæ*) p. 51, *oblonga*, p. 52, pls. xii & xiii, Polar Sea; SARS, t. c. **n. sp.**
Undinopsis, p. 31, *bradyi*, p. 32, pls. xix & xx; SARS, Crust. Norway iv.
U. similis, Norway, p. 34, pl. xxi; SARS, t. c. **n. sp.**

Xanthocalanus, p. 45, *borealis*, p. 46, pls. xxxi & xxxii; SARS, t. c.: *X. borealis* (?), p. 452, pl. xxii, figg. 8 & 9; SCOTT, T., Rep. Fish. Board Scotland xx (3).

X. borealis, Polar Sea, p. 49, pl. xi; SARS, Norw. N. Polar Exp. Crust.: *X. propinquus*, Norway, p. 48, pl. xxxiii; SARS, Crust. Norway iv, **n. spp.**

3. BRANCHIURA.

Argulidæ, habits etc., p. 641, development, p. 654, external and internal anatomy, p. 675, def. and key to gg. and spp. p. 701; WILSON, P. U. S. Mus. xxv.

Argulus latus, p. 704, pl. ix, *laticauda*, p. 705, pls. x & xxvi, fig. 79, *megalops*, p. 706, pls. xi & xxvi, fig. 81, *alosæ*, p. 707, pls. xii & xxvi, fig. 80, *catostomi*, p. 709, pl. xiii, *funduli*, p. 710, pl. xiv, *pugettensis*, p. 711, pl. xv, *lepidostei*, p. 712, pl. xvi, *stizostethii*, p. 713, pl. xvii, *nattereri*, p. 720, pl. xxii, fig. 63, *salmini*, p. 720, pl. xxii, fig. 64, *chromidis*, p. 721, pl. xxii, fig. 62, *elongatus*, p. 722, pl. xxii, fig. 61, *foliaceus*, p. 722, pl. xxiv, fig. 69, *purpureus*, p. 723, pl. xxiii, fig. 65, *coregoni*, p. 724, pl. xxiv, figg. 70 & 71, *melita*, p. 725, pl. xxiii, fig. 66, *dactylopteri*, p. 726, pl. xxiii, figg. 67 & 68, *indicus*, p. 727, *africanus*, p. 727, *japonicus*, p. 727, *scutiformis*, p. 728, *phoxini*, p. 728, pl. xxvii, fig. 91; WILSON, P. U. S. Mus. xxv.

Argulus niger, Oregon, p. 714, pl. xviii, *maculosus* (on *Esox nobilis*), New York, p. 715, pls. xix & xxvi, fig. 82, *versicolor* (on *Lucius reticulatus*), Massachusetts, p. 716, pls. xx & xxvi, fig. 83, *americanus* (on *Amia calva*), Michigan, p. 718, pls. xxi & xxvi, figg. 84–86; WILSON, t. c. **n. spp.**

Chonopeltis, p. 729, *inermis*, p. 729; WILSON, t. c.

Dolops, p. 730, *longicauda*, p. 732, pl. xxv, fig. 76, *kollari*, p. 732, pl. xxv, fig. 77, *doradis*, p. 733, pl. xxv, fig. 75, *reperta*, p. 734, pl. xxvii, fig. 87, *striata*, p. 735, *bidentata*, p. 736, pl. xxvii, fig. 88, *geayi*, p. 736, pl. xxv, fig. 78, *ranarum*, p. 737, pl. xxvii, figg. 89 & 90, *discoidalis*, p. 739; WILSON, t. c.

4. OSTRACODA.

Aglaia meridionalis, p. 418, pl. i, figg. 37–39, *pusilla*, p. 419, pl. i, figg. 33–36; EGGER, Abh. Bayer. Ak. xxi.

†*Aparchites minutissimus* var. *robustus* **n. var.**, Trenton Limestone, Albany, N. Y., p. 74, pl. vii, figg. 6–11; RUEDEMANN, Bull. N. York Mus. xlix.

Argillœcia badia, p. 422, pl. iv, figg. 6 & 7, *eburnea*, p. 422, pl. iv, figg. 49–51; EGGER, Abh. Bayer. Ak. xxi.

A. affinis, Funafuti, p. 419, pl. xxxvii, figg. 1*a–c*; CHAPMAN, J. Linn. Soc. xxviii, **n. sp.**

Asterope oculata, Ceylon and Cruz Bay, p. 179, pl. xxi, figg. 6–13, *lichenoides*, China Sea, p. 180, pl. xxiii, figg. 22–24; BRADY, Tr. Zool. Soc. London xvi, **n. spp.**

Bairdia acanthigera, p. 425, pl. ii, figg. 16–19, *attenuata*, p. 425, pl. ii, figg. 9–12, *cambrica*, p. 426, pl. i, figg. 7–9, *crosskeyana*, p. 426, pl. ii, figg. 22–24, *foveolata*, p. 426, pl. ii, figg. 1–4, *fusca*, p. 427, pl. vii, figg. 46–49, *minima*, p. 427, pl. ii, figg. 13–15, *obtusata*, p. 427, pl. ii, figg. 5–8, *ovoidea*, p. 428, pl. iv, figg. 32 & 33, *subdeltoidea*, p. 428, pl. ii, figg. 20 & 21, *villosa*, p. 429, pl. ii, figg. 25–27; EGGER, Abh. Bayer. Ak. xxi.

B. longisetosa, W. Indies, p. 197, pl. xxv, figg. 8 & 9; BRADY, Tr. Zool. Soc. London xvi, **n. sp.**

†*B. beadnelli*, p. 66, pl. v, figg. 1*a–c*, *minuta*, p. 66, pl. v, figg. 2*a–c*, Libyan Eocene, Egypt; CHAPMAN, Geol. Mag. (4) ix, **n. spp.**

†*Beyrichia kloedeni* var. *granulata* **n. var.**, p. 110, pl. xvi, fig. 8, *maccoyiana*, var. *australiæ* **n. var.**, p. 111, pl. xvi, fig. 7, Silurian, Victoria; CHAPMAN, P. Soc. Victoria.

†*B. wooriyallockensis*, p. 110, pl. xvi, fig. 6, *kilmoriensis*, p. 112, pl. xvi. fig. 9, *ligatura*, p. 112, pl. x, fig. 10, Silurian, Victoria; CHAPMAN, P. Soc. Victoria xv, **n. spp.**

†*Bollia cornucopiæ*, Trenton Limestone, Albany, N. Y., p. 82, pl. vi, figg. 1 & 2; RUEDEMANN, Bull. N. York Mus. xlix, **n. sp.**

†*Bradoria scrutator*, p. 452, pl. ii, figg. 1*a–c*, *vigilans*, p. 454, pl. ii, figg. 2*a–c*, mutation *obesa* **nov.**, p. 455, *rugulosa*, p. 456, pl. ii, figg. 3*a–d*; MATTHEW, Canad. Rec. viii.

†*B.* (*Bradorona*) *perspicator*, Cambrian, Cape Breton, p. 444, pl. i, figg. 8*a–d*, mutation *maxima* **nov.**, p. 445, pl. i, figg. 9*a–b*, mutation *magna* **nov.**, p. 446, pl. i, figg. 11*a* & *b*, mutation *major* **nov.**, p. 446, pl. i, figg. 10*a* & *b*, *B. spectator*, Cambrian, Cape Breton, p. 447, pl. i, figg. 12*a–d*, var. *acuta* **n. var.**, p. 447, mutation *spinosa* **nov.**, p. 448, pl. i, figg. 13*a* & *b*, mutation *æquata* **nov.**, p. 448, pl. i, figg. 14*a* & *b*, *B. observator*, Cambrian, Cape Breton, p. 448, pl. i, figg. 15*a–c*, var. *benepuncta* **n. var.**, p. 449, pl. i, fig. 16, mutation *lævis* **nov.**, p. 450, mutation *ligata* **nov.**, p. 451, pl. i, fig. 17; MATTHEW, t. c. **n. spp.**

†*B.* (?) *ornata*, Cambrian, Cape Breton, p. 456, pl. ii, figg. 4*a–c*; MATTHEW, t. c. **n. sp.**

†*Bradorona* **n. subg.** of *Bradoria* (q.v.), p. 444; MATTHEW, t. c.

Bythocypris elongata, p. 424, pl. i, figg. 48–50, *reniformis*, p. 425, pl. i, figg. 40 & 41; EGGER, Abh. Bayer. Ak. xxi.

†*B. cylindrica*, p. 86, pl. vii, figg. 26–28; RUEDEMANN, Bull. N. York Mus. xlix.

†*B.* (?) *mytiloides*, Permian, Bohemia, p. 76, pl. 161, fig. 7; FRITSCH, Fauna der Gaskohle iv (3), **n. sp.**

Bythocythere constricta, p. 462, pl. vii, figg. 26–28, *undulata*, p. 463, pl. v, figg. 26–31, *velifera*, p. 463, pl. v, figg. 32–34; EGGER, Abh. Bayer. Ak. xxi.

B. armata, Tutanga, p. 432, pl. xxxvii, figg. 6*a* & *b*; CHAPMAN, J. Linn. Soc. xxviii: *B. lævigata*, Australia, p. 462, pl. ii, figg. 32–34; EGGER, Abh. Bayer. Ak. xxi : **n. spp.**

†*Candona candida*, p. 17, figg. 35; CAPEDER, Atti Acc. Torino xxxvii.

†*C. glabra*, Miocene, Piedmont, p. 17, fig. 36; CAPEDER, t. c. **n. sp.**

Candonopsis, p. 196, *complanata*, N. Africa, p. 196, pl. xxv, figg. 30–36; BRADY, Tr. Zool. Soc. London xvi, **n. sp.**

Codonocera **n. g.** (=? *Heterodesmus* Brady) (*Cypridinidæ*) *cruenta*, Pulo Penang, p. 188, pl. xxii, figg. 1–10; BRADY, t. c. **n. sp.**

†*Carbonia salteriana*, p. 76, pl. 160, fig. 15, *fabulina*, p. 76, pl. 160, figg. 13 & 14; FRITSCH, Fauna der Gaskohle iv (3).

Conchoecia, p. 1, key to spp., p. 9, *elegans*, p. 3, figg. 1–3, *borealis*, p. 4, figg. 4–7, *obtusata*, p. 5, figg. 8–10, *daphnoides*, p. 6, figg. 11–14, *imbricata*, p. 8, figg. 15 & 16, *haddoni*, p. 9, fig. 17; MÜLLER, Nordisches Plankton vii: *C. maxima*, p. 127, pls. xxxv & xxxvi; SARS, Norw. N. Polar Exp. Crust.

Conchæcissa cucullata, N. Atlantic, p. 191, pl. xxiv, figg. 1–8; BRADY, Tr. Zool. Soc. London xvi, **n. sp.**

Crossophorus, p. 78, *africanus*, p. 79, pls. xv*a* & xvi; STEBBING, S. African Crust. ii.

Cyclasterope, p. 181, *brevis*, p. 183, pl. xxiv, figg. 16–22; BRADY, Tr. Zool. Soc. London xvi.

*C. fasciger*a, Java and Madeira, p. 181, pl. xxi, figg. 20–31, *similis*, Java, p. 183, pl. xxiii, figg. 25–29; BRADY, t. c. **n. spp.**

Cypretta g. (subg. of *Cypridopsis* Vávra), p. 194, *sarsi* **nom. nov.** (=*C. minna* G. O. Sars non Brady), p. 195, pl. xxv, figg. 10–15; Brady, t. c.

Cypridina granulosa (Loc.?), p. 184, pl. xxi, figg. 32–34, *foveolata*, China Sea, p. 184, pl. xxii, figg. 15–19, *insolita*, Java, p. 184, pl. xxii, figg. 11–14; Brady, t. c. **n. spp.**

Cypridinodes **n. g.** (*Cypridinidæ*) *favus* (Loc.?), p. 187, pl. xxii, figg. 20–31; Brady, t. c. **n. sp.**

Cypridopsis marmorata, Bahia, p. 193, pl. xxiii, figg. 1 & 2 (*Candonella*) *virescens*, Cadiz, p. 193, pl. xxv, figg. 16–29; Brady, t. c. **n. spp.**

Cyprinotus dentatomarginatus, p. 196, pl. xxiii, figg. 6 & 7; Brady, t. c.

C. fragilis, N. Africa, p. 196, pls. xxiii, figg. 9 & 10, xxv, figg. 37–39; Brady, t. c. **n. sp.**

Cypris flexilis, St. Croix, p. 192, pl. xxiii, figg. 11–15, *lætevirens*, Cadiz, p. 193, pl. xxiii, figg. 3–5; Brady, t. c. **n. spp.**

Cythere inornata, p. 429, pl. vii, figg. 13–15, *lineola*, p. 429, pl. viii, figg. 22–25, *charlesworthiana*, p. 430, pl. vii, figg. 21–23, *arenosa* var., p. 430, pl. vii, figg. 59 & 60, *haueri*, p. 430, pl. vii, figg. 57 & 58, *obesa*, p. 431, pl. vii, figg. 61 & 62, *goujoni*, p. 431, pl. vi, figg. 29–31, *hodgei*, p. 431, pl. vi, figg. 38–40, *opaca*, p. 432, pl. viii, figg. 50 & 51, *canaliculata*, p. 432, pl. iv, figg. 15 & 16, *scabra*, p. 432, pl. vi, figg. 17 & 18, *cribrosa*, p. 433, pl. viii, figg. 52–54, *lacunosa*, p. 433, pl. vii, figg. 53 & 54, *obliquata*, p. 433, pl. vii, figg. 36 & 37, *acupunctata*, p. 434, pl. v, figg. 40–42, *darwini*, p. 434, pl. v, figg. 3 & 4, *hystrix*, p. 434, pl. v, figg. 21 & 22, *ericea*, p. 435, pl. v, figg. 13–15, *sagittula*, p. 435, pl. vi, figg. 25 & 26, *plicatula*, p. 436, pl. vii, figg. 44 & 45, *bosquetiana*, p. 437, pl. viii, figg. 16–18, *euplectella*, p. 437, pl. vi, figg. 32–34, *audei*, p. 437, pl. vii, figg. 38–40, *speyeri*, p. 438, pl. vii, figg. 41–43, 55 & 56, *papuensis*, p. 438, pl. viii, figg. 7–9, *impluta*, p. 438, pl. viii, figg. 19–21, *exilis*, p. 439, pl. vii, figg. 29–31, *aranea*, p. 439, pl. vi, figg. 35–37, *arma*, p. 439, pl. vi, figg. 27 & 28, *lamarckiana*, p. 440, pl. v, figg. 16–20, *lauta*, p. 441, pl. vi, figg. 21–24, *scabrocuneata*, p. 441, pl. viii, figg. 1–3, *polytrema*, p. 441, pl. vi, figg. 10–12, *dictyon*, p. 442, pl. vi, figg. 41–43, *rastromarginata*, p. 442, pl. vi, figg. 5–9, *parallelogramma*, p. 442, pl. vi, figg. 15 & 16, *obtusalata*, p. 443, pl. viii, figg. 12–15, *tuberculata*, p. 443, pl. viii, figg. 4–6, *pertusa*, p. 443, pl. vii, figg. 24 & 25, *dorsoserrata*, p. 444, pl. vii, figg. 16 & 17, *curvicostata*, p. 444, pl. vii, figg. 34 & 35, *wiville-thomsoni*, p. 444, pl. vi, figg. 13 & 14, *cristata*, p. 445, pl. v, figg. 5–7, *cornuta*, p. 445, pl. v, figg. 8–10, *ceratoptera*, p. 446, pl. v, figg. 11 & 12, *jonesii*, p. 446, pl. v, figg. 23–25; Egger, Abh. Bayer. Ak. xxi.

†*C. carinata*, p. 7, fig. 5, *canaliculata*, p. 7, fig. 7, *cicatricosa*, p. 8, fig. 8, *punctata*, p. 9, fig. 10, *cornueliana*, p. 9, fig. 11, *coronata*, p. 10, fig. 12, *cribriformis*, p. 10, fig. 13, *deformis*, p. 10, fig. 14, *dunelmensis*, p. 11, fig. 15, *edwardsii*, p. 11, fig. 16, *fenestrata*, p. 12, fig. 17, *lyriformis*, p. 12, fig. 19, *macropora*, p. 12, fig. 20, *reticulata*, p. 13, fig. 24, *striatopunctata*, p. 14, fig. 28, *transylvanica*, p. 14, fig. 31, *tricostata*, p. 15, fig. 32, *trigonula*, p. 15, fig. 33; Capeder, Atti Acc. Torino xxxvii: *C. pustulosa*, Permian, Bohemia, p. 76, pl. 160, figg. 16 & 17; Fritsch, Fauna der Gaskohle iv (3).

C. sicula, Syracuse, p. 198, pl. xxv, figg. 1–7; Brady, Tr. Zool. Soc. London xvi: *C. phylloides*, Funafuti, p. 424, pl. xxxvii, figg. 3*a–c*, *pectunculata*, p. 425, pl. xxxvii, figg. 2*a* & *b*; Chapman, J. Linn. Soc. xxviii: *C. spinea*, p. 435, pl. v, figg. 1 & 2, *sulcifera*, p. 436, pl. vi, figg. 19 & 20, *signata*, p. 436, pl. vi, figg. 1–4, *lineopunctata*, p. 440, pl. v, figg. 35–39, Australian Seas; Egger, Abh. Bayer. Ak. xxi: **n. spp.**

†*C. porticula*, p. 6, fig. 1, *bicarinata*, p. 6, fig. 2, *acuticarinata*, p. 6, fig. 3, *bidentata*, p. 7, fig. 4, *cribrata*, p. 7, fig. 6, *florealis*, p. 12, fig. 18, *sigillum*, p. 13, fig. 23, *marsupia*, p. 13, fig. 25, *puncti-gibba*, p. 14,

fig. 28, *semisulcata*, p. 14, fig. 29, *tenuicarinata*, p. 15, fig. 34, Miocene, Piedmont; CAPEDER, Atti Acc. Torino xxxvii: *C. farafrensis*, p. 66, pl. v, fig. 3*a–c*, Libyan Eocene, Egypt; CHAPMAN, Geol. Mag. (4) ix: **n. spp.**

Cytherella gracilis, p. 467, pl. iv, figg. 28 & 29, *beyrichi*, p. 468, pl. iv, figg. 26 & 27, var. *lævis*, p. 468, pl. iv, figg. 24 & 25, *cribrosa*, p. 468, pl. iii, figg. 7 & 8, *münsteri*, p. 469, pl. iv, figg. 22 & 23, *punctata*, p. 469, pl. iv, figg. 34 & 35; EGGER, Abh. Bayer. Ak. xxi.

†*C. münsteri*, p. 15, figg. 22; CAPEDER, Atti Acc. Torino xxxvii.

C. vesiculosa, Cocos Keeling Is., p. 230, fig. 28; CHAPMAN, P. Zool. Soc. London 1902, i, **n. sp.**

Cytheridea debilis, p. 447, pl. iv, figg. 4 & 5, *elongata*, p. 447, pl. iv, figg. 1–3, *mülleri*, p. 447, pl. vii, figg. 63 & 64, *punctillata*, p. 448, pl. iii, figg. 15–17 & 23–26; EGGER, Abh. Bayer. Ak. xxi.

†*C. torosa*, p. 16, fig. 30, *mülleri*, p. 16, figg. 21; CAPEDER, Atti Acc. Torino xxxvii.

†*C. stellata*, Miocene, Piedmont, p. 17, fig. 37; CAPEDER, t. c. **n. sp.**

Cytherideis falcata, p. 465, pl. i, figg. 42–45, *gracilis*, p. 465, pl. iv, figg. 57 & 58, *lævata*, p. 466, pl. i, figg. 51–53, *lithodomoides*, p. 466, pl. i, figg. 46 & 47, *parallela*, p. 466, pl. i, figg. 54 & 55; EGGER, Abh. Bayer. Ak. xxi.

C. andrewsi, Cocos Keeling Is., p. 229, fig. 27; CHAPMAN, P. Zool. Soc. London 1902, i, **n. sp.**

Cytheropteron acanthopteron, p. 460, pl. iv, figg. 46–48, *arcuatum*, p. 461, pl. vii, figg. 18–20, *intermedium*, p. 461, pl. vii, figg. 6–9, *ovatum*, p. 461, pl. vii, figg. 1 & 2, *pedatum*, p. 462, pl. vii, figg. 10–12; EGGER, Abh. Bayer. Ak. xxi.

†*C. vespertilio*, p. 17, fig. 38; CAPEDER, Atti Acc. Torino xxxvii.

Cytherura alata, p. 457, pl. viii, figg. 35–38, *broeckiana*, p. 458, pl. viii, figg. 41 & 42, *clausi*, p. 458, pl. viii, figg. 47–49, *gibba*, p. 458, pl. viii, figg. 28–30, *gracilis*, p. 459, pl. viii, figg. 26 & 27, *mucronata*, p. 459, pl. viii, figg. 45 & 46, *nigrescens*, p. 459, pl. viii, figg. 10 & 11, *reticulata*, p. 459, pl. viii, figg. 31 & 32, *undata*, p. 460, pl. iv, figg. 38 & 39; EGGER, Abh. Bayer. Ak. xxi.

Darwinula setosa, Patagonia, p. 298, pl. xv, figg. 14–22; DADAY, Termes. Fuzetek xxv, **n. sp.**

†*Escasona* **n. g.**, p. 457, *rutellum*, p. 458, pl. ii, figg. 5*a–c*, *vetus*, p. 458, pl. ii, figg. 6*a–b*, (??) *ingens*, p. 459, pl. ii, figg. 7*a–c*, Cambrian, Cape Breton; MATTHEW, Canad. Rec. viii, **n. spp.**

Euconchœcia, p. 190, *chierchiæ*, p. 190, pl. xxiv, figg. 9–15; BRADY, Tr. Zool. Soc. London xvi.

Eucypris sarsii, Patagonia, p. 294, pl. xv, figg. 1–7, text-figg. *a–c*; DADAY, Termes. Fuzetek xxv, **n. sp.**

Eucythere anglica, p. 448, pl. vii, figg. 3–5, *declivis*, p. 449, pl. iv, figg. 65–67; EGGER, Abh. Bayer. Ak. xxi.

E. lienenklausi, Australia, p. 449, pl. ii, figg. 28–31; EGGER, t. c. **n. sp.**

†*Eurychilina reticulata*, p. 76, pl. v, fig. 3, *subradiata* var. *rensselaerica* **n. var.**, Trenton Limestone, Albany, N. Y., p. 77, pl. v, figg. 4–7 & 13; RUEDEMANN, Bull. N. York Mus. xlix.

†*E. bulbifera*, p. 76, pl. v, figg. 14–17 (?), *solida*, p. 77, pl. v, fig. 18, *dianthus*, p. 78, pl. v, figg. 1, 2, 8 & 9, *obliqua*, p. 79, pl. v, figg. 10–12, Trenton Limestone, Albany, N. Y.; RUEDEMANN, t. c. **n. spp.**

Herpetocypris obliqua, Patagonia, p. 296, pl. xv, figg. 8–13, text-figg. *a* & *b*; DADAY, Termes. Fuzetek xxv, **n. sp.**

†*Indiana* **n. g.**, p. 460, *ovalis*, p. 461, pl. i, figg. 8*a–c*, mutation *prima* **nov.**, p. 462, pl. ii, figg. 9*a–c*, *I. lippa*, p. 463, pl. ii, figg. 10*a–d*, Cambrian, Cape Breton; MATTHEW, Canad. Rec. viii, **n. spp.**

†*Isochilina armata* var. *pygmæa* **n. var.**, Trenton Limestone, Albany, N. Y., p. 72, pl. vii, figg. 19–25; RUEDEMANN, Bull. N. York Mus. xlix.

Krithe bartonensis, p. 450, pl. iv, figg. 13 & 14, *bradiana*, p. 450, pl. ii, figg. 35 & 36, *producta*, p. 451, pl. iv, figg. 17 & 18, *tumida*, p. 451, pl. iv, figg. 19–21; EGGER, Abh. Bayer. Ak. xxi.

K. alveus, Australia, p. 449, pl. iv, figg. 8–10, *prælonga*, Mauritius, p. 450, pl. iv, figg. 11 & 12, *radiolata*, Australia, p. 451, pl. vii, figg. 32 & 33; EGGER, t. c. **n. spp.**

†*Leperditia fabulites*, p. 70, pl. v, figg. 19 & 20; RUEDEMANN, Bull. N. York Mus. xlix.

†*L.* (??) *rugosa*, Cambrian, Cape Breton, p. 443, pl. i, figg. 7*a–c*; MATTHEW, Canad. Rec. viii: *L. resplendens*, Trenton Limestone, Albany, N. Y., p. 71, pl. v, figg. 21–27; RUEDEMANN, Bull. N. York Mus. xlix: **n. spp.**

Loxoconcha carinata, p. 452, pl. iii, figg. 1–3, *castanea*, p. 452, pl. iv, fig. 54–56, *eggeriana*, p. 452, pl. iv, figg. 42 & 43, *guttata*, p. 453, pl. iii, figg. 4–6, *sinensis*, p. 453, pl. iii, figg. 9–11, *subovata*, p. 454, pl. iii, figg. 18 & 19, *variolata*, p. 454, pl. iii, figg. 12–14; EGGER, Abh. Bayer. Ak. xxi.

L. tumida, Funafuti, p. 428, pl. xxxvii, figg. 5*a–c*; CHAPMAN, J. Linn. Soc. xxviii: *L. serrulata*, Australia, p. 453, pl. iii, figg. 20–22; EGGER, Abh. Bayer. Ak. xxi: **n. spp.**

Macrocypris canariensis, p. 423, pl. i, figg. 30–32, *orientalis*, p. 423, pl. i, figg. 25 & 26, *setigera*, p. 423, pl. i, figg. 21 & 22, *tenuicauda*, p. 424, pl. i, figg. 23 & 24, *tumida*, p. 424, pl. i, figg. 27–29; EGGER, t. c.

†*Macronotella ulrichi*, p. 83, pl. vi, figg. 6–16, *fragaria*, p. 85, pl. vi, figg. 3–5, Trenton Limestone, Albany, N. Y.; RUEDEMANN, Bull. N. York Mus. xlix, **n. spp.**

Paracypris polita, p. 418, pl. iv, figg. 52 & 53; EGGER, Abh. Bayer. Ak. xxi.

Paradoxostoma ensiforme, p. 465, pl. iv, figg. 59 & 60; EGGER, t. c.

Philomedes sordida, p. 186, pl. xxiv, figg. 23–26; BRADY, Tr. Zool. Soc. London xvi: *P. brenda*, p. 10, figg. 18 & 19; MÜLLER, Nordisches Plankton vii.

P. debilis, Ceylon, p. 186, pl. xxi, figg. 1–5; BRADY, Tr. Zool. Soc. London xvi, **n. sp.**

Polycope orbicularis, p. 467, pl. iv, figg. 30, 31, 40 & 41; EGGER, Abh. Bayer. Ak. xxi.

†*Polyphyma* **n. g.** (*Leperditiadæ*), *lapworthi*, Cambrian, Malvern, p. 84, pl. iii, text-fig.; GROOM, Quart. J. Geol. Soc. lviii, **n. sp.**

Pontocypris acupunctata, p. 419, pl. iv, figg. 63 & 64, *attenuata*, p. 419, pl. i, figg. 10–12, *dactylus*, p. 420, pl. i, figg. 18–20, *faba*, p. 420, pl. iv, figg. 44 & 45, *hilseana*, p. 421, pl. i, figg 4–6, *simplex*, p. 421, pl. i, figg. 1–3, *subreniformis*, p. 421, pl. vii, figg. 50–52, *trigonella*, p. 422, pl. i, figg. 16 & 17; EGGER, Abh. Bayer. Ak. xxi.

P. caudata, Australia, Mauritius, W. Africa, p. 420, pl. i, figg. 13–15; EGGER, t. c. **n. sp.**

Potamocypris dentatomarginata, p. 291, pl. xiv, figg. 3–8, *silvestrii*, p. 292, pl. xiv, figg. 9–13, *granulosa*, p. 293, pl. xiv, figg. 14–20, Patagonia; DADAY, Termes. Fuzetek xxv, **n. spp.**

†*Primitia mundula* var. *jonesi* **n. var.**, Trenton Limestone, Albany, N. Y., p. 80, pl. vii, figg. 2–5; RUEDEMANN, Bull. N. York Mus. xlix.

Pseudocythere caudata, p. 463, pl. viii, figg. 33 & 34, *fuegiensis*, p. 464, pl. viii, figg. 39 & 40; EGGER, Abh. Bayer. Ak. xxi.

P. spinosa, Australia, p. 464, pl. viii, figg. 43 & 44; EGGER, t. c. **n. sp.**

Pyrocypris americana, p. 185, pl. xxi, figg. 14–19, *chierchiæ*, p. 186; BRADY, Tr. Zool. Soc. London xvi.

Sarsiella capsula (?), p. 475, pl. xxv, figg. 27–32; SCOTT, T., Rep. Fish. Board Scotland xx (3).

S. (?) *ornithoides*, p. 189, pl. xxiii, figg. 16–21; BRADY, Tr. Zool. Soc. London xvi, **n. sp.**

†*Schmidtella* (?) *pervetus*, p. 464, pl. ii, figg. 11*a–c*, mutation *concinna* **nov.**, p. 464, *acuta*, p. 465, pl. ii, fig. 12*a–c*; MATTHEW, Canad. Rec. viii: *S. crassimarginata* var. *ventrilabiata* **n. var.**, Trenton Limestone, Albany, N. Y., p. 75, pl. vii, figg. 12–18; RUEDEMANN, Bull. N. York Mus. xlix.

Nestoleberis africana, p. 454, pl. iii, figg. 34–36, *aurantia*, p. 455, pl. iv, figg. 61 & 62, *foveolata*, p. 455, pl. iii, figg. 40–43, *granulosa*, p. 455, pl. iii, figg. 44–46, *magaritea*, p. 456, pl. iii, figg. 27–30, *nana*, p. 456, pl. iii, figg. 31–33, *setigera*, p. 456, pl. iii, figg. 37–39, *tumida*, p. 457, pl. iii, figg. 47–50; EGGER, Abh. Bayer. Ak. xxi.

N. acuminalis, Funafuti, p. 429, pl. xxxvii, fig. 4*a–c*; CHAPMAN, J. Linn. Soc. xxviii, **n. sp.**

Xiphochilus complanatus, p. 464, pl. iv, figg. 36 & 37; EGGER, Abh. Bayer. Ak. xxi.

5. CIRRIPEDIA.

Cirripedia, classification, p. 21, key to genera of *Thoracica*, p. 28; GRUVEL, Cirrhipèdes Travailleur.

Cirripedia, nauplius of unknown sp., p. 451; LO BIANCO, Mt. Stat. Neapel xv.

†*Cirripedia* from glacial beds in Co. Dublin; HINCH, Irish Natural. xi, p. 232.

Acasta, p. 112, *striata*, Atlantic, 400 metres, p. 113, pl. iii, figg. 2 & 3, [given as n. sp. without reference to preliminary descr. previously published, see Zool. Rec. 1901]; GRUVEL, Cirrhipèdes Travailleur.

Alepas, p. 33, key to spp., p. 44, *minuta*, infested by parasitic Isopod (*Leponiscus alepadis*), p. 35, pl. i; GRUVEL, t. c.: *A.*, p. 277, key to spp., p. 287, *belli*, Cuba, p. 278, pl. xxiv, figg. 1A, 2, 3, 17, 18, 19, 28 & 29, figg. 1–5 in text, *microstoma*, Madeira, p. 282, pl. xxiv, figg. 1B, 1B′, 7 & 8, *indica*, Singapore, p. 284, pl. xxiv, figg. 1C, 4, 4′, 21 & 27 [given as n. spp. but all previously described, see Zool. Rec. 1901]; GRUVEL, Tr. Linn. Soc. London (2) viii.

Balanus improvisus, anatomy and development, p. 379; FILATOWA, Zool. Anz. xxv: *B. declivis* var. *cuspidatus* **n. var.**, p. 22; VERRILL, Tr. Connect. Ac. xi.

Catophragmus imbricatus, p. 22, pl. viii, figg. 8 & 9; VERRILL, Tr. Connect. Ac. xi.

Dichelaspis mülleri on gills of *Callinectes sapidus* and other crabs, Beaufort N. C., p. 403, figg. 1–14; COKER, Bull. U. S. Fish Comm. xxi, **n. sp.**

Lepas, early development; BIGELOW, Bull. Mus. Harvard xl, p. 62.

†*L. pritchardi*, Eocene (?), Victoria, p. 83, pl. xi, figg. 11–13; HALL, P. Soc. Victoria xv, **n. sp.**

†*Lepidocoleus jamesi*, p. 87, pl. iv, figg. 16–19; RUEDEMANN, Bull. N. York Mus. xlix.

†*Loricula pulchella*, in relation to phylogeny of *Cirripedia*, p. 7, text-fig. 2; GRUVEL, Cirrhipèdes Travailleur.

Pœcilasma, p. 48, key to spp., p. 49, *kempferi* varr. *communis* and *aurantium* (=*P. aurantium* Darw.), p. 46; GRUVEL, t. c.

P. minuta, Singapore, p. 288, pl. xxiv, fig. 5 [given as n. sp. but previously described, see Zool. Rec. 1901]; GRUVEL, Tr. Linn. Soc. London (2) viii.

Scalpellum edwardsii, near Azores, 4255 metres, p. 63, pl. ii, figg. 3B & 16, *recurvitergum*, near Azores, 3175 metres, p. 67, pl. ii, figg. 3H, 21 & 22, *longirostrum* (locality?), p. 70, pl. ii, figg. 4 & 5, *atlanticum*, near Azores, 960–998 metres, p. 74, pl. ii, figg. 3F, 17 & 18, *striatum*, near

Azores, 2995 metres, p. 77, pl. il, fig. 3I, *luteum*, near Azores, 3175 metres, p. 80, pl. ii, figg. 3E & 11, *curvatum*, near Azores, 1257 metres, p. 83, pl. ii, figg. 8 & 9, *talismani*, Bay of Biscay, 4255 metres, p. 86, pl. ii, fig. 3D [given as n. spp. but all previously described, see Zool. Rec. 1900]; GRUVEL, Cirrhipèdes Travailleur: *S.*, p. 89, *novæzelandiæ*, p. 54, pl. ii, figg. 12, 13 & 15, *velutinum*, p. 56, pls. ii, figg. 3C, 10 & 14, iii, figg. 1, 27 etc.; GRUVEL, t. c.: *S.*, structure of complemental males in *peroni*, p. 118, *villosum*, p. 123, *longirostrum*, p. 124, *gigas*, p. 126; GRUVEL, t. c.: *S. hoeki*, Pacific Ocean, p. 290, pl. xxiv, figg. 6, 9–16 & 20 [given as n. sp. but previously described, see Zool. Rec. 1901]; GRUVEL, Tr. Linn. Soc. London (2) viii: *S. sexcornutum*, p. 293; GRUVEL, t. c.

†*Tamiosoma*, a Cirripede closely allied to *Balanus*; DALL, Science (n. s.) xv, pp. 5–7.

Thylacoplethus **n. g.** (*Rhizocephala*), p. 914, *haddoni* (on *Alpheus avarus*), Torres Straits, p, 1452, *edwardsi* (on *Alpheus edwardsi*), Thursday I., p. 1452, *heurteli* (on *Alpheus macrochirus*), Fernando Veloso, p. 1452; COUTIÈRE, C.R. Ac. Sci. cxxxiv: see also COUTIÈRE, C.R. Soc. Biol. liv, pp. 447–449, 625 & 626, 724 & 725: **n. spp.**

†*Turrilepas ketleyanus*, diagnosis and remarks; REED, Geol. Mag. (iv) viii, p. 108 [misplaced under *Trilobita*, Zool. Rec. 1901].

†*T. wrightii*, in relation to phylogeny of *Cirripedia*, p. 5, text-fig. 1; GRUVEL, Cirrhipèdes Travailleur.

Verruca, p. 90, *longicarinata*, Sargasso Sea, 3432 metres, p. 91, pl. v, figg. 3 & 4, *erecta*, near Azores, 3175 metres, p. 93, pl. v, figg. 7 & 8, *radiata*, Canary Is., 912 metres, p. 94, pl. ii, figg. 19 & 20, *trisulcata*, Azores, 960–998 metres, p. 96, pl. v, figg. 9 & 10, *striata*, Cape Verde Is., 598–633 metres, p. 98, pl. v, figg. 5 & 6, *imbricata*, Canary Is., 912–946 metres, p. 105, pl. v, figg. 13 & 14, *linearis*, Azores, 960–2018 metres, p. 107, pl. v, figg. 11 & 12, *magna*, Bay of Biscay, 1480 metres, p. 109, pl. v, figg. 1 & 2 [given as n. spp. but all previously described, see Zool. Rec. 1900 & 1901]; GRUVEL, Cirrhipèdes Travailleur.

GIGANTOSTRACA

(XIPHOSURA, TRILOBITA, EURYPTERIDA).

I. TITLES.

1. AIRAGHI, CARLO. Di alcuni Trilobiti della Cina. Atti Mus. Milano xli, pp. 17–27, pl. i.

2. BEECHER, C. E. The Ventral Integument of Trilobites. Amer. J. Sci. (4) xiii, pp. 165–174, pls. ii–v.
Abstracts: Zool. Jahresber. 1902, Arthrop. p. 35; J. R. Micr. Soc. 1902, p. 427.

——. The Ventral Integument of Trilobites. Geol. Mag. (4) ix, pp. 152–162, pls. ix–xi, 8 figg. in text.
[Reprint of (2).]

3. BÖRNER, CARL. Arachnologische Studien (ii & iii). Zool. Anz. pp. 433–466, 14 figg. in text.

4. Clarke, John M. Limestones of Central and Western New York interbedded with bituminous shales of the Marcellus stage, with notes on the nature and origin of their faunas. Bull. N. York Mus. xlix, pp. 115–138, pl. viii (1901).
[Lists of Trilobites.]

Eastman, C. R. [See Patten (16).]

5. Flamand, G. B. M. Sur la présence du devonien inférieur dans le Sahara occidental (Bas-Touat et Tidikelt, archipel touatien). C.R. Ac. Sci. cxxxiv, pp. 1322–1324.

6. Fritsch, Ant. Fauna der Gaskohle und der Kalksteine der Permformation Böhmens. iv (2 & 3), (1899–1901).
[*Merostomata*, pp. 64 & 65, pl. 155, text-figg. 369 & 370.]

7. Gaskell, Walter H. The Origin of Vertebrates deduced from the Study of *Ammocœtes*. Part x. On the Origin of the Auditory Organ; the meaning of the viiith Cranial Nerve; together with a consideration of the origin of the Cranial Nerves as a whole, in accordance with the principles laid down in Part i. J. Anat. Physiol. norm. path. xxxvi, pp. 164–208, 13 figg. in text.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 35.

8. Giesbrecht, W. & Mayer, P. Arthropoda. Zool. Jahresber. 1902, 72 pp.
[*Pœcilopoda*, *Trilobitæ*, p. 35.]

Heider, K. [See Korschelt & Heider (13).]

9. Groom, Theodore T. On a new Trilobite from the *Dictyonema*-shales of the Malvern Hills. Geol. Mag. (4) ix, pp. 70–73, 4 figg.

10. Illés, Vilmos. A magyarországon talált elsö Trilobita. Foldtani Kozl. xxxii, pp. 351–354, 1 fig.
Die erste in Ungarn gefundene Trilobite, pp. 408–411, 1 fig.

11. Jaekel, O. Ueber die Organisation der Trilobiten. Theil i. Zeitschr. Deutsch. geol. Ges. liii (1901), pp. 133–171, pls. iv–vi, 31 figg. in text.
Abstract by A. Tornquist, Zool. Centrlbl. ix, pp. 122–125, 1 fig. in text.

12. ——. Ueber verschiedene Wege phylogenetischer Entwickelung. Verh. Zool. Congr. v, Berlin, pp. 1058–1117, 28 figg. in text.
[Evolution of *Trilobita*, p. 1086, fig. 20–24, of *Gigantostraca*, p. 1105 &c.]

13. Korschelt, E. & Heider, K. Lehrbuch der vergleichenden Entwicklungsgeschichte der wirbellosen Thiere. Allgemeiner Theil. 1ste Lief. 1 & 2 Auflage, pp. x+538, 318 figg. in text, 8vo, Jena, 1902.

14. Lankester, E. Ray. Arachnida. Encycl. Brit. xxv, pp. 519–546, 78 figg.

15. *Loeb, Leo. On the blood lymph cells and inflammatory processes of *Limulus*. J. Med. Research Boston vii, pp. 145–158.

Mayer, P. [See Giesbrecht & Mayer (8).]

16. Patten, William. On the Structure and classification of the *Trematastpidæ*. Amer. Natural. xxxvi, pp. 379–393, 3 figg.
[Compared with *Merostomata*, *Trilobita* &c.] Criticism by C. R. Eastman, t. c. pp. 505–507.

17. ——. On the Origin of Vertebrates. With special reference to the Structure of the Ostracoderms. Verh. Zool. Congr. v, Berlin, pp. 180–192, 6 figg. in text.

18. PEACH, B. N. Scottish Palæontology during the last Twenty Years. P. Phys. Soc. Edinb. xiv (4), pp. 361–394. [*Merostomata*, pp. 373 & 374.]

19. ——. The Trilobites of the Silurian Rocks of Southwest Scotland. Fauna, Flora and Geology of the Clyde Area, edited by G. F. Scott Elliot, Malcolm Laurie and J. Barclay Murdoch. (Brit. Ass. Handbook), 8vo, Glasgow, 1901, pp. 445-447. [Notes.]

20. ——. The Arthropoda from the Silurian Rocks of Southwest Scotland. T. c. pp. 450-453. [Lists.]

21. POCOCK, R. I. Studies on the Arachnid Entosternite. Quart. J. Micr. Sci. (n. s.) xlvi, pp. 225–262, pls. xiii & xiv.

22. ——. The Taxonomy of recent species of *Limulus*. Ann. Nat. Hist. (7) ix, pp. 256–266, pls. v & vi.

23. REED, FREDERICK RICHARD COWPER. Notes on the Genus *Lichas*. Quart. J. Geol. Soc. lviii, pp. 59–82, 19 figg.

24. ROGERS, AUSTIN F. Some new American species of *Cyclus* from the Coal Measures. Kansas Univ. Bull. i, pp. 269–275, pl. xiv.

25. RATHBUN, MARY J. Note on the generic name of the horseshoe crab. P. Soc. Washington xv, p. 196.

26. RUEDEMANN, RUDOLF. Trenton Conglomerate of Rysedorph Hill, Rensselaer Co. N. Y. and its Fauna. Bull. N. York Mus. xlix, pp. 3–114, pls. i–vii. [Trilobites.]

TORNQUIST, A. Abstract in Zool. Centrlbl. ix. See No. 11.

27. WOOD, ELVIRA. Marcellus (Stafford) Limestones of Lancaster, Erie Co. N. Y. Bull. N. York Mus. xlix, pp. 139–181, pl. ix (1901). [Lists of Trilobites.]

28. WOODWARD, H. The Canadian Rockies. Part I. On a collection of Middle Cambrian Fossils obtained by Edward Whymper, Esq., F.R.G.S., from Mount Stephen, British Columbia. Geol. Mag. (4) ix, pp. 529–544, 7 figg.

29. ——. On a collection of Trilobites from the Coddon Hill Beds, Lower Culm-Measures, near Barnstaple, N. Devon, and one from Glamorganshire. Geol. Mag. (4) ix, pp. 481–487, pl. xx.

II. SUBJECT INDEX.

Morphology and relationships of *Gigantostraca*; LANKESTER (14).
Morphology of *Limulus*, structure of shell etc., comparison with Ostracoderms; PATTEN (17).
Morphology of *Limulus* compared with Vertebrates, "pressure organs" of *Limulus*; GASKELL (7).
Tremataspidæ compared with *Merostomata* and *Trilobita*; PATTEN (16).
Morphology of Entosternite in *Xiphosuræ*; POCOCK (21).
Morphology of Trilobites; JAEKEL (11).
Ventral integument of Trilobites; BEECHER (2).
Compound eyes in *Cyclus*; ROGERS (24).
Evolution of *Trilobita*, p. 1086, of *Gigantostraca*, p. 1105 etc.; JAEKEL (12).
Blood cells and inflammatory processes in *Limulus*; LOEB (15).
Oogenesis in *Limulus*, p. 317, spermatozoa, p. 455; KORSCHELT & HEIDER (13).
Revision of recent spp. of *Limulus*; POCOCK (22).
Review of Literature for 1902; GIESBRECHT & MAYER (8).

III. DISTRIBUTION.

Distribution of *Xiphosuræ*; POCOCK (22).

Palæozoic *Merostomata* of Scotland; PEACH (18) p. 373.

Permian, Gaskohle von Nyřan, *Prolimulus*, n. sp.; FRITSCH (6).

Carboniferous, Culm Beds, Coddon Hill; n. spp. *Trilobita*; WOODWARD (29).

Beds overlying Carboniferous Limestone, Bishopstown, Glamorgan; n. sp. *Trilobita*; WOODWARD (29).

Carboniferous, Dobsina, Hungary, n. sp. *Trilobita*; ILLÉS (10).

Upper Coal Measures, Missouri and Kansas, n. spp. *Cyclus*; ROGERS (24).

Lower Devonian of Western Sahara, *Trilobita*; FLAMAND (5).

Devonian, Marcellus Limestones of New York State, Trilobites; CLARKE (4), WOOD (27).

Silurian, S.W. Scotland, *Trilobita*; PEACH (19). *Xiphosura* and *Eurypterida*, PEACH (20).

Ordovician, Trenton Limestone, Albany N. Y., Trilobites, n. spp.; RUEDEMANN (26).

Cambrian, *Dictyonema*-Shales, Malvern Hills, n. g. and sp. *Trilobita*; GROOM (9).

Cambrian of China, Trilobites, n. spp.; AIRAGHI (1).

Middle Cambrian, Mt Stephen, British Columbia, 6580 feet altitude, Trilobites; WOODWARD (28).

IV. SYSTEMATIC.

Series *Chelicerata*.

i. Class *Merostomata*.

Sub-class *Gigantostraca*.
Order *Haplochelata* **nov.**

Sub-class *Xiphosura*.
Order, *Polychelata* **nov.**

ii. Class *Arachnida* [see Record of *Arachnida*];
BÖRNER, Zool. Anz. xxv, p 465.

XIPHOSURÆ.

Nomenclature, p. 256, classification, p. 260; POCOCK, Ann. Nat. Hist. (7) ix.
Entosternite, p. 226; POCOCK, Quart. J. Micr. Sci. (n. s.) xlvi.
†Xiphosuræ fossil in Scotland; PEACH, P. Phys. Soc. Edinb. xiv (4), p. 373.

Carcinoscorpius **n. g.** *rotundicauda*, p. 265, pls v, fig. B, vi, figg. 3 & 5; POCOCK, Ann. Nat. Hist. (7) ix.

†*Prolimulus woodwardi*, p. 64, pl. 155, figg. 1—3, text-figg. 369 & 370, Permian, Bohemia; FRITSCH, Fauna der Gaskohle iv (2 & 3), **n. sp.**

Tachypleinæ **nov.** def., p. 261; POCOCK, Ann. Nat. Hist. (7) ix.

Tachypleus, g. def., p. 262, key to spp., p. 264, *gigas*, p. 262, pls v, fig. C, vi, figg. 1, 4 & 6, *tridentatus*, p. 263, pls v, fig. E, vi, fig. 2; POCOCK, Ann. Nat. Hist. (7) ix.

T. hoeveni, Moluccas, p. 264, pl. v, fig. D; POCOCK, Ann. Nat. Hist. (7) ix, **n. sp.**

Xiphosura (= *Limulus*), g. def., p. 260, *polyphemus*, p. 261, pls v, fig. A, vi, fig. 7; POCOCK, Ann. Nat. Hist. (7) ix.

Xiphosura, g., authority for name, p. 196; RATHBUN, P. Soc. Washington xv.

Xiphosurinæ, **nov.** def., p. 260; POCOCK, Ann. Nat. Hist. (7) ix.

TRILOBITA.

†*Acanthopleurella* **n. g.** *Grindrodi*, Malvern Hills, p. 70, figg. 1–4; GROOM Geol. Mag. ix, **n. sp.**
†*Ampyx* (*Lonchodomas*) *hastatus*, Trenton Limestone, Albany, N. Y., p. 48 pl. iii, figg. 1–10 & 30; RUEDEMANN, Bull. N. York Mus. xlix, **n. sp.**
†*Agnostus pii*, China, Cambrian, p. 19, pl. i, figg. 28; AIRAGHI, Atti Mus. Milano xli, **n. sp.**
†*Asaphus* (*Isotelus*) *maximus*, p. 59, (*Gerasaphes*) *ulrichana*, p. 60; RUEDEMANN, Bull. N. York Mus. xlix.
†*Bathyuriscus howelli*, p. 7, fig. 2; WOODWARD, Geol. Mag. (4) ix.
†*Bronteus lunatus*, p. 65, pl. iv, figg. 10 & 11; RUEDEMANN, Bull. N. York Mus. xlix.
†*Cheirurus paronai*, China, Cambrian, p. 25, pl. i, figg. 29 & 30; AIRAGHI, Atti Mus. Milano xli, **n. sp.**
†*Cybele* sp., p. 66, pl. iv, fig. 12; RUEDEMANN, Bull. N. York Mus. xlix.
†*Cyphaspis matutina*, p. 62, pl. iv, figg. 5–7, *hudsonica*, p. 64, pl. iv, figg. 8 & 9, Trenton Limestone, Albany, N. Y.; RUEDEMANN, Bull. N. York Mus. xlix, **n. spp.**
†*Drepanura premesnili*, p. 24, pl. i, figg. 31 & 32; AIRAGHI, Atti Mus. Milano xli.
†*Griffithides dobsinensis*, Carboniferous, Dobsina, Hungary, p. 408, fig.; ILLÉS, Foldtani Kozl. xxxii: *G. barkei*, Culm Beds, Coddon Hill, p. 484, pl. xx, fig. 12; WOODWARD, Geol. Mag. ix : **n. spp.**
†*Illænus americanus*, p. 61; RUEDEMANN, Bull. N. York Mus. xlix.
†*Lichas*, revision of g.; REED, Quart. J. Geol. Soc. lviii, pp. 59–82, 19 figg.
†*Microdiscus paronai*, China, Cambrian, p. 23, pl. i, figg. 24 & 25; AIRAGHI, Atti Mus. Milano xli, **n. sp.**
†*Neolenus serratus*, p. 9, fig. 3; WOODWARD, Geol. Mag. (4) ix.
†*Ogygopsis klotzi*, p. 5, fig. 1; WOODWARD, t. c.
†*Olenoides leblanci*, p. 23, pl. i, fig. 23; AIRAGHI, Atti Mus. Milano xli.
†*O. paronai*, China, Cambrian, p. 20, pl. i, figg. 1–21, 26 & 27; AIRAGHI, t. c. **n. sp.**
†*Oryctocephalus reynoldsi*, p. 15, fig. 6; WOODWARD, Geol. Mag. (4) ix.
†*Phillipsia spatulata*, Culm Beds (?), Bishopstown, Glamorgan, p. 482, pl. xx, figg. 3 & 4; WOODWARD, Geol. Mag. ix, **n. sp.**
†*Proetus coddonensis*, Culm Beds, Coddon Hill, p. 483, pl. xx, figg. 5–11; WOODWARD, t. c. **n. sp.**
†*Pterygometopus eboraceus*, Trenton Limestone, Albany, N. Y., p. 69, pl. iv, fig. 15; RUEDEMANN, Bull. N. York Mus. xlix.
†*Ptychoparia cordilleræ*, p. 11, fig. 4; WOODWARD, Geol. Mag. (4) ix.
†*Remopleurides tumidus*, p. 54, pl. iv, figg. 2–4, (*Caphyra*) *linguatus*, p. 56, pl. iii, figg. 21–29, Trenton Limestone, Albany, N. Y.; RUEDEMANN, Bull. N. York Mus. xlix, **n. spp.**
†*Sphærocoryphe major*, Trenton Limestone, Albany, N. Y., p. 67, pl. iv, figg. 13 & 14; RUEDEMANN, t. c. **n. sp.**
†*Tretaspis reticulatus*, p. 41, pl. iii, figg. 11 & 15–20, *diademata*, p. 46, pl. iii, figg. 12–14, Trenton Limestone, Albany, N. Y.; RUEDEMANN, t. c. **n. spp.**
†*Zacanthoides* (*Olenoides*) *spinosus*, p. 12, fig. 5; WOODWARD, Geol. Mag. (4) ix.

†EURYPTERIDA.

The following papers deal with *Eurypterida* :—Nos. 14, 18, 20.

INCERTÆ SEDIS.

†*Cyclus*, compound eye, p. 269, diagnosis, p. 270, key to American spp., p. 274, *communis*, p. 270, pl. xiv, figg. 1 & 1*a*, *packardi*, p. 271, pl. xiv, figg. 2 & 2*a*, *permarginatus*, p. 272, pl. xiv, fig. 3, *limbatus*, p. 273, pl. xiv, fig. 4, *minutus*, p. 273, pl. xiv, fig. 5, Upper Coal Measures, Missouri and Kansas; ROGERS, Kansas Univ. Bull. i, **n. spp.**

PYCNOGONIDA.

I. TITLES.

1. GIESBRECHT, W. & MAYER, P. Arthropoda. Zool. Jahresber. 1902, 72 pp.
[*Pantopoda*, pp. 22–24.]

2. HODGSON, T. V. *Crustacea*, in Report on the Collections of Natural History made in the Antarctic Regions during the voyage of the "Southern Cross," London, 1902. (*Pycnogonida*, pp. 256–258, pl. xl.)

3. LANKESTER, E. RAY. Arachnida. Encycl. Brit. xxv, pp. 519–546, 78 figg.

4. LÖNNBERG, EINAR. List of Pycnogonids collected by the Swedish zoological expedition to Spitzbergen and East Greenland, 1900. Ofv. Ak. Forh. lix, pp. 353–360.

MAYER, P. [See GIESBRECHT & MAYER (1).]

5. MEISENHEIMER, J. Ueber die Entwicklung der Pantopoden und ihre systematische Stellung. Verh. Deutsch. zool. Ges. 1902, pp. 57–64.

6. ——. Beiträge zur Entwicklungsgeschichte der Pantopoden. I. Die Entwicklung von *Ammothea echinata* Hodge bis zur Ausbildung der Larvenform. Zeitschr. wiss. Zool. lxxii, pp. 191–248, pls. xiii–xvii, and 12 figg. in text.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 22.

7. MÖBIUS, KARL. Die Pantopoden der deutschen Tiefsee-Expedition. Wiss. Ergebn. deutschen Tiefsee Exp. Valdivia iii, pp. 177–196, pls. xxiv–xxx.

II. SUBJECT INDEX.

Morphology and relationships of *Pycnogonida*; LANKESTER (3).
Development and systematic position of *Pycnogonida*; MEISENHEIMER (5 & 6).
Review of literature for 1902; GIESBRECHT & MAYER (1).

III. DISTRIBUTION.

Spitzbergen and E. Greenland, *Pycnogonida*; LÖNNBERG (4).
Antarctic Seas, n. sp. *Nymphon*; HODGSON (2).
Agulhas Bank, Bouvet I. Dar-es-Salam, n. g. and spp.; MÖBIUS (7).

IV. SYSTEMATIC.

Ammothea echinata, development, p. 191, pls. xiii–xvii; MEISENHEIMER, Zeitschr. wiss. Zool. lxxii.

Anoplodactylus aculeatus, p. 188, pl. xxviii, figg. 1–7, *spinosus*, p. 188, pl. xxviii, figg. 8–12, Agulhas Bank; MÖBIUS, Pantopoden, Valdivia, **n. spp.**

Böhmia tuberosa, Agulhas Bank, p. 189, pl. xxviii, figg. 13 & 14; MÖBIUS, t. c. **n. sp.**

Chætonymphon brevicaudatum, p. 181, pl. xxv, fig. 9; MÖBIUS, t. c.

C. altioculatum, Bouvet I., p. 181, pl. xxvi, figg. 1–6; MÖBIUS, t. c. **n. sp.**

Colossendeis robusta, p. 190, pl. xxix, figg. 1–5, *angusta*, p. 191, pl. xxix, figg. 6–13; MÖBIUS, t. c.

C. gibbosa, Bouvet I., p. 192, pl. xxx, figg. 1–5; MÖBIUS, t. c. **n. sp.**

Leionymphon **n. g.**, p. 183, *striatum*, Bouvet I., p. 183, pl. xxvi, figg. 7–12; MÖBIUS, t. c. **n. sp.**

Nymphon gracilipes, p. 180, pl. xxv, figg. 7 & 8; MÖBIUS, t. c.

N. australe, Cape Adare, p. 257, pl. xl; HODGSON, Crustacea, "Southern Cross": *N. signatum*, p. 178, pl. xxiv, figg. 1–7, *pilosum*, p. 179, pl. xxiv, figg. 8–12, *distensum*, p. 179, pl. xxv, figg. 1–6, Agulhas Bank; MÖBIUS, Pantopoden, Valdivia: **n. spp.**

Pallenopsis glabra, Bouvet I., p. 184, pl. xxvii, figg. 1–6, *brevidigitata*, Dar-es-Salam, p. 185, pl. xxvii, figg. 7–13; MÖBIUS, t. c. **n. spp.**

Phoxichilus clipeatus, Agulhas Bank, p. 196, pl. xxx, figg. 6–10; MÖBIUS, t. c. **n. sp.**

Pseudopallene cornigera, Bouvet I., p. 186, pl. xxvii, figg. 14–20; MÖBIUS, t. c. **n. sp.**

Pycnogonum cataphractum, Agulhas Bank, p. 194, pl. xxx, fig. 11, *magnirostre*, Kerguelen (= *littorale*, Böhm), p. 194, pl. xxx, figg. 12–14; MÖBIUS, t. c. **n. spp.**

XI. ARACHNIDA

(Including TARDIGRADA AND PENTASTOMIDA).

BY

W. T. CALMAN, D.Sc.

CONTENTS.

	Page
Introduction	1
I. TITLES	2
II. SUBJECT INDEX.	
1. Morphology	16
2. Physiology	16
3. Reproduction and Development	16
4. General Bionomics, Habitats, &c.	17
5. Symbiosis and Parasitism	17
6. Miscellaneous	18
III. DISTRIBUTION.	
A. Geographical	18
B. Geological	22
IV. SYSTEMATIC INDEX.	
Arachnida, General.	22
1. Scorpiones	22
2. Pedipalpi	24
3. Palpigradi.	25
4. Araneæ	25
A. Mygalomorphæ	25
B. Arachnomorphæ	27
5. Solifugæ	52
6. Pseudoscorpiones	52
7. Opiliones	53
8. Acari	55
9. Tardigrada [Vacant]	
10. Pentastomida [Vacant]	

INTRODUCTION.

THE Record of *Arachnida* for 1902 like that of *Crustacea* stands in need of apology. It has been compiled somewhat hastily and under circumstances which render it probable that many omissions will be discovered. The Recorder will be glad to have his attention drawn to any such omissions and hopes to be able to include most of them in next year's Record.

One or two changes have been made in the arrangement of the material. Of these the most important is a reversion to the plan of dividing up the unwieldy mass of references under *Araneæ* into groups of families. Mr R. I. Pocock, at whose suggestion the change is made, has very kindly helped the Recorder to arrange the references under these headings. It is hoped that this arrangement will be found more convenient by those using the Record.

I. TITLES.*

AIRAGHI, ZINA LEARDI IN. [See LEARDI IN AIRAGHI (96 & 97).]

1. AMMON, LUDWIG VON. Ueber *Anthracomartus* aus dem Pfälzischen Carbon. Geognost. Jahresh. xiii, pp. 1–6, 4 figg. (1901).

2. [ANON.] Les pierres suspendues aux toiles d'Araignées. (De la Causerie scientifique de la *Croix*, 13 Oct. 1902.) Natural. Canad. xxix (12), pp. 180–182.

3. BANKS, NATHAN. Some Spiders and Mites from the Bermuda Islands. Tr. Connect. Ac. xi, pp. 267–275, 3 figg. in text.

4. ——. Principal Insects liable to be distributed on Nursery Stock. Bull. U. S. Dep. Agric. Ent. n. s. No. 34, 46 pp. with figg. [*Acari* pp. 43–45, fig. 42.]

5. ——. Papers from the Hopkins Stanford Galapagos Expedition, 1898–1899. VII. Entomological Results. (6) Arachnida, with Field Notes by ROBERT E. SNODGRASS. P. Washington Ac. iv, pp. 49–86, pls. i–iii. [Part ii, Field Notes by R. E. SNODGRASS, pp. 71–80.]

6. ——. Daddy-long-legs from Mt Katahdin, Maine. Ent. News Philad. xiii, pp. 308 & 309.

7. ——. New genera and species of Acarians. Canad. Ent. xxxiv, pp. 171–176, 4 figg. in text.

8. ——. Some Arachnida from Alabama. P. Ac. Philad. lii (1900), pp. 529–543.

9. ——. Some Arachnida from New Mexico. Op. cit. liii (1901), pp. 568–597, pl. xxxiii.

10. ——. A new Phalangid from the Black Mountains, N. C. J. N. York Ent. Soc. x, p. 142.

11. ——. Some Spiders and other Arachnida from Southern Arizona. P. U. S. Mus. xxiii, pp. 581–590, pl. xxii (1901).

12. ——. Some Spiders and other Arachnida from Porto Rico. Op. cit. xxiv, pp. 217–227, pl. xv (1901).

13. ——. A list of Spiders collected in Arizona by Messrs Schwarz and Barber during the summer of 1901. Op. cit. xxv, pp. 211–221, pl. vii. Includes other Arachnida.

14. ——. Description of a new cave Spider, pp. 97 & 98, in "A contribution to the Subterranean Fauna of Texas" by C. J. ULRICH. Tr. Amer. micr. Soc. xxiii.

15. BERLESE, ANTONIO. Specie di Acari nuovi. Zool. Anz. xxv, pp. 697–700.

16. ——. Descrizione e Figura della *Trombella otiorum*, n. sp. Riv. Patol. Veg. ix, pp. 126 & 127, 1 fig. (1900).

17. BORDAS, L. Recherches sur les glandes venimeuses ou glandes des chélicères du *Latrodectus* 13-*guttatus* Rossi ou Malmignatte. C.R. Ass. Franc. Ajaccio 1901, 1re Partie, pp. 146 & 147 (Abstract), 2me Partie, pp. 615–618.

---

* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

18. Borelli, Alfredo. Di una nuova specie di scorpione della Colonia Eritrea. Boll. Mus. Torino xvii, No. 422, 3 pp.

19. Börner, Carl. Arachnologische Studien (ii und iii). Zool. Anz. xxv, pp. 433–466, 14 figg. in text.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 36.

20. ——. Arachnologische Studien. iv. Die Genitalorgane der Pedipalpen. Op. cit. xxvi, pp. 81–92, 7 figg. in text.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 39.

21. ——. Arachnologische Studien. v. Die Mundbildung bei den Milben. T. c. pp. 99–109, 6 figg. in text.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 42.

22. ——. *Kœnenia mirabilis* und andere Pedipalpen. Verh. Deutsch. zool. Ges. 1902, pp. 214 & 215.

23. Bösenberg, W. Die Spinnen Deutschlands, ii, iii, iv. Zoologica xiv, Lief. 2, 3, 4, pp. 97–384, pls. ix–xxxvi.

24. Brown, A. A. Fowl Tick (*Argas americanus*). J. Dep. Agric. Victoria i, pp. 86–90, figg., pp. 209–212.

[Brucker, E. A. Monographie de *Pediculoides ventricosus* Newport et théorie des pièces buccales des Acariens. Bull. Sci. France Belgique xxxv (1900), pp. 355–442.] Abstracts: by R. Piersig, Zool. Centrlbl. ix, pp. 19–25; Zool. Jahresber. 1902, Arthrop. p. 41.

25. Cambridge, F. O. Pickard. *Arachnida Araneida* ii, pp. 313–424, pls. xxxi–xxxix, Biol. Centr.-Amer.
Quoted hereafter as Arach. Aran. ii, Biol. Centr.-Amer.

26. ——. On the Spiders of the Genus *Latrodectus* Walckenaer. P. Zool. Soc. London 1902, i, pp. 247–261, pls. xxvi & xxvii.

27. ——. A revision of the genera of the *Araneæ* or Spiders with reference to their Type Species. Ann. Nat. Hist. (7) ix, pp. 5–20.

28. ——. New Species of Spiders belonging to the Genus *Ctenus*, with supplementary notes. T. c. pp. 401–415, pl. vii.

29. ——. On the Genus *Latrodectus* Walck. Op. cit. x, pp. 38–40.

30. ——. Some notes on Nomenclature. T. c. pp. 89–96.

31. Cambridge, O. Pickard. *Arachnida Araneida* i, pp. 305–317, pl. xxix, Biol. Centr.-Amer.
Quoted hereafter as Arach. Aran. i, Biol. Centr.-Amer.

32. ——. On new and rare British Arachnida. P. Dorset Club xxiii, pp. 16–40, 1 pl.

33. Cavara, F. Di un nuovo acarocecidio della *Suæda fruticosa* osservato in Sardegna. Bull. Soc. bot. Ital. 1900–1901, No. 3, in Nuovo Giorn. Bot. Ital. vii.
Abstract by Montemartini in Centrbl. Bakter. 2 Abth. ix, p. 181.

34. Cecconi, G. Intorno ad alcune galle raccolte all' isola di Cipro. Malpighia xv (1901), pp. 38–41.
Abstract by Pantanelli, Centrbl. Bakter. 2 Abth. ix, p. 695.

35. ——. Quarta contribuzione alla conoscenza delle galle della foresta di Vallombrosa. Malpighia xv (1901), pp. 49–70.

36. ——. Quinto contributo alla conoscenza delle galle della foresta di Vallombrosa. T. c. pp. 261–276.
Abstract by Pantanelli, Centrbl. Bakter. 2 Abth. ix, p. 901.

37. Corti, Alfredo. Le galle della Valtellina. Primo contributo alla conoscenza della Cecidiologia Valtellinese. Atti Mus. Milano xl, pp. 153–268.

38. ——. Le galle della Valtellina. Secondo contributo alla conoscenza della Cecidiologia Valtellinese. Op. cit. xli, pp. 177–283.

39. Croneberg, A. Zur Hydrachnidenfauna Central-Russlands. Bull. Soc. Moscou 1902, pp. 90–101, pl. xii.
Abstract in J. R. Micr. Soc. 1902, p. 307.

[Daday, E. Mikroskopische Süsswasserthiere, in Horváth's Zool. Ergeb. Dritte asiatische Forschungsreise des Grafen Eugen Zichy ii, pp. 375–470.] Abstract by F. Zschokke, Zool. Centrlbl. ix, pp. 493 & 494.

40. Dahl, Friedr. Noch einmal über die internationalen Nomenclaturregeln und ihre Anwendung auf die ältesten Spinnengattungen. Zool. Anz. xxv, pp. 157–162.

41. ——. Ist die Skorpion-Gattung *Zabius* Thor. berechtigt? T. c. pp. 220 & 221.

42. ——. Kann ein Systematiker auch zu sorgfältig arbeiten? T. c. pp. 705–708.

43. ——. Noch ein Wort über Nomenclaturregeln. T. c. pp. 708–712.

44. ——. Ueber abgebrochene Copulationsorgane männlicher Spinnen im Körper der Weibchen. SB. Ges. naturf. Berlin 1902, pp. 36–45, 3 figg. [Includes key to spp. of *Latrodectus*, with many n. spp.]

45. ——. Stufenfänge echter Spinnen am Riesengebirge. T. c. pp. 185–203, with table.

Dalla Torre, K. W. v. [See Darboux & Houard (46).]

46. Darboux, G. & Houard, C. Catalogue systématique des Zoocécidies de l'Europe et du Bassin méditerranéen. Avec une préface par A. Giard. Bull. Sci. France Belgique xxxivbis, pp. xi + 544, 863 figg. Also separately, Paris 1901.
Reviews: by Dalla Torre, Zool. Centrlbl. ix, pp. 45–47; by Kieffer, in Centrbl. Bakter, 2 Abth. viii, pp. 540–543.

47. Destefani Perez, T. Cecidiozoi e Zoocecidii della Sicilia. Giorn. Soc. Palermo xxiii, pp. 204–240, pls. i & ii.
Review by L. Reh, Allg. Zeitschr. Ent. vii, p. 281.

48. ——. Contribuzione all' entomocecidiologia della flora sicula. Nuovo Giorn. Botanico Italiano viii, pp. 440–455, 543–556.
Abstract by Pantanelli, Centrbl. Bakter. 2 Abth. viii, p. 413.

49. Ellingsen, Edw. Sur la faune de Pseudoscorpions de l'Équateur. Mem. Soc. zool. France xv, pp. 146–168.

Embleton, Alice L. [See Warburton & Embleton (219).]

50. Emerton, James H. The Common Spiders of the United States. Boston, U.S.A., 1902, 8vo, pp. xviii + 225, figg. in text.

Escherich, K. [See Wasmann (220).]

51. Evans, William. Arachnida (pp. 319–327) in, Fauna, Flora and Geology of the Clyde Area, edited by G. F. Scott Elliot, Malcolm Laurie & J. Barclay Murdoch (Brit. Ass. Handbook), 8vo, Glasgow, 1901.

52. Falconer, Wm. *Lycosa purbeckensis* in Northumberland. Naturalist 1902, p. 115.

53. ——. *Diplocephalus spinosus* (sp. nov.?) in South-West Yorkshire. T. c. p. 207.

54. ——. Spiders in Dean Head Valley (S.W. Yorks.). Natural. J. xi, p. 158.

55. ——. Spider new to Yorkshire. T. c. p. 17. [*Susarion neglectum.*]

56. Faure, M. Un curieux nid d'Araignée. Feuille Natural. xxxii, p. 153.

57. Favier, C. Observation à propos d'une Araignée de Madagascar elevée à Lyon. Ann. Soc. ent. France lxxi, pp. 488–498, pl. iii.

58. Feltgen, Ernest. Notices sur les Araignées observées dans le Luxembourg et dans les contrées limitrophes, précédées d'un aperçu anatomique et biologique des Araignées en général. Fauna xi (1901), pp. 516–518. [Introductory remarks only.]

59. Fenizia, Carlo. Un caso di simbiosi utilitaria reciproca. Boll. Nat. xxii, pp. 55–58.

60. Forel, F. A. Le Léman, Monographie limnologique. iii (1), 411 pp., 37 figg., 1 map, Lausanne, 1901.

61. Fritsch, Ant. Fauna der Gaskohle und der Kalksteine der Permformation Böhmens. iv (2), (1899).
Arachnoidea, pp. 56–63, pls. 153 & 154, text-figg. 359–368.

62. ——. Notizen über die Arachniden der Steinkohlenformation. Zool. Anz. xxv, pp. 483 & 484.

[Frič, A. & Vavra, V. Unters. des Elbeflusses und seiner Altwässer.... Arch. Landesdf. Bohmen xi (3), (1901), 154 pp.] Abstract by F. Zschokke, Zool. Centrlbl. ix, pp. 730–732.

63. Fürth, Otto von. Vergleichende chemische Physiologie der niederen Tiere. Pp. xiv+670, 8vo, Jena, 1903.
Received in London, December, 1902.

64. Garneri, G. Antonio. Contribuzione alla Fauna Sarda—Aracnidi. Boll. Soc. zool. Ital. (2) iii (Anno xi), Fasc. iv, v, vi, pp. 57–103.

65. Gaskell, Walter H. The Origin of Vertebrates deduced from the study of *Ammocœtes*. Part x. On the Origin of the Auditory Organ; the meaning of the viiith Cranial Nerve; together with a consideration of the origin of the Cranial Nerves as a whole, in accordance with the principles laid down in Part i. J. Anat. Physiol. norm. path. xxxvi, pp. 164–208, 13 figg. in text.

66. Geisenheyner, L. Ueber einige neue und seltenere Zoocecidien aus dem Nahegebiete. Allg. Zeitschr. Ent. vii, pp. 193–198, 246–251, 272–276, 306–312, 4 figg. in text.
Descr. of *Eriophyes gymnoproctus*, n. sp., by Nalepa, p. 273.

67. George, C. F. Lincolnshire Water Mites; third list. Naturalist 1902, pp. 13 & 14.
Abstract by R. Piersig, Zool. Centrlbl. ix, p. 126.

68. Gerber, C. Zoocécidies provençales. C.R. Ass. Franc. Ajaccio 1901, 1re Partie, pp. 140 & 141 (Abstract), 2me Partie, pp. 524–550, 36 figg. in text.

Giard, A. [See Darboux & Houard (46).]

69. GIESBRECHT, W. & MAYER, P. Arthropoda. Zool. Jahresber. 1902, 72 pp. [*Arachnidæ* pp. 36–43.]

70. GOUGH, L. H. The development of *Admetus pumilio* Koch; a contribution to the embryology of the Pedipalps. Quart. J. Micr. Sci. (n. s.) xlv, pp. 595–630, pls. xxxii & xxxiii.
Abstracts: J. R. Micr. Soc. 1902, p. 430; Zool. Jahresber. 1902, Arthrop. p. 39.

71. GREEN, E. ERNEST. On some parasites of *Xylocopa tenuiscapa* Westw. Ent. Mag. (2) xiii, pp. 232 & 233, fig. in text.

72. GUIART, JULES. La fréquence du *Demodex* chez l'homme. Bull. Soc. zool. France xxvii, pp. 128–130.

HANDLIRSCH, A. [See ZEHNTNER.]

73. HANSTEIN, REINOLD v. Beiträge zur Kenntnis der Gattung *Tetranychus* Duf. Nebst Bemerkungen über *Leptus autumnalis* Shaw. Zeitschr. wiss. Zool. lxx, pp. 58–108, pl. vi (1901).

74. ——. Zur Biologie der Spinnenmilben (*Tetranychus* Duf.). Zeitschr. Pflanzenkrankheiten xii, pp. 1–7.

75. ——. Uber *Bryobia ribis* Thomas. SB. Ges. naturf. Berlin 1902, pp. 128–136.

HEIDER, K. [See KORSCHELT & HEIDER (87).]

76. *HEINICKE, W. Zwei Fälle von Urticaria, hervorgerufen durch die Vogelmilbe (*Dermanyssus avium*). Munch. med. Wochenschrift. 1901, No. 53.
Abstract by GEORG SCHMIDT, Centrbl. Bakter. xxxii, 1 Abth. Referate, pp. 398 & 399.

76A. HESSE, R. [Author's abstract of] Untersuchungen über die Organe der Lichtempfindung bei niederen Tieren. vii. Von den Arthropoden-Augen. (Zeitschr. wiss. Zool. lxx (1901), pp. 347–473.) Zool. Centrlbl. ix, pp. 79–82.

77. HEYMONS, R. Biologische Beobachtungen an asiatischen Solifugen nebst Beiträgen zur Systematik derselben. Abh. Ak. Berlin 1901, Anh. i, 65 pp.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 40.

78. HOGG, H. R. On some additions to the Australian Spiders of the Suborder *Mygalomorphæ*. P. Zool. Soc. London 1902, ii, pp. 121–142, pl. xiii, figg. 22–27 in text.

79. HOUARD, C. Zoocécidies recueillies en Algérie. C.R. Ass. Franc. Ajaccio 1901, ii Partie, pp. 699–707, 10 figg. in text.

——. [See DARBOUX & HOUARD (46).]

80. HUBER, J. CH. Bibliographie der klinischen Entomologie (Hexapoden, Acarinen). Heft. i–iv, Jena 1899–1900.

JACOBI, —. [See NEUMANN (116 & 117).]

81. JÄRVI, T. H. [...redogjorde...for sina insamlingar särskildt af spindlar.] Medd. Soc. Faun. Fenn. xxvi, pp. 49 & 50 (1900).

——. [See ODENWALL & JÄRVI (122).]

82. JOURDAIN, S. Appareil respiratoire des Gamases. C.R. Ass. Franc. Ajaccio 1901, i^re^ Partie, p. 144.

83. [JOURDAIN, S.] La Vigne et le *Cœpophagus echinopus.* C.R. Ac. Sci. cxxxiv, p. 316.
Abstract by KÜSTER, Centrbl. Bakter. 2 Abth. viii, p. 718.

KIEFFER. [See TAVARES (182).]

84. *KOBERT, R. Wirkung des Spinnengebisses auf den Urin. Medizinische Woche, 1902, No. 31.

*——. Giebt es für den Menschen gefährliche Spinne? Ibid. 1902, No. 15.
Abstract by A. WOLFF, Centrbl. Bakter. i Abth. xxxii, Referate, pp. 528 & 529.

85. KOENIKE, F. Acht neue *Lebertia*-Arten, eine *Arrenurus*- und eine *Atractides*-Art. Zool. Anz. xxv, pp. 610–616.
Abstract by R. PIERSIG, Zool. Zentrlbl. x, p. 38.

86. *——. Ueber ein paar Hydrachniden aus dem Schwarzwald nebst Beschreibung von *Feltria minuta* Koen. ♂ aus dem Rhätikon. Mt. Badischen zool. Ver. No. 13 & 14, pp. 45–58, 1 pl.

[——. Ueber einige streitige Punkte aus der Hydrachnidenkunde. Zool. Anz. xxiv (1901) pp. 560–567.] Abstract and review by R. PIERSIG, Zool. Centrlbl. ix, pp. 126–129.

87. KORSCHELT, E. & HEIDER, K. Lehrbuch der vergleichenden Entwicklungsgeschichte der wirbellosen Thiere. Allgemeiner Theil. i Lief. 1 & 2 Auflage, pp. x+538, 318 figg. in text. 8vo, Jena, 1902.

88. KRAEPELIN, KARL. Ueber die durch den Schiffsverkehr in Hamburg eingeschleppter Tiere. Mt. Mus. Hamburg xviii, pp. 183–209.
List of Arachnida, pp. 202–204.

89. KULCZYŃSKI, VL. Species *Oribatinarum* (Oudms.) (*Damæinarum* Michael) in Galicia collectæ. Bull. Ac. Cracovie 1902, pp. 89–96, pls. iv & v.
Abstract of a paper in the Polish language not seen by Recorder.

90. ——. *Erigonæ* Europææ. Addenda ad descriptiones. T. c. pp. 539–560, pl. xxxv.

91. ——. Zoologische Ergebnisse der Russischen Expeditionen nach Spitzbergen. *Araneæ* et *Oribatidæ.* Annuaire Mus. St. Petersb. vii, pp. 335–354, pl. vii.

92. LAMY, ÉDOUARD. Recherches anatomiques sur les trachées des Araignées. Ann. Sci. nat. xv, pp. 149–280, pls. v–viii, 70 figg. in text. Reprinted Thès. Fac. Sci. Paris, No. 1091 (1902).
Abstracts: J. R. Micr. Soc. 1902, p. 645; Zool. Jahresber. 1902, Arthrop. p. 39.

93. LANKESTER, E. RAY. Arachnida. Encycl. Brit. xxv, pp. 519–546, 78 figg. [Classification by R. I. POCOCK.]

94. ——. Arthropoda. T. c., pp. 689–701, 11 figg.

95. LAVERAN, A. De quelques parasites des Culicides. C.R. Soc. Biol. liv, pp. 233–235.

96. LEARDI IN AIRAGHI, ZINA. Arachnidi di Mahè e Kandy. Atti. Mus. Milano xl, pp. 345–373.

97. —— Ragni di Manila, Arcipelago delle Filippine. Op. cit. xli, pp. 117–127.

98. Levander, K. M. Zur Kenntnis des Planktons und der Bodenfauna einiger seichten Brachwasserbuchten. Acta Soc. Faun. Fenn. xx, No. 5, 34 pp. (1901).

99. — -. Uebersicht der in der Umgebung von Esbo-Löfö im Meereswasser vorkommenden Thiere. T. c., No. 6, 20 pp. (1901).

100. *Lewis, E. J. An account of the black currant bud gall-mite, *Eriophyes ribis*, with further observations on its life-history and a report of experiments in fumigation with hydrocyanic acid. J. S. East. Agric. Coll. No. 11, pp. 55–80, 1 pl.

101. Lindroth, J. I. Tre för den finska faunan nya Eriophyider. Medd. Soc. Faun. Fenn. xxviii, B, pp. 3–7.

102. Loman, J. C. C. Neue aussereuropäische Opilioniden. Zool. Jahrb. Syst. xvi, pp. 163–216, pl. ix.

103. Lönnberg, Einar. On some Scorpions collected in North-Western Argentine and Bolivia by Baron Erland Nordenskjöld. Ent. Tidskr. xxiii, pp. 253–256.

104. Lucas, Robert. Bericht über...Arachnida (for 1898). Arch. Naturg. lxv (2), pp. 939–1000.

105. Mangin et Viala. Sur le dépérissement des Vignes causé par un acarien, le *Cœpophagus echinopus*. C.R. Ac. Sci. cxxxiv, pp. 251–253. Abstract by Küster, Centrbl. Bakter. 2 Abth. viii, p. 717.

106. Marchal, Paul. Les *Tarsonemus* des Graminées. Description d'une espèce nouvelle vivant sur l'Avoine. Bull. Soc. ent. France 1902, pp. 98–104, 3 figg. in text.

107. Marucci, Venanzo. Richerche sperimentale sui maschi polimorfi di alcune forme di Acari "Cryptostigmata." Boll. Soc. zool. Ital. (2) iii (anno xi), Fasc. i, ii et iii, pp. 69–78, with 1 pl.

108. ——. Nota preliminare sugli Idracnidi del lago di Castel Gandolfo. Monit. Zool. ital. xiii, Suppl. p. 35.

Marx, —. [See Sachs (158).]

109. Massalongo, C. Sopra alcune milbogalle nuove per la flora d' Italia. (Quarta communicazione.) Malpighia xv (1901), pp. 75–91, pls. i–iv.

Mayer, P. [See Giesbrecht & Mayer (69).]

110. Michael, A. D. Nomenclature of genera etc. in the *Oribatidæ*. Ann. Nat. Hist. (7) ix, pp. 309–313. Abstract by R. Piersig, Zool. Centrlbl. ix, pp. 410 & 411.

[——. *Acari*, in Contributions to the Natural History of Lake Urmi, N. W. Persia, and its neighbourhood. J. Linn. Soc. xxvii (1900), pp. 406 & 407.] Abstract by R. Piersig, Zool. Centrlbl. ix, p. 129.

111. Moenkhaus, W. J. The Spinning of the Egg-Sac in *Lycosa*. P. Indiana Ac. 1901, pp. 113 & 114.

Montemartini, —. [See Cavara (33).]

112. Montgomery, Thos. H., Jun. Descriptions of *Lycosidæ* and *Oxyopidæ* of Philadelphia and its vicinity. P. Ac. Philad. liv, pp. 534–592, pls. xxix & xxx.

113. Morgan, Thos. Hunt. Regeneration. (Columbia University Biological Series vii), pp. xii + 316, figg. in text, 8vo, New York, 1901.

114. *Nalepa, Alfred. Neue Gallmilben. Anz. Ak. Wiss. xv, 15 June 1900 [p. ?].

——. [See also Geisenheyner (66).

115. Neumann, L. G. *Spelæorhynchus præcursor* n. g., n. sp. Nouvel Acarien parasite. Arch. parasit. v, pp. 31–37, 9 figg.

116. ——. Notes sur les Ixodidés. Op. cit. vi, pp. 109–128, 6 figg.
Abstract by Jacobi, Centrbl. Bakter. i Abth., xxxii, Referate, p. 787.

117. ——. Note sur une collection d'ectoparasites recueillis en Abyssinie par M. le Baron C. von Erlanger. T. c. pp. 293 & 294.
Abstract by Jacobi, Centrbl. Bakter. i Abth., xxxii, Referate, pp. 787 & 788.

118. ——. La determination des espèces en Zoologie, à propos des Ixodidés. Mem. Ac. Toulouse (10) ii, pp. 329–338.

119. Nordenskiöld, Erik. Anteckningar om Acarider samlade i hö. Medd. Soc. Faun. Fenn. xxvi, pp. 34–38, 1 fig. (1900).

120. ——. Zur kenntniss der Oribatidenfauna Finnlands. Acta Soc. Faun. Fenn. xxi, No. 2, 34 pp., 3 text-figg. (1901).

121. Odenwall, E. [...berättelse öfver...undersökningar af spindelfaunan.] Medd. Soc. Faun. Fenn. xxv (1900), pp. 70–72.

122. —— & Järvi, T. H. Verzeichnis einiger für Finland neuer oder daselbst wenig beobachteter Araneen. Acta Soc. Faun. Fenn. xx, No. 4, 12 pp. (1901).

123. Oudemans, A. C. Ueber eine sonderbare Art von Ueberwinterung einer Milbe. Zool. Anz. xxv, pp. 218 & 219.
Abstract in J. R. Micr. Soc. 1902, p. 431.

124. ——. Entomologische Aanteekeningen. Ent. Ber. Nederland. Ver. No. 3, pp. 16 & 17, No. 4, pp. 20–23.

125. ——. Acarologische Aanteekeningen. T. c. No. 6, pp. 36–39.

126. ——. New List of Dutch *Acari*. Second Part. With remarks on known and descriptions of a new subfamily, new genera and species. Tijdschr. Ent. xlv, pp. 1–52, pls. 1–6.

127. ——. Notes on *Acari*. Fourth Series. Tijdschr. Nederland. Dierk. Ver. (2) vii, pp. 276–311, pls. viii–x.

——. [Footnote in Voigts (217).]

[——. Notes on *Acari*. Third Series. Tijdschr. Nederland. Dierk. Ver. vii, 1901, pp. 50–88.] Abstract by R. Piersig, Zool. Centrlbl. ix, pp. 175–181.

[——. Drei neue *Acari* von der Insel Juist. Abh. Ver. Bremen xvii (1901), pp. 222–227.] Abstract by R. Piersig, Zool. Centrlbl. ix, pp. 25 & 26.

128. Pampaloni, L. Microflora e Microfauna nel disodile di Melilli in Sicilia. Rend. Acc. Lincei xi, 2 Sem., pp. 248–253. [*Acari*, p. 252.]

Pantanelli, —. [See Cecconi (34 & 36), Destefani Perez (48).]

129. Peach, B. N. Scottish Palæontology during the last Twenty Years. P. Phys. Soc. Edinb. xiv (4), pp. 361–394. [*Scorpiones*, pp. 374 & 375.]

130. Peckham, George W. & Elizabeth G. Some new genera and species of *Attidæ* from South Africa. Psyche ix, pp. 330–335.

Perez, T. Destefani. [See Destefani Perez, T. (47 & 48).]

131. Peyerimhoff, P. de. Découverte en France du genre *Koenenia*. Bull. Soc. ent. France 1902, pp. 280–283, figg. i–xi in text.

132. Piersig, R. Abstracts of and remarks on: Thor, "Zwei neue Hydrachniden-Gattungen und vier neue Arten aus Norwegen, nebst Bemerkungen über die Begattung von *Hjartdalia* n. g." (Zool. Anz. xxiv, 1901, pp. 673–680); Protz, "Eine neue Hydrachnidenart aus der Gattung *Aturus*, Kramer." (Op. cit. xxv, 1901, pp. 1 & 2); Piersig, "Eine neue Hydrachnide aus dem Böhmisch-Bayerischen Wald." (T. c. pp. 18–20); Zool. Centrlbl. ix, pp. 202–205.

[—— & Lohmann, H. *Hydrachnidæ* und *Halacaridæ*. Das Tierreich. Lief. xiii, 1901.] Abstract by R. Piersig, Zool. Centrlbl. ix, pp. 129–132.

——. See also Brucker, George (67), Koenike (85), Michael (110), Oudemans, Ribaga (152 & 153), Soar (175), Thon (187), Thor (191 & 193), Trägårdh (198 & 200).

133. Pocock, R. I. Myriopoda and Arachnida, in Report on a collection made by Messrs F. V. McConnell and J. J. Quelch at Mount Roraima in British Guiana. Tr. Linn. Soc. London (2) viii, pp. 64–71, 2 figg. in text (1900).

134. ——. Arachnida, *Scorpiones*, *Pedipalpi* and *Solifugæ*. Biol. Centr.-Amer. 71 pp., pls. i–xii.

135. ——. On the Marine Spiders of the genus *Desis*, with description of a new species. P. Zool. Soc. London 1902, ii, pp. 98–106, 1 fig.

136. ——. On a new Stridulating-Organ in a Scorpion. Op. cit. 1902, i, pp. 222–224, fig. 26 in text.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 36.

137. ——. On some points in the anatomy of the alimentary and nervous systems of the Arachnidan Sub-order *Pedipalpi*. Op. cit. 1902, ii, pp. 169–188, figg. 40–45 in text.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 38.

138. ——. Studies on the Arachnid entosternite. Quart. J. Micr. Sci. (n. s.) xlvi, pp. 225–262, pls. xiii & xiv.
Abstracts: J. R. Micr. Soc. 1902, p. 645; Zool. Jahresber. 1902, Arthrop. p. 37.

139. ——. *Eophrynus* and allied Carboniferous Arachnida. Geol. Mag. (iv) ix, pp. 439–448, 487–493, 2 figg. in text.

140. ——. A contribution to the systematics of the *Pedipalpi*. Ann. Nat. Hist. (7) ix, pp. 157–165.

141. ——. Descriptions of some new species of African *Solifugæ* and *Araneæ*. Op. cit. (7) x, pp. 6–27, pls. ii & iii.

142. ——. Some new African Spiders. T. c. pp. 315–330.

143. ——. A contribution to the systematics of the Scorpions. T. c. pp. 364–380.

144. ——. Some points in the morphology and classification of the *Opiliones*. T. c. pp. 504–516, pls. ix & x.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 37.

——. [See also Lankester (93).]

145. Police, Gesualdo. Sui centri nervosi sottointestinali dell' *Euscorpius italicus*. Boll. Soc. Napoli xv, pp. 1–24, pl. i.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 38.

146. PURCELL, W. F. On the South African *Theraphosidæ* or "Baviaan" Spiders, in the Collection of the South African Museum. Tr. S. African Soc. xi, pp. 319–347.

147. ——. New South African Trap-Door Spiders of the Family *Ctenizidæ* in the Collection of the South African Museum. T. c. pp. 348–382.

148. RÁDL, ERN. Ueber die Lichtreactionen der Arthropoden auf der Drehscheibe. Biol. Centrbl. xxii, pp. 728–732. [*Hydrachnidæ*.]
Abstract, Zool. Jahresber. 1902, Arthrop. p. 20.

149. ——. Ueber specifische Strukturen der nervösen Centralorgane. Zeitschr. wiss. Zool. lxxii, pp. 31–99, pls. iii–v.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 20.

150. RAINBOW, W. J. Arachnida from the South Seas. P. Linn. Soc. N. S. Wales xxvi, pp. 521–532, pl. xxviii.

REH, L. [See DESTEFANI PEREZ (47).]

151. REUTER, ENZIO. *Rhizoglyphus echinopus* (Fum. et Rob.) Murray, ein neuen Schädiger des Hafers. Medd. Soc. Faun. Fenn. xxvii, pp. 121–125.

152. RIBAGA, CONSTANTINO. *Acari* sudamericani. Zool. Anz. xxv, pp. 502–508.
Abstract by R. PIERSIG, Zool. Zentrlbl. x, p. 39.

153. *——. Gamasidi planticoli. Riv. Patol. Veg. x, pp. 175–178.
Abstract by R. PIERSIG, Zool. Centrlbl. ix, p. 411.

154. RILEY, WILLIAM A. The so-called mandibles of Spiders. Psyche ix, pp. 368–370.

155. RIVERA, MANUEL J. Apareamiento del *Latrodectus formidabilis*. Act. Soc. Chile xi, pp. 3–19.

156. RÜBSAAMEN, EW. H. Nachtrag zu den Zoocecidien von der Balkan-Halbinsel. Allg. Zeitschr. Ent. vii, pp. 14–16.

157. ——. Mittheilung über die von Herrn J. Bornmüller im Oriente gesammelten Zoocecidien. Zool. Jahrb. Syst. xvi, pp. 243–334, pls. xii–xvi, 39 figg. in text.

158. *SACHS, HANS. Zur Kenntniss des Kreuzspinnengiftes. Beitr. Chem. Physiol. ii, pp. 125–133.
Abstract by MARX, Centrbl. Bakter. 1 Abth. xxxi, Referate, p. 788.

159. SALMON, D. E. & STILES, CH. WARDELL. The Cattle Ticks (*Ixodoidea*) of the United States. Rep. U. S. Dep. Agric. Animal Ind. xvii, for 1900, pp. 380–491, pls. lxxiv–xcviii and figg. in text.

SCHMIDT, GEORG. [See HEINICKE (76).]

SCHULTZ, E. [See WAGNER (218).]

160. SILVESTRI, F. Note preliminari sui Termitidi e Termitofili sud-americani. Frammenti biografici. Boll. Mus. Torino xvii, No. 419, 29 pp. [*Acari*, pp. 19–21.]
Abstract, Zool. Jahresber. 1902, Arthrop. p. 56.

161. SIMON, EUGÈNE. Histoire naturelle des Araignées. Deuxième édition, ii, 3me fasc., pp. 381–668, figg. 385–792, Paris 1901.
Quoted hereafter as Hist. Araign.

162. ——. Études Arachnologiques. 32e Mémoire. LI. Descriptions d'espèces nouvelles de la famille des *Salticidæ* (Suite). Ann. Soc. ent. France lxxi, pp. 389–421.

163. [SIMON, EUGÈNE.] Note sur le genre *Cœrostris*. Bull. Soc. ent. France 1902, pp. 214 & 215, fig. in text.

164. ——. Descriptions de quelques Arachnides nouveaux de la section des Cribellatés. T. c. pp. 240–243.

165. ——. Descriptions d'Arachnides nouveaux de la famille des *Salticidæ* (*Attidæ*) (Suite). Ann. Soc. ent. Belgique xlvi, pp. 24–54 and 363–406.

166. ——. Arachnides recueillis au cours de la mission de MM. J. Bonnier et Ch. Perez au Golfe Persique (Mars–Avril 1901). Bull. Mus. Paris viii, pp. 252–254.

167. ——. Arachnides recueillis dans l'Afrique tropicale par M. Edouard Foa. T. c. pp. 513–515.

168. ——. Description d'Arachnides nouveaux de la famille des Aviculariides faisant partie des collections du Muséum. T. c. pp. 595–599.

169. ——. Arachnoideen, excl. Acariden und Gonyleptiden. Ergebnisse der Hamburger Magalhænsischen Sammelreise vi (4), 47 pp.
Quoted hereafter as Arach. Hamb. Magalh. Sammelreise.

169A. ——. Order *Araneæ*. Appendix B. in "Through Unknown African Countries" by A. Donaldson Smith. London, 1897, pp. 386–391.
(101) Zool. Rec. 1898, but new species not recorded.

——. Note sur des Arachnides capturés par M. Mazauric dans la grotte de Trabuc (Gard). Bull. Soc. Nimes xxix, pp. 13 & 14.
Reprint of (177) Zool. Rec. 1901.

170. SMITH, FRANK PERCY. An Introduction to British Spiders (continued). Sci. Gossip viii, pp. 234–236, 264–266, 297–299, 329–332, figg. in text.

171. ——. The Structure of Spiders and the habits of some well-known species (continued). Natural. J. xi, pp. 32–35, 1 pl.
Habits of *Aranea quadrata*.

172. ——. The Spiders of Epping Forest. Part I. Essex Natural. xii, pp. 181–201, pls. vii & viii.
Introductory. General account of structure and classification.

173. SMITH, W. W. Ants displaced by Woodlice in New Zealand. Ent. Mag. (2) xiii, p. 132.
Woodlice attacked by parasitic *Acari*.

174. ——. On Mites attacking Beetles and Moths. Tr. N. Zealand Inst. xxxiv, pp. 199–201.

SNODGRASS, ROBERT E. [See BANKS (5).]

175. SOAR, CHAS. D. *Ecpolus papillosus*. An unrecorded Hydrachnid found in Britain. J. Quekett Club (2) viii, pp. 251 & 252, pl. xv, figg. 1–4.
Abstracts: by R. PIERSIG, Zool. Centrlbl. ix, p. 411; J. R. Micr. Soc. 1902, p. 554.

176. SÖRENSEN, WILLIAM. Gonyleptiden (*Opiliones Laniatores*). Ergebnisse der Hamburger Magalhænsischen Sammelreise vi (5), 36 pp.
Quoted hereafter as Gonyleptiden Hamb. Magalh. Sammelreise.

177. STILES, CH. WARDELL. The Cattle Ticks of North America. P. ent. Soc. Washington v, pp. 60 & 61. [Abstract of (159).]

——. [See SALMON & STILES (159).]

178. STRAND, EMBR. Theridiiden aus dem westlichen Norwegen. Bergens Mus. Aarbog 1902, No. 6, 23 pp., fig. in text.

179. ——. Fortegnelse over endel af Sparre Schneider i det arktiske Norge samlede Araneider. Tromso Mus. Aarsh. xxiii (1900), pp. 9–12.

180. STSCHELKANOVZEFF, J. P. Ueber den Bau der Respirationsorgane bei den Pseudoscorpionen. (Vorläufige Mittheilung.) Zool. Anz. xxv, pp. 126–135, 5 figg. in text.
Abstracts: J. R. Micr. Soc. 1902, p. 184; Zool. Jahresber. 1902 Arthrop. p. 39.

181. ——. *Chernes multidentatus*, n. sp., nebst einem Beitrag zur Systematik der *Chernes*-Arten. Zool. Anz. xxv, pp. 350–355, 2 figg. in text.

182. TAVARES, JOAQUIM DA SILVA. As zoocecidias portuguezas. Enumeração das especies até agora encontradas em Portugal e descripção de dezesette novas. Ann. Sci. nat. Porto vii (1900), pp. 17–108, pls. i & ii. [*Phytoptidæ*, pp. 90 & 91.]
Abstract by KIEFFER, Centrbl. Bakter. 2 Abth. ix, pp. 614–619.

183. ——. As zoocecidias portuguezas. Broteria i, pp. 5–46. *Phytoptidæ*, pp. 38–40. Supplement to (182).

184. ——. Zoocecidias dos suburbios de Vienna d'Austria. Broteria i, pp. 78–93. [*Eriophyidæ*, p. 92.]

185. THÉVENIN, ARMAND. Arachnides fossiles à Commentry. Rev. Sci. Bourbonnais xv, pp. 42 & 43. [Preliminary notice of (186).]

186. ——. Sur la découverte d'Arachnides dans le terrain houiller de Commentry. Bull. Soc. geol. France (4) i, pp. 605–611, pl. xiii (1901).

187. THON, KARL. Ueber eine neue parasitische *Atax*-Art aus Texas. Ann. Hofmus. Wien xvi (1901), pp. 31–35, pl. iii.
Abstract by R. PIERSIG, Zool. Centrlbl. ix, pp. 59 & 60.

188. *——. Ueber ein neues Hydrachniden-Genus aus Böhmen. Bull. Ceska Ac. vi, pp. 15–18, 1 pl.

189. *——. Monographie der böhmischen Hydryphantes-Arten. T. c. pp. 55–67, 2 pls., 6 figg.

190. *——. Hydrachnologische Durchforschung von Böhmen. T. c. pp. 115–149, 1 pl., 5 figg.

[——. Neue Hydrachniden aus dem Böhmer Wald. Zool. Anz. xxiv (1901), pp, 279–285.] Abstract by R. PIERSIG, Zool. Centrlbl. ix, pp. 26 & 27.

191. THOR, SIG. Eigenartige bisher unbekannte Drüsen bei einzelnen "Hydrachniden"-Formen. Zool. Anz. xxv, pp. 401–409, 5 figg.
Abstracts: by R. PIERSIG, Zool. Centrlbl. ix, pp. 848–850; Zool. Jahresber. 1902, Arthrop. p. 42.

192. ——. Zwei neue *Sperchon*-Arten und eine neue *Aturus*-Art aus der Schweiz. Zool. Anz. xxvi, pp. 151–159, 5 figg. in text.

193. ——. Untersuchungen über die Haut verschiedener dickhäutiger *Acarina*. Arb. Inst. Wien xiv, pp. 291–306, 1 pl.
Abstracts: Zool. Jahresber. 1902, Arthrop. p. 42; by R. PIERSIG, Zool. Zentrlbl. x, p. 541.

194. ——. Første undersøgelse af Norges *Trombidiidæ*. Forh. Selsk. Christian. 1900, No. 2, 18 pp., 1 pl.

195. ——. Første undersøgelse af Norges *Rhyncholophidæ*. T. c. No. 3, 11 pp., 1 pl.

196. [Thor, Sig.] South African Hydrachnids. Ann. S. African Mus. ii, Pt. xi, pp. 447–465, pls. xvi–xxi.

197. ——. Zur Systematik der Acarinenfamilien *Bdellidæ* Koch, 1842, Grube, 1859, *Eupodidæ* Koch, 1842 und *Cunaxidæ* Sig Thor, 1902. Verh. Ges. Wien lii, pp. 159–165.

[——. Fjerde bidrag til kundskaben om Norges Hydrachnider. Arch. Naturv. Christian. xxiii, No. 4, pp. 1–56.]
Abstract by R. Piersig, Zool. Centrlbl. ix, pp. 27–30.

198. Trägårdh, Ivar. Zur kenntniss der litoralen Arten der Gattung *Bdella* Latr. Bih. Svenska Ak. xxvii (4), No. ix, 24 pp., 2 pls.
Abstract by R. Piersig, Zool. Zentrlbl. x, p. 41.

199. ——. Beiträge zur kenntniss der Schwedischen Acaridenfauna. I. Lappländische Trombidiiden und Oribatiden. Bih. Svenska Ak. xxviii (iv), No. 5, 26 pp., 3 pls.

200. ——. *Pimelobia apoda*, nov. gen., nov. spec., eine auf Coleopteren parasitierende fusslose Sarcoptide. Zool. Anz. xxv, pp. 617 & 618, 3 figg. in text.
Abstracts: by R. Piersig, Zool. Centrlbl. ix, p. 850; J. R. Micr. Soc. 1902, p. 645; Zool. Jahresber. 1902, Arthrop. p. 43.

201. Trani, E. Intorno ai costumi dei *Dolomedes*. Boll. Nat. xxii, pp. 21–23.

202. Trouessart, E. Instructions aux naturalistes voyageurs pour la récolte des Arthropodes marins microscopiques, Acariens, Copépodes, Amphipodes, Ostracodes, etc. Bull. Soc. zool. France xxvii, pp. 23–27.

203. ——. Note sur les *Uropodinæ* et description d'espèces nouvelles. T. c. pp. 29–45, 4 figg. in text.
Abstract in J. R. Micr. Soc. 1902, p. 554.

204. ——. Note préliminaire sur les Acariens marins (*Halacaridæ*) recueillis par S.A.S. le Prince de Monaco dans les mers arctiques. T. c. pp. 66–70.
Abstract in J. R. Micr. Soc. 1902, p. 431.

205. ——. Addition et rectification à la note sur les *Uropodinæ*. T. c. p. 158.

206. ——. Note sur le *Gamasus auris* (Leidy 1872), type d'un genre nouveau (*Raillietia*). T. c. pp. 231–233.

207. ——. Existence de la parthénogenèse chez le *Gamasus auris* Leidy, de l'oreille du Bœuf domestique. C.R. Soc. Biol. liv, pp. 806–809.

208. ——. Deuxième note sur le *Gamasus auris*, type d'un genre nouveau (*Raillietia*). T. c. pp. 1335–1337.

209. ——. Endoparasitisme accidentel chez l'homme d'une espèce de Sarcoptide détriticole (*Histiogaster spermaticus*). Arch. parasit. v, pp. 449–459, 4 figg.

210. ——. *Arachnida*, in Report on the Collections of Natural History made in the Antarctic Regions during the voyage of the "Southern Cross." London, 1902 (pp. 225–227).

211. Tullgren, Albert. Ueber *Mnesitheus asper* Thor. Ent. Tidskr. xxiii, pp. 289–294.

212. ——. Ett par Spindelfynd. T. c. p. 294.

213. TULLGREN, ALBERT. On the Spiders collected in Florida by Dr Einar Lönnberg 1892–1893. Bih. Svenska Ak. xxvii, Afd. 4, No. 1, 29 pp., 1 pl. (1901).

214. ——. Spiders collected in the Aysen valley in South Chile by Mr P. Dusén. Op. cit. xxviii (4), No. 1, 77 pp., 7 pls.

ULRICH, C. J. [See BANKS (14).]

215. VERZHBĪTZKIĬ, E. O paukakh Kavkazskagho kraya. De Araneis regionis Caucasicae. Zapiski Kiev. Obshch. xvii, pp. 461–504, pl. vi.

VIALA, —. [See MANGIN & VIALA (105).]

216. VIRÉ, ARMAND. La Faune et la Flore souterraines du Puits de Padirac (Lot). Bull. Mus. Paris viii, pp. 601–607, 3 figg.

217. VOIGTS, HANS. Verzeichnis der in der näheren Umgebung von Göttingen gesammelten Milben. Zool. Anz. xxv, pp. 472–475.
Footnote on p. 473 by OUDEMANS.

218. WAGNER, W. A. Ob okraskye i mimikrii u zhivotnuikh. Trudui St. Peterb. Obshch. xxxi (2), 76 pp., 1 pl. (1901).
Resumé, Ueber Färbung und Mimicry bei den Thieren, pp. 67–76.
Abstract by E. SCHULTZ, Zool. Centrlbl. ix, pp. 334 & 335.

[——. L'araignée aquatique (*Argyroneta aquatica* Cl.), son industrie et sa vie. Matériaux de psychologie comparée. Bull. Soc. Moscou 1900, pp. 61–174.] Abstract by E. SCHULTZ, Zool. Centrlbl. ix, p. 369.

219. WARBURTON, CECIL, & EMBLETON, ALICE L. The Life-history of the Black-Currant Gall-mite, *Eriophyes* (*Phytoptis*) *ribis* Westwood. J. Linn. Soc. xxviii, pp. 366–378, pls. xxxiii & xxxiv.

220. WASMANN, E. Zur Kenntnis der myrmecophilen *Antennophorus* und anderer auf Ameisen und Termiten reitender Acarinen. Zool. Anz. xxv, pp. 66–76.
Abstracts: by K. ESCHERICH, Zool. Centrlbl. ix, p. 861; J. R. Micr. Soc. 1902, p. 183; Zool. Jahresber. 1902, Arthrop. p. 42.

221. WEBSTER, F. M. The Common Cheese Mite, *Tyroglyphus siro*, living in *Sporotrichum globuliferum*. Rep. ent. Soc. Ontario 1901, pp. 73 & 74.

222. WERNER, FR. Die Scorpione, Pedipalpen und Solifugen in der zoologisch-vergleichend-anatomischen Sammlung der Universität Wien. Verh. Ges. Wien lii, pp. 595–608.

223. WOLCOTT, ROBERT H. The North American species of *Curvipes*. Tr. Amer. micr. Soc. xxiii, pp. 201–256, pls. xxix–xxxiii.

224. ——. On the Genera of the Hydracarini. Science (n. s.) xv, pp. 580 & 581.

WOLFF, A. [See KOBERT (84).]

225. ZACHARIAS, OTTO. Das Plankton des Laacher Sees. Zool. Anz. xxv, pp. 395 & 396.
Abstracts: by F. ZSCHOKKE, Zool. Centrlbl. ix, p. 495; J. R. Micr. Soc. 1902, p. 426.

[ZEHNTNER, L. De Mijten van het Suikerriet op Java. Arch. Java Suikerindustrie, 1901, Aft. 5.] Abstract by A. HANDLIRSCH, Zool. Centrlbl. ix, p. 60.

ZSCHOKKE, F. [See DADAY, FRIČ & VAVRA, ZACHARIAS (225).]

II. SUBJECT INDEX.

1. *Morphology.*

Morphology and relationships of Arachnida; LANKESTER (93 & 94); classification, POCOCK in LANKESTER (93).

Morphology of Arachnida compared with Vertebrates; GASKELL (65).

General morphology and classification of Arachnida; BÖRNER (19).

General account of structure and classification of Spiders; SMITH (172).

Mouth-parts of Arachnida; POCOCK (137): of *Acari* and other Arachnida; BÖRNER (21). Homology of first pair of appendages in Spiders; RILEY (154).

On the significance of the Cribellum, Calamistrum and other structures in the classification of Spiders; CAMBRIDGE, F. (25) p. 351.

Morphology of sternal surface of prosoma, and segmentation of abdomen, in *Opiliones*; POCOCK (144).

Morphology of Palæozoic *Anthracomarti*; POCOCK (139).

External characters of *Eriophyidæ* (*Acari*); DESTEFANI PEREZ (47): of *Ixodoidea* (*Acari*); SALMON & STILES (159).

Morphology of *Kœnenia* and *Pedipalpi*, notes, "ventral sacs" in *Phrynichus*; BÖRNER (22).

Morphology of Entosternite in *Scorpiones*, *Pedipalpi*, *Araneæ*, *Solifugæ*; POCOCK (138).

Anatomy of Alimentary and Nervous Systems of *Pedipalpi*; POCOCK (137).

Anatomy, musculature, tracheal system, &c. of *Tetranychus* (*Acari*); HANSTEIN (73).

Tracheal system of Spiders, structure, homology, relation to lung-books; LAMY (92). Respiratory system of *Chernes* (*Pseudoscorpiones*); STSCHELKANOVZEFF (180): of *Gamasidæ*; JOURDAIN (82).

Poison-glands of *Latrodectus* (*Araneæ*), anatomy and histology; BORDAS (17). New glands, "Glandulæ globulosæ," in *Lebertiidæ* (*Hydrachnidæ*); THOR (191).

Reproductive organs of *Pedipalpi*; BÖRNER (20).

Structure of skin in certain *Acarina*; THOR (193).

Histology of central nervous system in Arachnida; RÁDL (149): of ventral nerve-chain of *Euscorpius*; POLICE (145).

2. *Physiology.*

Chemical Physiology of Arachnida, Nutrition, p. 238, Excretion, p. 293, Poisons, p. 320, &c.; FÜRTH (63).

Phototropic reactions of *Hydrachnidæ*; RÁDL (148).

Venom of *Latrodectus*, toxic effect; BORDAS (17). Toxic properties of and immunity against poison of spiders (Kreuzspinnen); SACHS (158).

Autotomy and regeneration of appendages in Spiders, p. 154 &c.; MORGAN (113).

3. *Reproduction and Development.*

Mechanism of copulation in spiders; DAHL (44).

Pairing of *Latrodectus formidabilis*; RIVERA (155): of *Solifugæ*; HEYMONS (77).

Parthenogenesis in *Raillietia* (*Acari*); TROUESSART (207).

Polymorphism of males in *Acari*; MARUCCI (107).

Life-history of gall-mite, *Eriophyes*; WARBURTON & EMBLETON (219).

Metamorphosis and seasonal cycle of *Tetranychus*, supposed relation to *Leptus autumnalis*; HANSTEIN (73 & 74).

Oogenesis in Arachnida p. 317, Spermatozoa p. 455; KORSCHELT & HEIDER (87).

Embryology of *Admetus* (*Pedipalpi*); GOUGH (70).

4. *General Bionomics, Habitats, &c.*

Field notes on habitats, habits, webs &c. of Galapagos *Araneæ*, *Pedipalpi*, *Scorpiones*, *Pseudoscorpiones*, *Solifugæ* and *Acari*; SNODGRASS in BANKS (5).

Habits of spiders of United States, photographs of webs &c.; EMERTON (50): of *Nephila madagascariensis* (*Araneæ*) in captivity; FAVIER (57): of *Aranea quadrata*; SMITH (171): of *Dolomedes*; TRANI (201): of marine spiders of genus *Desis*; POCOCK (135): of *Theridiidæ* (*Araneæ*); CAMBRIDGE, F. (25) p. 371: of *Solifugæ* in Central Asia; HEYMONS (77) pp. 18–65: of *Tetranychus*; HANSTEIN (73 & 74): of littoral species of *Bdella* (*Acari*); TRÄGÅRDH (198): of *Tarsonemus* (*Acari*); MARCHAL (106).

Hybernating cyst of *Erythræus hibernans*, n. sp. (*Trombidiidæ*); OUDEMANS (123).

Habitats &c. of spiders in Florida; TULLGREN (213).

Subterranean Arachnida; VIRÉ (216). Cavernicolous spider from Texas; BANKS (in ULRICH) (14).

Life-history of gall-mite, *Eriophyes*, movements, distribution by insects, migration, formation of galls; WARBURTON & EMBLETON (219).

Mimicry and protective resemblance in Spiders; WAGNER (218).

Stones suspended from spiders' webs; [ANON.] (2). Nest of spider built of matches; FAURE (56). Spinning of Egg-Sack in *Lycosa*; MOENKHAUS (111).

Supposed venomous properties of spiders of genus *Latrodectus*; CAMBRIDGE, F. (26), BORDAS (17).

Stridulating organ in Scorpion *Parabuthus flavidus*; POCOCK (136).

5. *Symbiosis and Parasitism.*

Acari parasitic on man, bibliography; HUBER (80). *Demodex* (*Acari*) as a parasite of man; GUIART (72). *Histiogaster* (*Acari*) as endoparasite in man; TROUESSART (209).

Parasitism of *Ixodoidea* (*Acari*), life-history &c.; SALMON & STILES (159).

Argas (*Acari*) on fowls, habits, life-history, remedial measures; BROWN (24). *Raillietia* (*Acari*) in ear of Ox; TROUESSART (206–208). *Atax* (*Acari*) on *Unionidæ*, Texas; THON (187). *Uropoda* (*Acari*) parasitic on Beetles and Moths in New Zealand; SMITH (174): on *Porcellio* (*Isopoda*, *Crustacea*); SMITH (173). *Gamasidæ Uropodinæ* on insects and on Amphipod Crustacea; TROUESSART (203). *Pimelobia* (*Acari*) under wing-covers of a beetle; TRÄGÅRDH (200). *Acari* on *Culicidæ*; LAVERAN (95).

Chelifer symbiotic with *Musca*, feeding on parasitic *Pediculoides*; FENIZIA (59).

Symbiosis of *Greenia parkinsi* (*Acari*) with Bees; GREEN (71).

Termitophilous *Acari* of S. America; SILVESTRI (160). Myrmecophilous and Termitophilous *Acari*; WASMANN (220).

Plant galls caused by *Acari*, see Systematic Index, *Acari Eriophyidæ*.

Damage to pear trees by *Eriophyes*, p. 43; BANKS (4): to black currant by *E. ribis*; LEWIS (100). *Bryobia* (*Acari*) damaging *Ribes grossularia*; HANSTEIN (75). *Rhizoglyphus* (*Acari*) destroying oat-crops in Finland; REUTER (151). Vines destroyed by *Cœpophagus* (*Acari*); MANGIN & VIALA (105), JOURDAIN (83).

6. *Miscellaneous.*

Reviews of literature: for 1898; LUCAS (104): for 1902; GIESBRECHT & MAYER (69).

Rules of nomenclature, with special refererence to Spiders; CAMBRIDGE, F. (27 & 30), DAHL (40 & 43). Nomenclature of *Oribatidæ*; MICHAEL (110).

General remarks on methods of systematic work on *Ixodidæ*; NEUMANN (118). Methods of study &c.; DAHL (42).

Methods of collecting marine *Acari*; TROUESSART (202).

III. DISTRIBUTION.

A. GEOGRAPHICAL.

Distribution of marine spiders of genus *Desis*; POCOCK (135): of *Ctenus* (*Araneæ*); CAMBRIDGE, F. (28): of littoral species of *Bdella* (*Acari*); TRÄGÅRDH (198).

Vertical distribution of *Araneæ* on Riesengebirge; DAHL (45).

Exotic Arachnida introduced into Hamburg; KRAEPELIN (88).

(1) *Arctic and Antarctic.*

Arctic. Spitzbergen: *Araneæ* and *Oribatidæ*, n. sp.; KULCZYŃSKI (91): *Halacaridæ* (*Acari*) n. spp., with list of Arctic spp.; TROUESSART (204).

Antarctic. Cape Adare, *Acari*, n. spp.; TROUESSART (210).

(2) *Europe and Mediterranean Islands.*

Europe. Revision of spp. of *Erigone* (*Araneæ*); KULCZYŃSKI (90).

Norway. *Rhyncholophidæ* (*Acari*) n. spp.; THOR (195): *Trombidiidæ* (*Acari*) n. spp.; THOR (194): Arctic Norway, *Araneæ*; STRAND (179): W. Norway, *Theridiidæ* (*Araneæ*) n. spp.; STRAND (178).

Sweden. *Araneæ*; TULLGREN (212): Swedish Lapland, *Acari*, n. spp. and varr.; TRÄGÅRDH (199).

Denmark, *Hydrachnidæ*, n. sp.; KOENIKE (85).

Finland. *Araneæ*; ODENWALL (121), ODENWALL & JÄRVI (122), JÄRVI (81): *Acari* in hay, n. sp.; NORDENSKIÖLD (119): *Hydrachnidæ* and *Halacaridæ* in brackish water; LEVANDER (98 & 99): *Oribatidæ* (*Acari*) n. spp.; NORDENSKIÖLD (120): *Eriophyidæ* (Acari); LINDROTH (101).

Russia. Tschernigow, *Chernes* (*Pseudoscorpiones*) n. sp.; STSCHELKANOWZEFF (181): Central Russia, *Hydrachnidæ* (*Acari*) n. spp.; CRONEBERG (39).

Germany. *Araneæ*, n. spp.; BÖSENBERG (23): *Acari*, n. spp.; OUDEMANS (124 & 127): *Tetranychus* (*Acari*) n. sp.; HANSTEIN (73): *Hydrachnidæ*, n. spp.; KOENIKE (85): *Eriophyidæ*, n. sp.; GEISENHEYNER (66): See von Maria Laach, Coblenz, *Hydrachnidæ* of Plankton; ZACHARIAS (225): Göttingen, *Acari*, list of spp.; VOIGTS (217): Black Forest, *Hydrachnidæ*; KOENIKE (86).

Holland. *Acari*, lists, n. gg. and spp.; OUDEMANS (124–126).

Britain. *Araneæ*, general account continued; SMITH (170): *Araneæ*, *Phalangida*, n. spp.; CAMBRIDGE, O. (32): *Hydrachnidæ*, n. sp.; SOAR (175): *Acari*; OUDEMANS (127): Lincolnshire, *Hydrachnidæ*; GEORGE (67): Yorkshire and Northumberland, *Araneæ*; FALCONER (52–55).

Scotland: Clyde Area, Arachnida; EVANS (51).
Ireland: *Hydrachnidæ* n. sp.; KOENIKE (85).
France. Cave of Padirac, Lot, Arachnida; VIRÉ (216): *Kœnenia*, n. sp.; PEYERIMHOFF (131): *Gamasidæ*, n. spp.; TROUESSART (203): *Acari*, n. spp.; OUDEMANS (127): *Tarsonemus* (*Acari*) n. sp.; MARCHAL (106): Provence, *Eriophyidæ*, n. g. and spp.; GERBER (68).
Portugal: *Eriophyidæ*; TAVARES (182 & 183).
Italy. *Acari* (*Oribatidæ* and *Gamasidæ*) n. gg. and spp.; BERLESE (15): *Acari*, n. sp.; BERLESE (16): Valtellina, *Eriophyidæ*; CORTI (37 & 38): San Remo, *Trombidiidæ*, n. sp.; OUDEMANS (123): Lake of Castel Gandolfo, Rome, *Hydrachnidæ*; MARUCCI (108).
Sicily: *Eriophyidæ*; DESTEFANI PEREZ (47 & 48).
Sardinia: lists of Arachnida; GARNERI (64); *Eriophyidæ*; CAVARA (33).
Switzerland. *Acari*, n. spp.; THOR (192): n. spp. of *Hydrachnidæ*; KOENIKE (85): Lake of Geneva, list of *Hydrachnidæ*; FOREL (60).
Austria. Vienna, *Eriophyidæ*; TAVARES (184): Bohemia, *Hydrachnidæ*, n. spp.; KOENIKE (85), THON (188–190): Galicia, *Acari*, n. spp.; KULCZYŃSKI (89).
Balkan Peninsula, *Eriophyidæ*; RÜBSAAMEN (156).

(3) *Asia (Palæarctic).*

Caucasus, *Araneæ*, n. spp.; VERZHBĪTZKIĬ (215).
Transcaspian region and Turkestan, *Solifugæ*, n. g. and sp.; HEYMONS (77).
Palestine, *Scorpiones*, n. sp.; WERNER (222).
Asia Minor and Persia, *Eriophyidæ*; RÜBSAAMEN (157).
Cyprus, *Eriophyidæ*; CECCONI (34).
Arabia. *Scorpiones*, n. sp.; POCOCK (143): *Araneæ*, n. spp., *Scorpiones*, *Solifugæ*; SIMON (166).
China and Japan, *Opiliones*, n. spp.; LOMAN (102).

(4) *India, and Further India.*

India and Ceylon, *Salticidæ* (*Araneæ*) n. gg. and spp.; SIMON (165): Mahe, Malabar and Kandy, *Araneæ*, n. spp.; LEARDI IN AIRAGHI (96): Ceylon: *Ctenus* (*Araneæ*) n. sp.; CAMBRIDGE, F. (28): *Salticidæ*, n. gg. and spp.; SIMON (162).
Burmah, *Ixodidæ*; NEUMANN (116).
N. Siam, *Pedipalpi*, n. sp.; POCOCK (140).

(5) *Malay Peninsula and Archipelago.*

Malay peninsula, Java, Borneo, *Salticidæ*, n. gg. and spp.; SIMON (162).
Singapore, Malay Archipelago, Philippine Is., *Salticidæ* (*Araneæ*) n. gg. and spp.; SIMON (165).
East Indies, Malacca etc., *Acari*, n. spp.; OUDEMANS (125).
Java, *Opiliones*, n. sp.; LOMAN (102).
Borneo. *Acari*, n. sp.; OUDEMANS (127): *Ctenus* (*Araneæ*) n. sp.; CAMBRIDGE, F. (28).
New Guinea: *Latrodectus* (*Araneæ*) n. spp.; DAHL (44): *Salticidæ* (*Araneæ*) n. gg. and spp.; SIMON (165).
Bismarck Archipelago, *Opiliones*, n. g. and sp.; LOMAN (102).
Philippines. *Latrodectus* (*Araneæ*) n. spp.; DAHL (44): *Opiliones*, n. spp.; LOMAN (165): Manila, *Araneæ*, n. sp.; LEARDI IN AIRAGHI (97).

(6) *Africa and Madagascar.*

Africa. *Opiliones*, n. gg. and spp.; LOMAN (165): *Araneæ*, n. gg. and spp.; POCOCK (142): *Solifugæ*, n. g. and spp., *Araneæ*, n. g. and spp.; POCOCK (141): *Acari*; OUDEMANS (127).

Morocco: *Scorpiones*, n. sp.; POCOCK (143).

Algiers: *Eriophyidæ*; HOUARD (79).

Cairo: *Sarcoptidæ*, n. g. and sp.; TRÄGÅRDH (200).

Abyssinia. Parasitic *Acari*; NEUMANN (117): Soudan, *Ixodidæ*, n. spp.; NEUMANN (116).

Erythrea: *Scorpiones*, n. sp.; BORELLI (18).

Tropical Africa: *Araneæ*, n. spp.; SIMON (167).

E. Africa, Somaliland to L. Rudolf, *Araneæ*, n. spp.; SIMON (169A).

E. and S. W. Africa: *Latrodectus* (*Araneæ*) n. spp.; DAHL (44).

W. Africa: *Salticidæ* (*Araneæ*) n. gg. and spp.; SIMON (162 & 165).

German S. W. Africa: *Scorpiones*, n. sp.; WERNER (222).

S. Africa. *Theraphosidæ* (*Araneæ*), n. gg. and spp.; PURCELL (146): *Ctenizidæ* (*Araneæ*), n. gg. and spp.; PURCELL (147): *Araneæ*, n. gg. and spp.; SIMON (164): *Salticidæ* (*Araneæ*) n. gg. and spp.; PECKHAM (130): *Salticidæ* (*Araneæ*) n. gg. and spp.; SIMON (162 & 165): *Araneæ* "Cribellatés," n. gg. and spp.; SIMON (164): Cape Colony, *Hydrachnidæ*, n. subg. and spp.; THOR (196).

Madagascar. *Latrodectus* (*Araneæ*) n. sp.; DAHL (44): *Avicularidæ*, n. gg. and spp.; SIMON (168): *Salticidæ*, n. gg. and spp.; SIMON (162).

(7) *North America.*

N. America. *Acari*, n. gg. and spp.; BANKS (7): *Ixodoidea*; STILES (177); SALMON & STILES (159): *Curvipes* (*Acari*) n. spp.; WOLCUTT (223): United States, *Araneæ*, general account; EMERTON (50).

Maine: *Opiliones*; BANKS (6).

New Jersey: *Lycosidæ*, n. spp. of *Lycosa*; MONTGOMERY (112).

Pennsylvania: *Lycosidæ*, n. spp., *Oxyopidæ*; MONTGOMERY (112).

Maryland: *Lycosidæ*; MONTGOMERY (112).

North Carolina: *Opiliones*, n. sp.; BANKS (10).

Florida: *Araneæ*; TULLGREN (213).

Alabama: Arachnida, *Araneæ*, n. g. and spp., *Opiliones*, n. sp.; BANKS (8).

Texas: *Araneæ*, n. sp.; BANKS (in ULRICH) (14); *Acari*, n. sp.; THON (187).

New Mexico: *Araneæ*, n. spp., *Opiliones*, *Scorpiones*, *Pseudoscorpiones*, *Solifugæ*, *Acari*, n. sp.; BANKS (9).

Arizona: *Araneæ*, n. spp., *Opiliones*, *Scorpiones*, *Pseudoscorpiones*, *Solifugæ*, *Acari*, n. sp.; BANKS (13).

Southern Arizona: *Araneæ*, n. spp., *Opiliones*, *Scorpiones*, *Pseudoscorpiones*, n. spp., *Acari*; BANKS (11).

(8) *Central and South America and the West Indies.*

Central America: Mexico, Guatemala, Costa Rica and Panama, *Araneæ*, n. gg. and spp.; CAMBRIDGE, F. (25).

Mexico, Panama, Guatemala, *Araneæ*, n. g. and spp.; CAMBRIDGE, O. (31).

Mexico: *Scorpiones*, *Pedipalpi*, and *Solifugæ*, n. spp. and subspp.; POCOCK (134).

Guatemala: *Pedipalpi* and *Solifugæ*, n. spp.; POCOCK (134): *Ixodidæ*, n. sp.; NEUMANN (116).

W. Indies. *Salticidæ*, n. gg. and spp.; SIMON (165): *Latrodectus* (*Araneæ*) n. spp.; DAHL (44).

Porto Rico. *Araneæ*, n. spp., *Pedipalpi*, *Opiliones*, n. spp.; BANKS (12).

Martinique: *Gamasidæ*, n. spp.; TROUESSART (203).

St Lucia: *Ctenus* (*Araneæ*) n. sp.; CAMBRIDGE, F. (28).

Curaçoa: *Scorpiones* n. sp.; POCOCK (143).

S. America. *Salticidæ* (*Araneæ*) n. gg. and spp.; SIMON (162 & 165): *Ctenus*, (*Araneæ*) n. spp.; CAMBRIDGE, F. (28): *Opiliones*, n. gg. and spp.; LOMAN (102).

British Guiana: Mt. Roraima, *Araneæ* and *Scorpiones*, n. spp.; POCOCK (133).

Dutch Guiana: *Acari*; OUDEMANS (127).

Ecuador and Upper Surinam River: *Pedipalpi*, n. spp.; POCOCK (140).

Brazil: *Gamasidæ*, n. spp.; TROUESSART (203): *Acari*, n. spp.; OUDEMANS (125): Brazil, Colombia, Venezuela, *Scorpiones*, n. spp.; POCOCK (143): Brazil and Surinam, *Pseudoscorpiones*; ELLINGSEN (49): Ecuador, *Pseudoscorpiones*, n. spp.; ELLINGSEN (49).

Argentina and Bolivia, *Scorpiones*, n. var.; LÖNNBERG (103): Argentina and Chile, *Acari*; RIBAGA (152): Rio de la Plata, *Oribatidæ* (*Acari*) n. g. and sp.; BERLESE (15).

Chile: *Araneæ*, *Scorpiones*, n. spp.; SIMON (169): *Acari*, n. sp.; OUDEMANS (125): Chile, Patagonia, Argentine, *Opiliones*, n. gg. and spp.; SÖRENSEN (176): S. Chile, *Araneæ*, n. gg. and spp.; TULLGREN (214).

Patagonia: *Araneæ*, n. spp. *Chernetes*, n. sp.; SIMON (169).

Tierra del Fuego: *Araneæ*, n. spp. *Chernetes*, n. sp. *Opiliones*, n. sp.; SIMON (169).

(9) *Australasia.*

Australia: *Mygalomorphæ*, n. gg. and spp.; HOGG (78): Australia, *Salticidæ* (*Araneæ*) n. gg. and spp.; SIMON (165). Queensland: *Araneæ*, n. g. and spp.; SIMON (164): *Salticidæ*, n. g. and spp.; SIMON (162): *Scorpiones*, n. spp.; POCOCK (143).

Victoria: *Araneæ*, *Desis*, n. sp.; POCOCK (135).

Tasmania: *Araneæ*, n. g. and spp.; SIMON (164): *Mygalomorphæ*, n. gg. and spp.; HOGG (78).

New Zealand, *Opiliones*, n. g. and spp.; LOMAN (102).

(10) *Atlantic Islands* (*not included above*).

Bermuda Is.: *Araneæ*, n. spp. and *Acari*; BANKS (3).

(11) *Indian Ocean Islands* (*not included above*).

Mauritius: *Salticidæ* (*Araneæ*) n. gg. and spp.; SIMON (165).

Seychelles: *Opiliones*, n. gg. and spp.; LOMAN (102).

(12) *Pacific Islands* (*not included above*).

South Seas: *Araneæ*, n. spp.; RAINBOW (150).

Galapagos Is.: *Araneæ*, n. spp. *Pedipalpi*, n. sp. *Scorpiones*, n. sp. *Pseudoscorpiones*, n. spp. *Solifugæ*, n. sp. *Acari*, n. sp.; BANKS (5).

(13) *Habitat Unknown.*

Acari, n. g. and sp.; NEUMANN (115): *Acari*, n. sp.; OUDEMANS (124).

B. Geological.

Quaternary: sub-fossil *Acari* in peat; Nordenskiöld (120).
Middle Miocene, (Dysodile) Melilli, Sicily, fossil *Acari*, Pampaloni (128).
Permian, Bohemia, Arachnida, n. gg. and spp.; Fritsch (61).
Steinkohlen formation, Bohemia, *Arachnida*; Fritsch (62).
Carboniferous, *Anthracomarti*; Pocock (139).
Ottweiler beds, Upper Carboniferous, Ohmbach, *Anthracomartus*, n. sp.; von Ammon (1).
Carboniferous, "terrain houiller," Commentry, *Opiliones*, 2 n. spp.; Thévenin (185 & 186).
Palæozoic Scorpions of Scotland; Peach (129) p. 374.

IV. SYSTEMATIC INDEX †.

Classification of Arachnida. Series *Chelicerata*:

I Class, *Merostomata* [see Record of *Gigantostraca*].

II Class, *Arachnida*.

1 Sub-class, *Cteidophora* **nov.** (= *Ctenophora* Poc.)
Order, *Scorpiones*.

2 Sub-class, *Lipoctena*.

A. *Caulogastra*.

a. *Megoperculata* **nov.**
Orders, *Pedipalpi* and *Araneæ*.

b. *Cryptoperculata* **nov.**
Order, *Meridogastra*.

B. *Holotracheata* **nov.**

a. *Holosomata*.
Orders, *Chelonethi*, *Opiliones*, *Acarina*.

b. *Mycetophora*.
Order, *Solifugæ*.

Börner, Zool. Anz. xxv, p. 465.

1. SCORPIONES.

Synopsis of Centr. American families, p. 1; Pocock, Arach. Scorpiones, Biol. Centr.-Amer.
Entosternite; Pocock, Quart. J. Micr. Sci. (n. s.) xlvi, p. 227.

Anuroctonus, p. 13, *phæodactylus*, p. 14, pls. iii, figg. 4, 4*a–e*, iv, figg. 1, 1*a–c*; Pocock, Arach. Scorpiones, Biol. Centr.-Amer.
Babycurus zambonellii, Erythrea; Borelli, Boll. Mus. Torino xvii, No. 422, **n. sp.**
Brachiosternus [for *Brachistosternus*] *weijenberghi* forma *intermedia* **nov.**, p. 255; Lönnberg, Ent. Tidskr. xxiii.
Broteochactas, p. 15, *delicatus*, p. 15, pl. iv, figg. 3, 3*a–f*, 4, 4*a* & *b*; Pocock, Arach. Scorpiones, Biol. Centr.-Amer.
B., key to spp., p. 70, *granosus*, p. 69, *porosus*, p. 70, Mt. Roraima; Pocock, Tr. Linn. Soc. London (2) viii, **n. spp.**

---

† This sign when prefixed to a quotation indicates a fossil form or forms. Where the character of a reference is not indicated the words "description" or "descriptive notes" are to be understood.

Buthidæ, def. and synopsis of genera, p. 19; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer.

Buthus mauritanicus, Morocco, etc., p. 373; POCOCK, Ann. Nat. Hist. (7) x: *B. voelschowi*, Palestine, p. 597; WERNER, Verh. Ges. Wien lii : **n. spp.**

Centruroides, notes, p. 365, *exilicauda*, p. 376; POCOCK, Ann. Nat. Hist. (7) x: *C.*, p. 19, synopsis of spp., p. 20, *thorelli*, p. 22, pl. v, figg. 2, 2*a–c*, *elegans*, p. 22, pl. v, figg. 3, 3*a–c*, *vittatus*, p. 24, pl. vi, figg. 1, 1*a* & *b*, *sub-granosus*, p. 26, pl. vi, figg. 4, 4*a* & *b*, *bertholdi*, p. 27, *nitidus*, p. 28, pl. vi, figg. 5, 5*a* & *b*, *flavopictus*, p. 28, pl. vi, figg. 6, 6*a–d*, *ochraceus*, p. 29, pl. vi, figg. 7, 7*a–d*, *margaritatus*, p. 30, pl. vii, figg. 1, 1*a–e*, 2, 2*a* & *b*, *gracilis*, p. 32, pl. vii, figg. 3, 3*a*, 4, 4*a*, *rubricauda*, p. 34, *bicolor*, p. 35, pl. vii, figg. 5, 5*a*, *limbatus*, p. 35, pl. viii, figg. 1, 1*a*, *nigrimanus*, p. 35, *nigrescens*, p. 36, pl. viii, figg. 2, 2*a*, 3, 3*a*, *fulvipes*, p. 36, pl. viii, figg. 4, 4*a*; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer.

C. elegans limpidus, *insularis*, *nigrovariatus* (pl. v, figg. 4, 4*a*), *pallidiceps*, Mexico, p. 24, *C. vittatus suffusus*, Mexico, p. 25; POCOCK, t. c. **n. subspp.**

C. ornatus, Mexico, p. 26, pl. vi, figg. 3, 3*a* & *b*; POCOCK, t. c.: *C. hasethi*, Curaçoa, p. 375; POCOCK, Ann. Nat. Hist. (7) x : **n. spp.**

Centrurus, synonymy, p. 364; POCOCK, t. c.: *C. princeps*, p. 68; BANKS, P. Washington Ac. iv.

Chiromachus, synonymy, p. 364; POCOCK, Ann. Nat. Hist. (7) x.

†*Cyclophthalmus senior*, notes; FRITSCH, Zool. Anz. xxv, p. 483.

Diplocentrus, p. 3, *whitei*, p. 3, pl. i, figg. 2, 2*a–f*, 3, 3*a–d*, *keyserlingi*, p. 4, pl. i, figg. 4, 4*a–c*; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer.

Euscorpius italicus, histology of nervous system; POLICE, Bull. Soc. Napoli xv, p. 1.

Hadrurus, def. and synopsis of spp., p. 5, *hirsutus*, p. 6, pl. ii, figg. 2, 2*a*; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer.

H. aztecus, Mexico, p. 7, pl. ii, figg. 1, 1*a–f*; POCOCK, t. c. **n. sp.**

Ischnurus, synonymy, p. 364; POCOCK, Ann. Nat. Hist. (7) x.

Isometrus, p. 38, *europæus*, p. 38; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer.

Megacormus, p. 17, *granosus*, p. 18, pl. v, figg. 1, 1*a–h*, *segmentatus*, p. 18; POCOCK, t. c.

Opisthacanthus, p. 1, *lepturus*, p. 2, figg. 1, 1*a–g*; POCOCK, t. c.

Pandinus percivali, Arabia, p. 368; POCOCK, Ann. Nat. Hist. (7) x, **n. sp.**

Parabuthus planicauda, p. 365, *flavidus*, *schlechteri*, *cristatus*, p. 367; POCOCK, t. c.: *P. flavidus*, stridulating organ, p. 222, fig. 26; POCOCK, P. Zool. Soc. London 1902, i.

P. kraepelini, German S. W. Africa, p. 599; WERNER, Verh. Ges. Wien lii, **n. sp.**

Plesiochactas, p. 16, *dilutus*, p. 17, pl. iv, figg. 5, 5*a–f*; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer.

Rhopalurus, p. 36, *junceus*, p. 37, pls. viii, figg. 5, 5*a*, ix, figg. 1, 1*a*; POCOCK, t. c.

R. borellii, Brazil, p. 377; POCOCK, Ann. Nat. Hist. (7) x, **n. sp.**

Tityus, p. 39, key to spp., p. 40, *cambridgei*, p. 40, pl. ix, figg. 2, 3, 3*a*, subsp., *championi*, p. 41, *T. festæ*, p. 42, pl. ix, figg. 4, *androcottoides*, p. 43, pl. ix, figg. 5, 5*a–c*, *crassimanus*, p. 44, pl. ix, figg. 6, 6*a–c*, *obscurus*, notes, p. 45; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer.: *T. trivittatus*, var. *confluens*, p. 253; LÖNNBERG, Ent. Tidskr. xxiii.

T. engelkei, Colombia, p. 378, *kraepelini*, Venezuela, p. 379; POCOCK, Ann. Nat. Hist. (7) x, **n. spp.**

Uroctonus, p. 14, *mordax*, p. 15, pl. iv, figg. 2, 2*a–f*; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer.

Urodacus spinatus, p. 370, *subarmatus*, p. 371, *simplex*, p. 372, all from Queensland; POCOCK, Ann. Nat. Hist. (7) x, **n. spp.**

Uroplionius granulatus, p. 43; SIMON, Arach. Hamb. Magalh. Sammelreise.

Vœjovidæ, synopsis of genera, p. 4; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer.

Vœjovis, def. and synopsis of spp., p. 8, *mexicanus*, p. 9, pl. ii, figg. 3, 3*a–c*, *granulatus*, p. 10, pl. ii, figg. 4, 4*a* & *b*, *pusillus*, p. 10, pl. ii, figg. 5, 5*a–c*, *subcristatus*, p. 10, pl. ii, figg. 6, 6*a* & *b*, *cristimanus*, p. 11, pl. iii, figg. 1, 1*a–d*, *variegatus*, p. 11, pl. iii, figg. 2, 2*a–h*, *punctatus*, p. 12, *nitidulus*, p. 12, pl. iii, figg. 3, 3*a–c*, *intrepidus*, notes, p. 13; POCOCK, t. c.: *V. carolinus*, p. 541; BANKS, P. Ac. Philad. 1900.

Vœjovis mexicanus dugesi and *smithi*, Mexico, p. 9; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer., **n. subspp.**

Zabius, probably only subgenus of *Tityus*, p. 220; DAHL, Zool. Anz. xxv.

2. PEDIPALPI.

Classification of *Pedipalpi*;

Sub-order *Palpigradi.*

Family *Kœneniadæ.*

Sub-order *Uropygi.*

Tribe *Schizopeltidia* **nom. nov.** (= *Tartaridi* Cambr., Thorell).

Family *Schizonotidæ.*

Tribe *Holopeltidia* **nom. nov.** (= *Oxopœi* Thorell).

Family *Thelyphonidæ.*

Sub-order *Amblypygi.*

Family *Tarantulidæ.* BÖRNER, Zool. Anz. xxvi, p. 82.

Anatomy of Alimentary and Nervous Systems and Mouth-parts; POCOCK, P. Zool. Soc. London 1902, ii, p. 169: Entosternite; POCOCK, Quart. J. Micr. Sci. (n. s.) xlvi, p. 231.

Acanthophrynus, p. 56, *spinifrons*, p. 57, pl. xi, figg. 5, 5*a–e*; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer.

Admetus pumilio, embryology; GOUGH, Quart. J. Micr. Sci. (n. s.) xlv, pp. 595–630, pls. xxxii & xxxiii.

Amblypygi, revision of generic names, p. 157, table of classification and list of genera, p. 161; POCOCK, Ann. Nat. Hist. (7) ix: *A.*, def., p. 45; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer.

Charinus insularis, Albemarle, Narboro, Chatham and Hood Is., Galapagos, p. 67, pl. ii, fig. 8; BANKS, P. Washington Ac. iv, **n. sp.**

Damon variegatus, ♂ gen. organs, p. 90; BÖRNER, Zool. Anz. xxvi.

Hemiphrynus **n. g.** (*Phryninæ*) type *lævifrons*, p. 161; POCOCK, Ann. Nat. Hist. (7) ix: *H.* def. and synopsis of Centr. American spp., p. 53, *aztecus*, p. 54, pl. xi, figg. 2, 2*a* & *b*, *lævifrons*, p. 55, pl. xi, figg. 4 & 4*a*; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer.

H. raptator, Mexico, Guatemala, p. 54, pl. xi, figg. 3, 3*a–g*; POCOCK, t. c. **n. sp.**

†*Hemiphrynus* **n. g.**, p. 57, *longipes*, p. 57, text-fig. 359, *hofmanni*, p. 58, text-fig. 360, Permian, Bohemia; FRITSCH, Fauna der Gaskohle iv (2), **n. spp.**

Heterophryninæ **nov.**, p. 161; POCOCK, Ann. Nat. Hist. (7) ix.

Heterophrynus, key to some spp., p. 164; POCOCK, t. c.: *H. chiracanthus*, p. 58, pl. xii, figg. 1 & 1*a*; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer.

H. armiger, Ecuador, p. 162, *alces*, Upper Surinam River, p. 163; POCOCK, Ann. Nat. Hist. (7) ix, **n. spp.**

Mastigoproctus, def. and synopsis of C. American spp. p. 47, *giganteus*, p. 47, pl. x, figg. 1–4, *liochirus*, p. 48, pl. x, fig. 5; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer.

M. giganteus scabrosus, p. 48, pl. x, fig. 4, *mexicanus*, p. 48, pl. x, fig. 3, Mexico; POCOCK, t. c. **n. subspp.**

Phrynichus reniformis, notes on anatomy, p. 214; BÖRNER, Verh. Deutsch. zool. Ges. 1902.

Phrynidæ **n. fam.**, p. 161; POCOCK, Ann. Nat. Hist. (7) ix: *P.* def. and key to sub-fam., p. 49; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer.

Phryninæ **n. subfam.**, p. 161; POCOCK, Ann. Nat. Hist. (7) ix: *P.* def and key to genera, p. 49; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer.

Phrynus def. and synopsis of spp., p. 50, *barbadensis*, p. 51, pl. x, figg. 6, 6 *a* & *b*, *whitei*, p. 52, pl. xi, figg. 1, 1*a–c*; POCOCK, t. c.

P. parvulus, p. 51, pl. x, figg. 7, 7*a* & *b*, *operculatus*, p. 52, pl. x, figg. 8, 8*a–c*, Guatemala; POCOCK, t. c. **n. spp.**

Tarantula marginemaculata, ♀ gen. organs, p. 83, fig. 4, ♂ gen. organs, p. 89, fig. 7; BÖRNER, Zool. Anz. xxvi.

Thelyphonus caudatus, structure of mouth, p. 102, figg. 3 & 5; BÖRNER, t. c.

T. caudatus, ♀ gen. organs, p. 83, fig. 1, ♂ gen. organs, p. 88, fig. 5; BÖRNER, t. c.

Trithyreus cambridgei, ♀ gen. organs, p. 83, fig. 2, structure of mouth, p. 102, fig. 2; BÖRNER, t. c.

Typopeltis tarnanii, N. Siam, p. 164; POCOCK, Ann. Nat. Hist. (7) ix, **n. sp.**

Urotricha def., p. 45; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer.

3. PALPIGRADI.

Kœnenia mirabilis, ♀ gen. organs, p. 83, fig. 3, *K. wheeleri*, ♂ gen. organs, p. 91, fig. 6, *K. mirabilis*, structure of mouth, p. 100, fig. 1; BÖRNER, Zool. Anz. xxvi; *K. mirabilis*, notes on anatomy, p. 214; BÖRNER, Verh. Deutsch. zool. Ges. 1902.

Kaenenia [for *Kœnenia*] *spelæa*, France, p. 281, figg. i–xi; PEYERIMHOFF, Bull. Soc. ent. France 1902, **n. sp.**

4. ARANEÆ.

General account of structure and classification with key to British families; SMITH, Essex Natural. xii, pp. 181–201, pls. vii, viii: structure of mouth-parts; POCOCK, P. Zool. Soc. London 1902, ii, p. 169: Entosternite; POCOCK, Quart. J. Micr. Sci. (n. s.) xlvi, p. 233: Tracheal system; LAMY, Ann. Sci. nat. xv, p. 149: mimicry &c; WAGNER, Trudui St. Peterb. Obshch. xxxi (2).

Araneæ of Germany, descr. and figg. of all spp.; BÖSENBERG, Zoologica xiv.

A. MYGALOMORPHÆ (AVICULARIIDÆ, CTENIZIDÆ, &c.).

Acanthodon ochreolum, Jansenville, p. 9, pl. ii, figg. 5 & 5*a*, *A. hamiltoni*, Orange R. Colony, p. 320; POCOCK, Ann. Nat. Hist. (7) x: *A. cregoei*, p. 352, *kolbei*, p. 353, S. Africa; PURCELL, Tr. S. African Soc. xi: **n. spp.**

Acropholius **n. g.** (*Avicularidæ*), p. 597, *mathiauxi*, p. 598, *alluaudi*, p. 598, Madagascar; SIMON, Bull. Mus. Paris viii, **n. spp.**

Aganippe, synopsis of spp., p. 126, *smeatoni*, Australia, p. 126, pl. xiii, fig. 7, and text-fig. 23, *pulleinei*, Australia, p. 128, pl. xiii, figg. 3 & 4, text-fig. 24; HOGG, P. Zool. Soc. London 1902, ii, **n. sp.**

Aname tasmanica, Tasmania, p. 140, pl. xiii, fig. 12; HOGG, t. c. **n. sp.**

Blakistonia **n. g.** (*Ctenizinæ*), p. 131, *aurea*, Adelaide, p. 132, pl. xiii, figg. 1 & 2, text-figg. 25*b–e*; HOGG, t. c. **n. sp.**

Brachytheliscus **n. g.** (*Dipluridæ*), type *Brachythele bicolor* Poc., p. 317; POCOCK, Ann. Nat. Hist. (7) x.

Ceratogyrus bechuanicus, Bechuanaland, p. 339; PURCELL, Tr. S. African Soc. xi, **n. sp.**

Cestotrema **n. g.** (*Avicularidæ*), p. 597, *bastardi*, Madagascar, p. 597; SIMON, Bull. Mus. Paris viii, **n. sp.**

Chenistonia tepperi, Australia, p. 137, pl. xiii, fig. 13; HOGG, P. Zool. Soc. London 1902, ii, **n. sp.**

Cœlogenium **n. g.** (*Theraphosidæ*), p. 337, *pillansi*, Rhodesia, p. 338; PURCELL, Tr. S. African Soc. xi, **n. sp.**

Ctenizinæ, synopsis of Australian and New Zealand genera, p. 125; HOGG, P. Zool. Soc. London 1902, ii.

Cyrtauchenius o'neili, p. 355, *lateralis*, p. 357, *nigriceps*, p. 358, S. Africa; PURCELL, Tr. S. African Soc. xi, **n. spp.**

Cyrtogrammomma monticola, p. 66, figg. 2*a* & *b*; POCOCK, Tr. Linn. Soc London (2) viii.

Dekana **n. g.** (*Diplurinæ*), p. 138, *diversicolor*, Australia, p. 138, text-fig. 27; HOGG, P. Zool. Soc. London 1902, ii, **n. sp.**

Diadocyrtus **n. g.** (*Avicularidæ*), p. 595, *decorsei*, Madagascar, p. 596; SIMON, Bull. Mus. Paris viii, **n. sp.**

Dyarcyops **n. g.** (*Ctenizinæ*), p. 130, *andrewsi*, S. Australia; HOGG, P. Zool. Soc. London 1902, ii, **n. sp.**

Entypesa **n. g.** (*Avicularidæ*), p. 598, *nebulosa*, Madagascar; SIMON, Bull. Mus. Paris viii, **n. sp.**

Euagrus caffer, Durban, p. 318; POCOCK, Ann. Nat. Hist. (7) x, **n. sp.**

Genysochœra **n. g.** (*Avicularidæ*), p. 596, *decorsei*, Madagascar, p. 597; SIMON, Bull. Mus. Paris viii, **n. sp.**

Gorgyrella **n. g.** (*Ctenizidæ*), p. 350, *namaquensis*, S. Africa, p. 350; PURCELL, Tr. S. African Soc. xi, **n. sp.**

Harpactira, key to some spp., p. 333, *atra*, p. 320, *cafreriana*, p. 325, *tigrina*, p. 328; PURCELL, t. c.

H. hamiltoni, Orange R. Colony, p. 316; POCOCK, Ann. Nat. Hist. (7) x: *H. marksi*, p. 322, *namaquensis*, p. 324, *dictator*, p. 331, S. Africa; PURCELL, Tr. S. African Soc. xi : **n. spp.**

Harpactirella **n. g.** (*Theraphosidæ*), p. 340, key to spp., p. 346, *treleaveni*, p. 341, *longipes*, p. 343, *karrooica*, p. 344, *lightfooti*, p. 346, S. Africa; PURCELL, t. c. **n. spp.**

Hermacha lanata, p. 373, *sericea*, p. 375, *curvipes*, p. 377, S. Africa; PURCELL, t.c. **n. spp.**

Hermachastes, key to spp., p. 372, *lightfooti*, p. 363, *sagittarius*, p. 365, *validus*, p. 367, *cambieræ*, p. 369, *inermis*, p. 370, S. Africa; PURCELL, t. c.: *H. fuligineus*, Grahamstown, p. 14; POCOCK, Ann. Nat. Hist. (7) x : **n. spp.**

Heteromigas **n. g.** (group *Migeæ* in subfam. *Miginæ*), p. 123, *dovei*, Tasmania, p. 123, fig. 22; HOGG, P. Zool. Soc. London 1902, ii, **n. sp.**

Homostola zebrina, Natal, p. 359; PURCELL, Tr. S. African Soc. xi, **n. sp.**

Lepthereus **n. g.** (*Ctenizidæ*), p. 379, *dregei*, Cape Colony, p. 379; PURCELL, t. c. **n. sp.**

Moggridgea stauntoni, Durban, p. 319; POCOCK, Ann. Nat. Hist. (7) x, **n. sp.**

Pachylomerus modestus, New Mexico, p. 570, pl. xxxiii, fig. 1; BANKS, P. Ac. Philad. liii, **n. sp.**

Pelmatorycter **n. g.** (*Ctenizidæ*), type *Cyrtauchenius flaviceps* Poc., p. 12, key to spp., p. 14; POCOCK, Ann. Nat. Hist. (7) x.
P. coloniæ, Jansenville, p. 13; POCOCK, t. c. **n. sp.**
Pezionyx, type *zebra* (Walck.)=*venosa* (Latreille), p. 18; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.
Pionothele **n. g.** (*Ctenizidæ*), p. 380, *straminea*, p. 381, Cape Colony; PURCELL, Tr. S. African Soc. xi, **n. sp.**
Pterinochilus crassispina, S. Africa, p. 335; PURCELL, t. c. **n. sp.**
Scodra, key to spp., p. 316, *batesii*, Congo, p. 315; POCOCK, Ann. Nat. Hist. (7) x, **n. sp.**
Selenotholus **n. g.** (group *Selenocosmieæ* in *Avicularinæ*), p. 134, *foelschei*, Australia, p. 135, text-fig. 26; HOGG, P. Zool. Soc. London 1902, ii, **n. sp.**
Stasimopus, key to known ♀♀, p. 12, *insculptus*, p. 10, *schönlandi*, p. 11; POCOCK, Ann. Nat. Hist. (7) x.
S. palpiger, Graaf Reinet, p. 10, pl. ii, figg. 4 & 4*a*, *artifex*, Grahamstown, p. 10, *astutus*, S. Africa, p. 11, *nigellus*, Orange R. Colony, p. 319; POCOCK, t. c.: *S. leipoldti*, Cape Colony, p. 348; PURCELL, Tr. S. African Soc. xi: **n. spp.**
Stictogaster **n. g.** (*Ctenizidæ*), p. 361, *reticulatus*, Cape Colony, p. 362; PURCELL, t. c. **n. sp.**
Theraphosidæ, key to S. African genera; PURCELL, t. c. p. 319.
Tryssothele **n. g.** (subfam. *Diplurinæ*), p. 6, *pisii*, p. 7; SIMON, Arach. Hamb. Magalh. Sammelreise.
T. latastei, Chile, p. 7, *fuegiana*, S. Patagonia, p. 8; SIMON, t. c. **n. spp.**
Zophoryctes **n. g.** (*Avicularidæ*), p. 596, *flavopilosus*, Madagascar, p. 596; SIMON, Bull. Mus. Paris viii, **n. sp.**

B. ARACHNOMORPHÆ.

Hypochilidæ.

Ectatosticta australis, Tasmania, p. 240; SIMON, Bull. Soc. ent. France 1902, **n. sp.**

Filistatidæ.

Filistata fasciata, Wenman I., Galapagos, p. 55, pl. i, fig. 15; BANKS, P. Washington Ac. iv, **n. sp.**

Uloboridæ and Dinopidæ.

Ariston albicans, p. 364; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.
Deinopidæ, p. 359; CAMBRIDGE, F., t. c.
Deinopis, key to Centr.-American spp., p. 360, *longipes*, Mexico &c., p. 360, pl. xxxiv, figg. 1, 1*a–c*, 2, 2*a* & *b*, *auritus*, Mexico, p. 360, pl. xxxiv, figg. 3, 4 & 4*a–e*; CAMBRIDGE, F., t. c.: *Dinopis*, key to African spp., p. 324, *stauntoni*, Durban, p. 323, *ornatus*, Abyssinia, p. 325; POCOCK, Ann. Nat. Hist. (7) x: **n. spp.**
Menneus camelus, Durban, p. 325; POCOCK, t. c. **n. sp.**
Miagrammopes, p. 364, key to Centr.-American spp., p. 364, *mexicanus*, p. 364, pl. xxxiv, figg. 13 & 13*a*; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.
M. alboguttatus, Guatemala, p. 365, pl. xxxiv, figg. 14 & 14*a–c*; CAMBRIDGE, F., t. c. **n. sp.**

Uloboridæ, key to Centr.-American genera, p. 360 ; CAMBRIDGE, F., t. c.
Uloborus, p. 361, key to Centr.-American spp., p. 361, *signatus*, p. 362, pl. xxxiv, figg. 5, 6 & 6*a*, *vicinus*, p. 362, pl. xxxiv, figg. 7 & 7*a*, *variegatus*, p. 362, pl. xxxiv, figg. 8 & 8*a*, *geniculatus*, p. 362, pl. xxxiv, figg. 9, 9*a*, 10 & 10*a–e*, *cinereus*, p. 362, pl. xxxiv, fig. 11, *spernax*, p. 363, pl. xxxiv, fig. 12; CAMBRIDGE, F., t. c.

Psechridæ.

Metafecenia **n. g.** (*Psechridæ*), p. 356, *albolineata*, Mexico, p. 357, pl. xxxiii, figg. 16, 16*a* & *b*, 17, 17*a* ; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer. **n. sp.**
Psechridæ, p. 356 ; CAMBRIDGE, F., t. c.
Stiphidion **n. g.** (*Psechridæ*) *facetum*, Tasmania, p. 242 ; SIMON, Bull. Soc. ent. France 1902, **n. sp.**

Dictynidæ.

Amaurobius, type *roscidus* C. L. Koch = *Drassus segestriformis* Dufour, p. 19; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.
A. rorulentus, p. 10; SIMON, Arach. Hamb. Magalh. Sammelreise.
Aphyctoschema **n. g.** (*Dictynidæ*) *hygrophila*, Queensland, p. 242 ; SIMON, Bull. Soc. ent. France 1902, **n. sp.**
Callenopsis **n. g.** (*Dictynidæ*), p. 6, *striata*, S. Chile, p. 7, pl. i, fig. 1; TULLGREN, Bih. Svenska Ak. xxviii (4) No. 1, **n. sp.**
Ciniflo, type *atrox* (Latreille) = *Aranea fenestralis* Stroem., p. 20 ; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.
Dictyna, p. 358, key to Centr.-American spp., p. 358, *parietalis*, p. 358, pl. xxxiii, figg. 18 & 19, *nivea*, p. 358, pl. xxxiii, figg. 20, 20*a* & 21, *grandis*, p. 359, pl. xxxiii, figg. 22, 22*a* & *b* ; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.
Dictynidæ, p. 357, key to Centr.-American genera, p. 357 ; CAMBRIDGE, F., t. c.
Dictyolathys **n. g.** (*Dictynidæ*) *maculata*, Alabama, p. 534 ; BANKS, P. Ac. Philad. 1900, **n. sp.**
Lethia trivittata, New Mexico, p. 577, pl. xxxiii, figg. 9 & 10; BANKS, op. cit. liii, **n. sp.**
Mallos **n. g.** (subfam. *Amaurobiinæ*), p. 308, *niveus*, Mexico, p. 308 ; CAMBRIDGE, O., Arach. Aran. i, Biol. Centr.-Amer. **n. sp.**
Myropsis, p. 9, *backhauseni*, p. 9 ; SIMON, Arach. Hamb. Magalh. Sammelreise.
Pseudauximus **n. g.** (*Dictynidæ*) *reticulatus*, Cape, p. 243; SIMON, Bull. Soc. ent. France 1902, **n. sp.**
Temecula mexicana, p. 359, pl. xxxiii, figg. 23, 24 & 24*a–c*; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

Eresidæ.

Penestomus **n. g.** (*Eresidæ*) *planus*, S. Africa, p. 241 ; SIMON, Bull. Soc. ent. France 1902, **n. sp.**

Zoropsidæ and Acanthoctenidæ.

Acanthoctenidæ, p. 354 ; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

Acanthoctenus, key to Centr.-American spp., p. 355, *spinigerus*, p. 356, pl. xxxiii, figg. 12, 12*a*, 13 & 13*a–e*, *spinipes*, p. 356, pl. xxxiii, figg. 14, 14*a* & 15; CAMBRIDGE, F., t. c.
Mnesitheus asper, p. 290; TULLGREN, Ent. Tidskr. xxiii.
Zorocrates, key to Centr.-American spp., p. 354, *fuscus*, p. 354, pl. xxxiii, figg. 8, 8*a*, 9 & 9*a–d*, *mistus*, p. 354, pl. xxxiii, figg. 10, 10*a* & 11; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.
Zoropsidæ, p. 353; CAMBRIDGE, F., t. c.

Dysderidæ and Oonopidæ.

Ariadne, type *flagellum*, Doleschall, p. 16; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.
A. tarsalis, Culpepper I., Galapagos, p. 57, pl. i, fig. 9; BANKS, P. Washington Ac. iv, **n. sp.**
Oonops bermudensis, Bermudas, p. 269, fig. 1; BANKS, Tr. Connect. Ac. xi, **n. sp.**
Orsolobus, p. 9, *chelifer*, S. Chile, p. 10, pl. i, fig. 2*a* & *b*; TULLGREN, Bih. Svenska Ak. xxviii (4) No. 1, **n. sp.**

Scytodidae.

Loxosceles longipalpis, Albemarle and Hood Is., Galapagos, p. 55, pl. i, fig. 13; BANKS, P. Washington Ac. iv: *L. smithii*, Galla country, p. 386; SIMON in DONALDSON SMITH, "Through Unknown African Countries" (1897): **n. spp.**
Plectreurys tristis, pl. xxii, fig. 6; BANKS, P. U. S. Mus. xxiii.
Scytodes broomi, Namaqualand, p. 321, fig. A, *marshalli*, Natal, p. 323, fig. B; POCOCK, Ann. Nat. Hist. (7) x, **n. spp.**

Pholcidæ.

Artema, p. 366, *atlanta*, p. 366, pl. xxxiv, figg. 15, 15*a*, *b*, 16 & 16*a*; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.
Coryssocnemis, p. 371, key to Centr.-American spp., p. 371, *simoni*, p. 371, pl. xxxv, figg. 7, 7*a* & *b*; CAMBRIDGE, F., t. c.
C. conica, Hood I., Galapagos, p. 56, pl. i, figg. 1–3, *insularis*, Albemarle I., Galapagos, p. 56, pl. i, fig. 6; BANKS, P. Washington Ac. iv: *C. furcula*, Guatemala, p. 371, pl. xxxv, figg. 8, 8*a* & *b*; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer: **n. spp.**
Metagonia caudata, p. 370, pl. xxxv, figg. 5 & 5*a*; CAMBRIDGE, F., t. c.
Micromerys delicatus, p. 370, pl. xxxv, figg. 6 & 6*a*; CAMBRIDGE, F., t. c.
Modisimus, p. 366, key to Centr.-American spp., p. 366, *inornatus*, p. 367, pl. xxxiv, figg. 17, 17*a*, *b* & 18, *propinquus*, p. 367, pl. xxxiv, figg. 19, 19*a* & *b*, *maculatipes*, p. 367, pl. xxxiv, fig. 20, *putus*, p. 368, pl. xxxiv, fig. 21; CAMBRIDGE, F., t. c.
Pholcidæ, p. 365, key to Centr.-American genera, p. 365; CAMBRIDGE, F., t. c.
Pholcus v-notatus, p. 349; LEARDI IN AIRAGHI, Atti Mus. Milano xl.
Physocyclus, p. 368, key to Centr.-American spp., p. 368, *globosus*, p. 368, pl. xxxiv, fig. 22, 22*a*, *b* & 23, *dugesi*, p. 369, pl. xxxv, figg. 1, 1*a–d*, 2, 2*a* & *b*, *rotundus*, p. 369, pl. xxxv, figg. 3, 3*a* & *b*; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.
Spermophora placens, p. 370, pl. xxxv, figg. 4 & 4*a*; CAMBRIDGE, F., t. c.

Theridiidæ.

Achæa, p. 400, key to Centr. American spp., p. 401, *crocea*, p. 401, pl. xxxvii, figg. 30 & 30*a*, *mendax*, p. 401, pl. xxxvii, figg. 31 & 31*a*; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

Anelosimus, p. 394, key to Centr. American spp., p. 394, *jucundus*, p. 394, pl. xxxvii, figg. 14 & 14*a–d*, 15, 15*a* & *b*, *studiosus*, p. 395, pl. xxxvii, figg. 16 & 17; CAMBRIDGE, F., t. c.

Araeoncus brunneus, Hamburg, p. 195, pl. xvii, fig. 270; BÖSENBERG, Zoologica xiv, **n. sp.**

Argyrodes, p. 401, key to Centr. American spp., p. 401, *argentatus*, p. 403, pl. xxxviii, figg. 1, 1*a*, 2 & 2*a*, *obtusus*, p. 403, pl. xxxviii, figg. 3 & 3*a–c*, *americanus*, p. 403, pl. xxxviii, figg. 4, 4*a–d*, 5 & 5*a*, *argenteo-maculatus*, p. 404, pl. xxxviii, figg. 6, 6*a* & *b*, *trigonus*, p. 404, pl. xxxviii, figg. 7, 7*a*, *b*, 8, 8*a* & *b*, *argyrodes*, p. 405, pl. xxxviii, figg. 9, 9*a–d* & 10, *subdolus*, p. 405, figg. 11 & 11*a*, *maculosus*, p. 405, pl. xxxviii, figg. 12, 12*a*, 13, 13*a* & *b*, *jucundus*, p. 406, pl. xxxviii, figg. 14 & 14*a–c*; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

Argyrodes walkeri, Torres I., p. 524, pl. xxviii, figg. 2, 2*a*, 3 & 3*a*; RAINBOW, P. Linn. Soc. N. S. Wales xxvi, **n. sp.**

Ariamnes, p. 407, key to Centr. American spp., p. 408, *gracillimus*, p. 408, pl. xxxviii, figg. 20, 20*a* & *b*; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

A. pavesii, Mahé, p. 350; LEARDI IN AIRAGHI, Atti Mus. Milano xl, **n. sp.**

Asagena, p. 377, key to Centr. American spp., p. 377, *alticeps*, p. 377, pl. xxxv, figg. 16 & 16*a*, *quadrimaculata*, p. 378, pl. xxxv, figg. 17 & 17*a*; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

Centromerus obscurus, Pforzheim, p. 136, pl. xii, fig. 179, *pallens*, Nassau, p. 137, pl. xii, fig. 180; BÖSENBERG, Zoologica xiv, **n. spp.**

Ceratinella occidentalis, New Mexico, p. 579, pl. xxxiii, figg. 11 & 12; BANKS, P. Ac. Philad. liii, **n. sp.**

Chrosiothes australis, p. 13; SIMON, Arach. Hamb. Magalh. Sammelreise.

Cnephalocotes dentiger, Suldal, W. Norway, p. 21, figg. 3*a–c*; STRAND, Bergens Mus. Aarbog 1902 No. 6, **n. sp.**

Coleosoma, p. 408; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

Dicymbium nigrum, p. 14; STRAND, Bergens Mus. Aarbog 1902, No. 6.

Dipœna, p. 399; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

D. parvula, Arizona, p. 584, pl. xxii, fig. 4; BANKS, P. U. S. Mus. xxiii, **n. sp.**

Egilona, p. 400; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

Enoplognatha triangulifera, Tierra del Fuego, p. 14; SIMON, Arach. Hamb. Magalh. Sammelreise, **n. sp.**

Episinus, p. 397, key to Centr. American spp., p. 397, *putus*, p. 397, pl. xxxvii, figg. 25 & 25*a*, *cognatus*, p. 398, pl. xxxvii, figg. 26, 26*a* & 27; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

E. dusénii, S. Chile, p. 14, pl. i, fig. 4; TULLGREN, Bih. Svenska Ak. xxviii (4) No. 1, **n. sp.**

Eucharia, type *hera* C. L. Koch = *castanea* (Olivier), p. 13; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.

Euryopis, p. 396, key to Centr. American spp., p. 396, *lineatipes*, p. 396, pl. xxxvii, figg. 20 & 21, *spinigera*, p. 397, pl. xxxvii, fig. 22, *probabilis*, p. 397, pl. xxxvii, fig. 23, *proxima*, p. 397, pl. xxxvii, fig. 24; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

Kulczyńskiellum tenerum, Pforzheim, p. 172, pl. xv, fig. 233, *subnigrum*, Hamburg, p. 172, pl. xv, fig. 234, *pallidum*, Hamburg, p. 172, pl. xv, fig. 235; BÖSENBERG, Zoologica xiv, **n. spp.**

K. suldalense ? n. sp., p. 13; STRAND, Bergens Mus. Aarbog 1902, No. 6.

Lasæola inornata, p. 4, *bösenbergi* **nom. nov.** (=*L. inornata* Bösenberg ? non Cambridge) p. 5; STRAND, Bergens Mus. Aarbog 1902, No. 6.

Latrodectus, notes, p. 247, key to spp., p. 251, *hystrix*, p. 252, pl. xxvi, fig. 2, *geometricus*, p. 252, pl. xxvii, fig. 7, *pallidus*, p. 253, pl. xxvi, fig. 1, *mactans*, p. 253, pl. xxvii, fig. 2, subsp. *curacaviensis*, p. 254, pl. xxvii, fig. 4, subsp. *tredecim-guttatus*, p. 254, pl. xxvi, fig. 3, subsp. *menavodi*, p. 255, pl. xxvii, fig. 3, subsp. *hasseltii*, p. 255, pl. xxvi, fig. 4, subsp. *katipo*, p. 255, pl. xxvii, fig. 5; CAMBRIDGE, F., P. Zool. Soc. London 1902, i: amended key to spp. and subspp. p. 38; CAMBRIDGE, F., Ann. Nat. Hist. (7) x: *L.* p. 378, key to some spp. p. 378, *mactans*, p. 378, pl. xxxv, figg. 19, 19*a*, 20, 20*a–i*, *geometricus*, p. 378, pl. xxxv, figg. 23, 24 & 24*a*, *geographicus*, p. 379, pl. xxxv, figg. 21 & 22; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.: *L. mactans*, p. 6, fig. 2; TULLGREN, Bih. Svenska Ak. xxvii (4) i: *L.* 13-*guttatus*, poison of; BORDAS, C.R. Ass. Franc. Ajaccio 1901 (i), p. 615: *L. formidabilis*, pairing, p. 3; RIVERA, Act. Soc. Chile xi.

L. key to spp., p. 40, *obscurior*, Madagascar, p. 41, *insularis*, Antilles, p. 41, subsp. *insularis* **n. subsp.** St. Thomas, p. 41, subsp. *lunulifer*, **n. subsp.** Hayti, p. 41, *sagittifer*, Porto Alegro, p. 42, *ancorifer*, New Guinea, p. 43, *hahli*, Bismarck Archipelago, p. 44, *luzonicus*, Philippines, p. 44, *stuhlmanni*, ? East Africa, p. 45, *renivulvatus*, S. W. Africa, p. 45; DAHL, SB. Ges. naturf. Berlin 1902, **n. spp.**

Liger, p. 400; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

Lithyphantes, p. 375, key to Centr. American spp. p. 375, *quæsitus*, p. 376, pl. xxxv, figg. 13 & 13*a*, *nigrofemoratus*, p. 376, pl. xxxv, fig. 14; CAMBRIDGE, F., t. c.

L. lugubris, Mexico, p. 376, pl. xxxv, figg. 15 & 15*a–c*; CAMBRIDGE, F., t. c. **n. sp.**

Lophocarenum subfuscum, Hamburg &c., p. 199, pl. xvii, figg. 276; BÖSENBERG, Zoologica xiv, **n. sp.**

Lophomma rufipes, Pforzheim, p. 183, pl. xvi, fig. 252, *candida*, Mecklenberg, p. 184, pl. xvi, fig. 253; BÖSENBERG, Zoologica xiv, **n. spp.**

Metopobactrus triangulatus, Suldal, W. Norway, p. 19, fig. 1; STRAND, Bergens Mus. Aarbog 1902, No. 6, **n. sp.**

Microneta hamburgensis, Hamburg, p. 148, pl. xiii, fig. 197; BÖSENBERG, Zoologica xiv: *M. soltaui*, New Mexico, p. 581, pl. xxiii, figg. 8 & 13; BANKS, P. Ac. Philad. liii: **n. spp.**

Micryphantes albipes, Pforzheim, p. 154, pl. xiii, fig. 206; BÖSENBERG, Zoologica xiv, **n. sp.**

Phyllonethis trepida, p. 307; CAMBRIDGE, O., Arach. Aran. i, Biol. Centr.-Amer.

Rhomphæa, p. 406, key to Centr. American spp., p. 406, *furcata*, p. 407, pl. xxxviii, figg. 15, 15*a* & *b*, *bifissa* **nom. nov.** (*Argyrodes furcata*, O. P. Cambridge), p. 407, pl. xxxviii, figg. 16, 16*a* & *b*, *projiciens*, p. 407, pl. xxxviii, figg. 17, 17*a* & 18, *procera*, p. 407, pl. xxxviii, figg. 19 & 19*a*; CAMBRIDGE, F., op. cit. ii.

Sigaloëssa, type *aurata*, Templeton, p. 18; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.

Sinamorus, type *hæmatostigma*, Templeton, p. 18; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.

Spintharus, p. 398, *flavidus*, p. 398, pl. xxxvii, figg. 28, 29, 29*a–d*; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

Stearodea **n. g.** (*Theridiidæ*), type *bipunctata* (Linn.), p. 13; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.

S. p. 377, *americana*, Mexico, p. 377, pl. xxxv, figg. 12 & 12*a*; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer., **n. sp.**

Steatoda, type *lunata* Sund. = *T. tepidariorum* C. L. K., p. 11; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix: *S.* p. 379, key to Centr. American

spp. p. 379, *tepidariorum*, p. 382, pl. xxxvi, figg. 1 & 1*a–c*, 2 & 2*a–d*, *tæniata*, p. 382, pl. xxxvi, figg. 3, 4 & 4*a*, *florens*, p. 382, pl. xxxvi, fig. 5, *forda*, p. 382, pl. xxxvi, figg. 7 & 7*a*, *mixta*, p. 383, pl. xxxvi, figg. 8 & 8*a*, *oblivia*, p. 383, pl. xxxvi, figg. 9 & 9*a*, *pura*, p. 383, pl. xxxvi, fig. 10, *transversa*, p. 383, pl. xxxvi, fig. 11, *compressa*, **nom. nov.** (=*rotundum* O. P. Cambridge nec Keyserling) *morula*, p. 384, pl. xxxvi, figg. 14 & 14*a*, *rufipes*, p. 384, pl. xxxvi, figg. 15, 15*a–c*, 16, 16*a* & *b*, *munifex*, p. 385, pl. xxxvi, fig. 17, *albomaculata*, p. 385, pl. xxxvi, figg. 18, 18*a*, *b*, 19 & 19*a*, *sexmaculata*, p. 386, pl. xxxvi, fig. 22; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

S. cavipalpus, Guatemala, p. 382, pl. xxxvi, figg. 6 & 6*a*, *aspersa*, Guatemala, p. 384, pl. xxxvi, fig. 13, *voluta*, Guatemala, p. 386, pl. xxxvi, figg. 20 & 20*a–c*, *rubicunda*, Panama, p. 386, pl. xxxvi, figg. 21 & 21*a*, *longistylum*, Panama, p. 386, pl. xxxvi, figg. 23 & 23*a*; CAMBRIDGE, F., t. c.: *S. grandis*, New Mexico, p. 578; BANKS, P. Ac. Philad. liii: **n. spp.**

Stemmops, p. 399; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

Teutana, p. 374, *grossa*, p. 374, pl. xxxv, figg. 9, 9*a*, 10 & 10*a*; CAMBRIDGE, F., t. c.; *T. zonata*, p. 306; CAMBRIDGE, O., Arach. Aran. i, Biol. Centr.-Amer.

Theridiidæ, notes on habits, webs &c., p. 371, key to Centr. American genera, p. 372; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

Theridion, p. 387, key to Centr. American spp., p. 387, *frondeum*, p. 389, *evexum*, p. 389, pl. xxxvi, figg. 25, 25*a–c* & 26, *electum*, p. 390, pl. xxxvi, fig. 27, *thorelli*, p. 390, pl. xxxvi, figg. 28, 28*a*, *b*, 29 & 29*a–c*, *niveum*, p. 390, pl. xxxvii, figg. 1, 1*a* & 2, *trepidum*, p. 391, pl. xxxvii, figg. 4 & 4*a*, *vittatum*, p. 391, pl. xxxvii, figg. 6, 6*a*, 7 & 7*a*; CAMBRIDGE, F., t. c.: *T. tepidariorum* var., p. 5, figg. 1*a–c*, *gracile*, p. 11, pl. i, fig. 3, (?) *spirale*, p. 13; TULLGREN, Bih. Svenska Ak. xxviii (4), No. 1.

Theridion styligerum, Guatemala, p. 389, pl. xxxvi, figg. 24 & 24*a*, *uncatum*, Mexico, p. 390, pl. xxxvii, fig. 3, *excavatum*, Guatemala, p. 391, pl. xxxvii, figg. 5 & 5*a*; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.: *T. neomexicanum*, New Mexico, p. 577; BANKS, P. Ac. Philad. liii: *T. bertkaui*, Rhine Province, p. 108, pl. ix, fig. 136; BÖSENBERG, Zoologica xiv: *T. swarczewskii*, Caucasus, p. 491, pl. vi, figg. 1 & 2; VERZHBĪTZKIĬ, Zapiski Kiev. Obshch. xvii: *T. eigenmanni*, in caves, San Marcos, Texas, p. 97; BANKS (in ULRICH), Tr. Amer. micr. Soc. xxiii: *T. michaelseni*, Tierra del Fuego, p. 14; SIMON, Arach. Hamb. Magalh. Sammelreise: **n. spp.**

Theridula, p. 392, key to Centr. American spp., p. 392, *nigrovittata*, p. 392, pl. xxxvii, fig. 8, *faceta*, p. 393, pl. xxxvii, figg. 9, 10 & 10*a*, *opulenta*, p. 393, pl. xxxvii, figg. 11 & 11*a–d*; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

Thwaitesia, p. 395, *affinis*, p. 396, pl. xxxvii, figg. 18, 19 & 19*a*; CAMBRIDGE, F., t. c.

Tmeticus brevipalpus, New Mexico, p. 580, pl. xxxiii, fig. 14; BANKS, P. Ac. Philad. liii, **n. sp.**

Ulesanis scutula, p. 16, pl. i, figg. 5*a* & *b*; TULLGREN, Bih. Svenska Ak. xxviii (4), No. 1.

Wamba, p. 375, *congener*, p. 375, pl. xxxv, figg. 11 & 11*a*; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

Argyopidæ.

Æobatus, type *nasatus*, Templeton, p. 19; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.

Æthriscus **n. g.** (*Argyopidæ*) *olivaceus*, Congo, p. 329; POCOCK, Ann. Nat. Hist. (7) x, **n. sp.**

Æthrodes, g. def., p. 329; POCOCK, t. c.
Aranea quadrata, habits; SMITH, Natural. J. xi, pp. 32–35, 1 pl.
Araneus aysenensis, p. 32, pl. iii, figg. 4*a–c*, *mammiferus*, p. 34, pl. iii, fig. 5, S. Chile; TULLGREN, Bih. Svenska Ak. xxviii (4), No. 1, **n. spp.**
Argiope cophinaria, p. 7, *argentata* (?), p. 8, fig. 6; TULLGREN, op. cit. xxvii (4), No. 1.
Argyopidæ, p. 412, key to subfamiles from Centr. America, p. 412; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.
Arrecerus, type *camelinus* (C. Koch) = *W. acuminata* Blackw., p. 10; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.
Bathyphantes, p. 423; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.: *B. maculata*, Alabama, p. 533; BANKS, P. Ac. Philad. 1900: *B. lennoxensis*, p. 23, *fissidens*, p. 23, Tierra del Fuego; SIMON, Arach. Hamb. Magalh. Sammelreise : **n. spp.**
Cœrostris, key to African spp., p. 328, *columnifer* **nom. nov.**, for *turriger* Poc., p. 328; POCOCK, Ann. Nat. Hist. (7) x: *C.*, p. 214, *albescens*, 214, figg. A & B, *mitralis* Vinson, p. 215, fig. C; SIMON, Bull. Soc. ent. France 1902.
C. corticosa, S. Africa, p. 326, fig. C, on p. 322, *darlingi*, Mashonaland, p. 327, fig. D, on p. 322; POCOCK, Ann. Nat. Hist. (7) x, **n. spp.**
Ceratinopsis antarctica, p. 19; SIMON, Arach. Hamb. Magalh. Sammelreise.
C. michaelseni, Tierra del Fuego, p. 20; SIMON, t. c. **n. sp.**
Ceroclus, type *carinatus*, Templeton, p. 19; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.
Clitistes **n. g.** (subfam. *Linyphiinæ*) *velutinus*, Tierra del Fuego, p. 20; SIMON, Arach. Hamb. Magalh. Sammelreise, **n. sp.**
Cornicularia, type *unicornis* (Cambr.), p. 9; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.
Diphya, p. 24, *spinifera*, p. 26, pls. iii, fig. 1*a*, ii, figg. 4*a* & *b*, *pallida*, p. 29, pl. iii, figg. 2*a–c*, *rugosa*, p. 31, pl. iii, fig. 3, S. Chile; TULLGREN, Bih. Svenska Ak. xxviii (4), No. 1, **n. spp.**
Diplocephalus, type *foraminifer* (Cambr.), p. 9; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.
D. spinosus regarded as var. of *D. permixtus*; FALCONER, Naturalist 1902, p. 207.
Entelecara omissa, p. 33; CAMBRIDGE, O., P. Dorset Club xxiii.
E. jacksonii, Glamorgan, p. 32, fig. 6; CAMBRIDGE, O., t. c. **n. sp.**
Epeira arizonensis, pl. xxii, fig. 5; BANKS, P. U. S. Mus. xxiii: *E. placida*, p. 582; BANKS, P. Ac. Philad. liii: *E. laglaizei*, p. 122; LEARDI IN AIRAGHI, Atti Mus. Milano xli.
E. libera, Mahé, p. 360; LEARDI IN AIRAGHI, op. cit. xl: *E. tricolor*, Manila, p. 120; LEARDI IN AIRAGHI, op. cit. xli : **n. spp.**
Epeirotypus, p. 414; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.
Erigone vagans, p. 540, figg. 1, 17, 58 & 59, *longipalpis*, p. 540, figg. 2, 3, 18, 19, 60 & 61, *arctica*, p. 541, figg. 4, 20, 36 & 48, **var. nov.** *maritima*, p. 542, fig. 5, *remota*, p. 542, figg. 6, 21, 43, 55, 68 & 69, *capra*, p. 543, figg. 7, 23 & 50, **var. nov.** *oblita*, p. 543, figg. 22 & 62, *promiscua*, p. 543, figg. 8, 32, 33, 45 & 57, *tirolensis*, p. 544, figg. 10, 26, 40, 52, 64, 70 & 71, *cristatopalpus*, p. 545, figg. 9, 25 & 42, *psychrophila*, p. 545, figg. 11, 24, 39, 51 & 63, *tenuimanus*, p. 545, figg. 27, 41 & 53, *dentipalpis*, p. 546, figg. 12, 28, 34 & 46, *atra*, p. 546, figg. 13, 14, 29, 37 & 49, var. *lantosquensis*, p. 547, fig. 15, *iugorum*, p. 547, figg. 16, 30, 44 & 56, *graminicola*, p. 548, figg. 31, 65, 66 & 67 (all figg. on pl. xxxv); KULCZYŃSKI, Bull. Ac. Cracovie 1902: *E. psychrophila*, p. 337, pl. vii, figg. 1–4, *tirolensis*, p. 339, *arctica*, p. 339, pl. vii, figg. 6–9; KULCZYŃSKI, Annuaire Mus. St. Petersb. vii.
Florinda, p. 420; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.
Frontinella **n. g.** (*Linyphiinæ*), p. 420, key to spp., p. 421, *læta*, p. 421, pl. xl, figg. 1, 1*a–e*, 2 & 2*a*, *confinis*, p. 423, pl. xl, fig. 9; CAMBRIDGE, F., t. c.

F. bicuspis, Mexico, p. 422, pl. xl, figg. 3, 3*a* & *b*, *faculifera*, Costa Rica, p. 422, pl. xl, figg. 4 & 4*a*, *uncata*, Mexico etc., p. 422, pl. xl, figg. 5, 5*a–c* & 6, *tibialis*, Mexico, p. 422, pl. xl, figg. 7, 7*a* & *b*, *rustica*, Mexico, p. 423, pl. xl, fig. 8; CAMBRIDGE, F., t. c. **n. spp.**

Gea heptagon, p. 9, fig. 5*a* & *b*; TULLGREN, Bih. Svenska Ak. xxvii (4) i.

Gonatium, type *cheliferum* (Wider)=*rubens* (Blackwall), p. 10; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.

G. pallidum, Pforzheim, p. 161, pl. xiv, fig. 215, *insigne*, Hamburg, p. 161, pl. xiv, fig. 216, *fuscum*, Pforzheim, p. 161, pl. xiv, fig. 217, *gilbum*, p. 162, pl. xiv, fig. 218, *fulvum*, p. 162, pl. xiv, fig. 219; BÖSENBERG, Zoologica xiv, **n. spp.**

Gongylidiellum (?) *uschuaiense*, Tierra del Fuego, p. 16; SIMON, Arach. Hamb. Magalh. Sammelreise, **n. sp.**

Hilaira glacialis?, p. 345, pl. vii, figg. 13 & 14; KULCZYŃSKI, Annuaire Mus. St. Petersb. vii.

Lepthyphantes, p. 423; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.: *L. suldalensis*, Suldal, W. Norway, p. 17, figg. 2*a* & *b*; STRAND, Bergens Mus. Aarbog 1902, No. 6, **n. sp.**

Leucauge, type *argyrobapta* White, p. 16; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.

Linyphia communis, p. 6, fig. 3; TULLGREN, Bih. Svenska Ak. xxvii (4) i. *L. confinis*, Guatemala, p. 306; CAMBRIDGE, O., Arach. Anan. i, Biol. Centr.-Amer.: *L. erythrocera*, Tierra del Fuego, p. 24; SIMON, Arach. Hamb. Magalh. Sammelreise: *L. aysenensis*, S. Chile, p. 18, pl. i, fig. 6; TULLGREN, Bih. Svenska Ak. xxviii (4), No. 1 : **n. spp.**

Linyphiinæ, p. 415, key to some genera, p. 415; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

Meta fuegiana, Tierra del Fuego, p. 26; SIMON, Arach. Hamb. Magalh. Sammelreise: *M. echinata*, p. 19, pl. ii, figg. 1*a* & *b*, *torta*, p. 21, pl. ii, figg. 2*a* & *b*, *chilensis*, p. 22, pl. i, fig. 7, *cordillera*, p. 23, pl. ii, fig. 3, S. Chile; TULLGREN, Bih. Svenska Ak. xxviii (4), No. 1 : **n. spp.**

Metargus **nom. nov.** for *Argus* Walck., p. 8; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.

Microneta cauta, Glamorgan, p. 31, fig. 2; CAMBRIDGE, O., P. Dorset Club xxiii, **n. sp.**

Minyriolus (?) *australis*, Tierra del Fuego, p. 15; SIMON, Arach. Hamb. Magalh. Sammelreise, **n. sp.**

Myagrus, type *pilosus*, Templeton, p. 19; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.

Nephila maculata, p. 355; LEARDI IN AIRAGHI, Atti Mus. Milano xl: *N. madagascariensis*, habits in captivity; FAVIER, Ann. Soc. ent. France lxxi, pp. 488–498, pl. iii.

Neriene, type *marginata* Blackw.=*clathrata* Sund., p. 9; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix: *N. montevidensis*, p. 16; SIMON, Arach. Hamb. Magalh. Sammelreise.

N., p. 416, key to Centr. American spp., p. 417, *longispina*, Mexico, p. 418, pl. xxxix, figg. 9, 9*a*, *b*, 10 & 10*a*, *duplicata*, Mexico, p. 418, pl. xxxix, figg. 11 & 11*a–f*, *simplicata*, Guatemala, p. 418, pl. xxxix, figg. 12 & 12*a*, *trifalcata*, Guatemala, pl. 418, pl. xxxix, figg. 13, 13 *a* & *b*, *gamma*, Guatemala, p. 419, pl. xxxix, fig. 14, 14 *a* & *b*, *pallida*, Guatemala, p. 419, pl. xxxix, figg. 15 & 15*a*, *emarginata*, Guatemala, p. 419, pl. xxxix, fig. 16, *convexa*, Mexico, p. 419, pl. xxxix, figg. 17 & 17*a*, *lambda*, Guatemala, p. 419, pl. xxxix, figg. 18 & 18*a*, *nigrita*, Guatemala, p. 419, pl. xxxix, figg. 19 & 19*a*, *bifasciata*, Costa Rica, p. 420, pl. xxxix, figg. 20, 20*a*, 21, 21*a* & *b*, *linguatula*, Guatemala, p. 420, pl. xxxix, fig. 22, *limbata*, Mexico etc., p. 420, pl. xxxix, fig. 23; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.: *N. fuegiana*, p. 17, *pictonensis*, p. 18, *michaelseni*, p. 18, Tierra del Fuego; SIMON, Arach. Hamb. Magalh. Sammelreise : **n. spp.**

Nuctobia, type *calophylla* Walck., p. 15; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.
Porhomma fuegianum, p. 21; SIMON, Arach. Hamb. Magalh. Sammelreise.
Prosopotheca, type *monoceros* (Wid.), p. 9; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.
Sthelota, p. 416; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.
Tetragnatha tenera, p. 353; LEARDI IN AIRAGHI, Atti Mus. Milano xl.
T. galapagoensis, Albemarle and Narboro Is., Galapagos, p. 61, pl. i, fig. 10; BANKS, P. Washington Ac. iv: *T. foai*, tropical Africa, p. 514; SIMON, Bull. Mus. Paris viii : **n. spp.**
Theridiosoma, p. 414, key to Centr. American spp., p. 414; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.
Theridiosomatinæ, p. 413, key to Centr.-American genera, p. 413; CAMBRIDGE, F., t. c.
Typhochræstus (?) *spetsbergensis*, p. 343, pl. vii, figg. 5, 10–12, 15 & 16; KULCZYŃSKI, Annuaire Mus. St. Petersb. vii.
Viderius, type *tibialis* (Koch) =*antica* (Wid.) p. 10; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.
Walckenaëra mengei, Hamburg, p. 145, pl. xiii, fig. 192; BÖSENBERG, Zoologica xiv, **n. sp.**
Walckenaeria, type *cristata* Blackw., p. 8; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.
Wendilgarda, p. 415; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.
Wideria warburtonii, Cambridge, p. 34, fig. 8, *incerta*, Bloxworth, p. 35, fig. 9, *subita*, Dorset, p. 36, fig. 10; CAMBRIDGE, O., P. Dorset Club xxiii, **n. spp.**
Xenophonus, type *pallidulus* Templeton, p. 19; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.
Zilephus **n. g.** (subfam. *Linyphiinæ*) *granulosus*, Tierra del Fuego, p. 22; SIMON, Arach. Hamb. Magalh. Sammelreise, **n. sp.**
Zilla, type *albomacula* C. L. Koch, p. 14; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.
Zygia, type *calophylla* (Walck.), p. 14; CAMBRIDGE, F., t. c.
Zygiella **nom. nov.** for *Zygia* C. L. Koch non Fabricius, p. 14; CAMBRIDGE, F., t. c.

Mimetidæ.

Galena, p. 441, key to Centr. American spp., p. 411, *mixta*, pl. 411, pl. xxxix, figg. 5, 5*a*, *b*, 6, 6*a–e*, *consequa*, p. 412, pl. xxxix, figg. 7 & 7*a*, *distincta*, p. 412, pl. xxxix, figg. 8 & 8*a*; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.
Gelanor errans, Panama, p. 305, *consequens*, Panama, p. 306; CAMBRIDGE, O., Arach. Aran. i, Biol. Centr.-Amer., **n. spp.**
Gnolus, p, 36, *spiculator*, p. 41, pl. iv, fig. 2, *cordiformis*, p. 44, pls. iii, fig. 6, iv. fig. 1*c*, *angulifrons*, p. 47, pls. iii, fig. 7*a*, iv, fig. 3; TULLGREN, Bih. Svenska Ak. xxviii (4) No. 1.
G. affinis, p. 43, *zonulatus*, p. 48, pl. iv, figg. 4*a* & *b*, S. Chile; TULLGREN, t. c. **n. spp.**
Mimetidæ, p. 409, subfam. *Mimetinæ* and key to Centr. American genera, p. 409; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.
Mimetus, p. 409, key to Centr. American spp., p. 410, *bigibbosus*, p. 410, pl. xxxix, figg. 1, 1*a* & *b*, *crudelis*, p. 410, pl. xxxix, figg. 2 & 2*a*, *rapax*, p. 410, pl. xxxix, figg. 3, 3*a* & *b*, *trituberculatus*, p. 410, pl. xxxix, figg. 4, & 4*a*, *hirsutus*, p. 411; CAMBRIDGE, F., t. c.
Oarces reticulatus, p. 50; TULLGREN, Bih. Svenska Ak. xxviii (4) No. 1.

Archœidæ.

Mecysmauchenius nordenskjöldi, p. 27 ; SIMON, Arach. Hamb. Magalh. Sammelreise.

Hersiliidæ.

Hersiliidæ, p. 350 ; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.
Tama, p. 351, key to Centr. American spp., p. 351, *mexicana*, p. 351, pl. xxxiii, figg. 5, 6, 6*a–c* ; CAMBRIDGE, F., t. c.
T. forcipata, Guatemala, p. 351, pl. xxxiii, fig. 7 ; CAMBRIDGE, F., t. c. **n. sp.**

Agelenidæ.

Agalena longistylus, New Mexico, p. 576 ; BANKS, P. Ac. Philad. liii, **n. sp.**
Agelenidæ, p. 332, key to Centr. American genera, p. 333 ; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.
Agelenopsis, p. 334, key to Centr. American spp., p. 334, *nova*, p. 336, pl. xxxi, figg. 35 & 35*a*, *elegans*, p. 336, pl. xxxi, figg. 37, 37*a* & *b* ; CAMBRIDGE, t. c.
A. marginata, Mexico, p. 336, pl. xxxi, figg. 36 & 36*a*, *transversa*, Mexico, p. 336, pl. xxxi, figg. 38 & 38*a*, *simplex*, Guatemala, p. 336, pl. xxxii, figg. 1, 1*a* & *b*, *lobata*, Mexico, p. 336, pl. xxxii, fig. 2, *cuspidata*, Mexico, p. 337, pl. xxxii, fig. 3, *bicavata*, Mexico, p. 337, pl. xxxii, fig. 4, *cavata*, Mexico, p. 337, pl. xxxii, fig. 5, *costata*, Costa Rica, p. 337, pl. xxxii, fig. 6, *attenuata*, Mexico, p. 337, pl. xxxii, fig. 7, *penetralis*, Costa Rica, p. 337, pl. xxxii, fig. 8, *variabilis*, Mexico, p. 338, pl. xxxii, fig. 9, *glaucopis*, Mexico, p. 338, pl. xxxii, fig. 10 ; CAMBRIDGE, F., t. c. **n. spp.**
Bigois antarctica, Tierra del Fuego, p. 40 ; SIMON, Arach. Hamb. Magalh. Sammelreise, **n. sp.**
Cœlotes, type *saxatilis* (Blackwall) = *Drassus atropos* Walckenaer, p. 20 ; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.
Desis, key to spp., p. 105, *martensi*, habits, &c., p. 99, *marinus*, habits, &c., p. 101, *tubicola*, habits, &c., p. 104 ; POCOCK, P. Zool. Soc. London 1902, ii.
D. kenyonæ, Victoria, p. 102, fig. 21 ; POCOCK, t. c. **n. sp.**
Hahnia ohlerti, Nassau, p. 234, pl. xxi, fig. 331, *cacuminata*, Pforzheim, p. 237, pl. xxi, fig. 332 ; BÖSENBERG, Zoologica xiv : *H. michaelseni*, Tierra del Fuego, p. 39 ; SIMON, Arach. Hamb. Magalh. Sammelreise : **n. spp.**
Mynthes dentifer, S. Chile, p. 69, pl. vii, fig. 5*a* & *b* ; TULLGREN, Bih. Svenska Ak. xxviii (4) No 1, **n. sp.**
Myro multidentata, S. Chile, p. 72, pl. vi, figg. 5*a* & *b* ; TULLGREN, t. c. **n. sp.**
Rubrius, p. 35, *radulifer*, p. 36, *paganus*, p. 37, *livens*, p. 38, Chile ; SIMON, Arach. Hamb. Magalh. Sammelreise, **n. spp.**
Tegenaria, key to Centr. American spp., p. 333, *derhami*, p. 333, pl. xxxi, figg. 32 & 33 ; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.
T. flexuosa, Mexico, p. 334, pl. xxxi, figg. 34 & 34*a* ; CAMBRIDGE, F., t. c. **n. sp.**

Lycosidæ and Pisauridæ.

Admestina insularis, Narboro I., Galapagos, p. 66, pl. ii, fig. 4 ; BANKS, P. Washington Ac. iv, **n. sp.**

Arctosa, p. 330, key to Centr. American spp., p. 330, *cinerea*, p. 331, pl. xxxi, figg. 28 & 29; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

A. trifida, Mexico, &c., p. 330, pl. xxxi, figg. 24, 25 & 25*a*, *minuta*, Guatemala, p. 331, pl. xxxi, figg. 26 & 27; CAMBRIDGE, F., t. c. **n. spp.**

Dolomedes, habits; TRANI, Boll. Nat. xxii, pp. 21–33: *D.* key to some spp., p. 586, *urinator*, Pennsylvania, p. 586, pl. xxx, fig. 50; MONTGOMERY, P. Ac. Philad. liv.

D. idoneus, Pennsylvania, p. 588, pl. xxx, fig. 51; MONTGOMERY, t. c.: **n. sp.**

Euprosthenops pulchellus, S. Africa, p. 18, pl. iii, fig. 6 & 6*a*; POCOCK, Ann. Nat. Hist. (7) x, **n. sp.**

Lycosa, key to Centr. American spp., p. 322, *insignis*, p. 324, pl. xxxi, figg. 9 & 9*a*; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.: *L.*, key to some spp., p. 536, *nigra*, p. 538, pl. xxix, fig. 1, *arenicola*, p. 550, pl. xxix, fig. 13, *punctulata*, p. 552, pl. xxix, fig. 14, *scutulata*, p. 553, pl. xxix, figg. 15 & 16, *cinerea*, p. 555, pl. xxix, figg. 17 & 18, *carolinensis*, p. 556, pl. xxix, figg. 19 & 20, *inhonesta*, p. 557, pl. xxix, figg. 21 & 22, *nidicola*, p. 559, pl. xxix, figg. 23 & 24, *baltimoriana*, p. 561, pl. xxix, fig. 25, *lepida*, p. 562, pl. xxix, figg. 26 & 27, *frondicola*, p. 565, pl. xxx, figg. 28 & 29, mostly from Pennsylvania and New Jersey; MONTGOMERY, P. Ac. Philad. liv: *L. indomita*, p. 41, *australis*, p. 41, *ohlini*, p. 41; SIMON, Arach. Hamb. Magalh. Sammelreise: *L. nidicola*, p. 16; TULLGREN, Bih. Svenska Ak. xxvii (4) i.

L. ocreata pulchra, Pennsylvania, p. 540, pl. xxix, figg. 3 & 4; MONTGOMERY, P. Ac. Philad. liv, **n. subsp.**

Lycosa sublata, p. 539, pl. xxix, fig. 2, *relucens*, p. 542, pl. xxix, figg. 5 & 6, *sepulchralis*, p. 543, pl. xxix, fig. 7, *charonoides*, p. 544, pl. xxix, fig. 8, *stonei*, p. 546, pl. xxix, figg. 9 & 10, *verisimilis*, p. 548, pl. xxix, figg. 11 & 12, *nigraurata*, p. 564, pl. xxx, fig. 53, *purcelli*, p. 566, pl. xxx, figg. 30 & 31, Pennsylvania and New Jersey; MONTGOMERY, t. c.: *L. michaelseni*, Patagonia and Tierra del Fuego, p. 42; SIMON, Arach. Hamb. Magalh. Sammelreise: *L. hirsuta*, Mexico, p. 325, pl. xxxi, fig. 10, *subfusca*, Mexico, p. 325, pl. xxxi, fig. 11, *brunnea*, Mexico, p. 325, pl. xxxi, figg. 12 & 12*a*, *transversa*, Guatemala, p. 325, pl. xxxi, fig. 13, *ventralis*, Mexico, p. 326, pl. xxxi, figg. 14 & 14*a*, *longivulva*, Guatemala, p. 326, pl. xxxi, fig. 15, *lativulva*, Guatemala, p. 326, pl. xxxi, fig. 16, *dilatata*, p. 326, pl. xxxi, figg. 17 & 17*a*, *brevitarsis*, Mexico, &c., p. 327, pl. xxxi, fig. 18, *constricta*, Guatemala, p. 327, pl. xxxi, fig. 19, *longitarsis*, Mexico, &c., p. 327, pl. xxxi, fig. 20, *guttatula*, Mexico, p. 328, pl. xxxi, fig. 21, *uncata*, Mexico, p. 328, pl. xxxi, figg. 22, 22*a* & *b*; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.: *L. galapagoensis*, Albemarle and Chatham Is., Galapagos, p. 64, pl. ii, fig. 3, *albemarlensis*, Albemarle I., Galapagos, p. 64, pl. ii, fig. 10, *snodgrassi*, Albemarle and Chatham Is., Galapagos, p. 65, pl. ii, fig. 1; BANKS, P. Washington Ac. iv: *L. promptula*, Swanage, p. 37, fig. 11; CAMBRIDGE, O., P. Dorset Club, xxiii: *L. angusta*, p. 16, figg, 7*a* & *b*, *albopunctata*, p. 18, figg. 8*a* & *b*, (*Pirata*) *loennbergi*, p. 19, fig. 10, *transversolineata*, p. 20, fig. 11, Florida; TULLGREN, Bih. Svenska Ak. xxvii (4) i: **n. spp.**

Lycosidæ, p. 314, key to Centr. American gg., p. 314; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.: characters, p. 535, key to some genera, p. 536; MONTGOMERY, P. Ac. Philad. liv.

Ocyale undata, Pennsylvania, p. 584, pl. xxx, fig. 49; MONTGOMERY, P. Ac. Philad. liv.

Pirata, p. 329, *felix*, p. 330, pl. xxxi, fig. 23; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.: *P.* key to some spp., p. 575, *elegans*, p. 581, pl. xxx, fig. 46, *marxi*, p. 582, pl. xxx, fig. 47, Pennsylvania; MONTGOMERY, P. Ac. Philad. liv.

P. humicolus, Philadelphia, p. 575, pl. xxx, figg. 40 & 41, *liber*, Philadelphia, p. 578, pl. xxx, figg. 42 & 43, *nigromaculatus*, Pennsylvania, p. 579, pl. xxx, figg. 44 & 45, *procursus*, Pennsylvania, p. 583, pl. xxx, fig. 48; MONTGOMERY, P. Ac. Philad. liv, **n. spp.**

Pardosa, key to some spp., p. 569, *nigropalpis*, p. 569, pl. xxx, figg. 32–34, *minima*, p, 571, pl. xxx, figg. 35 & 36, Pennsylvania and New Jersey, descr.; MONTGOMERY, t. c.

P. porto-ricensis, Porto Rico, p. 224, pl. xv, figg. 2 & 3; BANKS, P. U. S, Mus. xxiv: *P.*, p. 315, key to Centr. American spp., p. 315, *prolifica*. Mexico, p. 317, pl. xxx, figg. 19, 19*a*, 20 & 20*a*, *longivulva*, Mexico, p. 318, pl. xxx, figg. 21, 21*a* & 22, *falcifera*, Mexico, p. 318, pl. xxx, figg. 23, 24 & 24*a*, *flavipes*, Mexico, p. 319, pl. xxx, figg. 25, 25*a*, *b* & 26, *uncatula*, Mexico, &c., p. 319, figg. 27, 27*a* & 28, *unguifera*, Mexico, &c., p. 320, pl. xxxi, figg. 1, 2 & 2*a*, *falcula*, Guatemala, p. 320, pl. xxxi, fig. 3, *hamifera*, Guatemala, p. 320, pl. xxxi, figg. 4 & 4*a*, *linguata*, Mexico, p. 320, pl. xxxi, figg. 5 & 5*a*, *plagula*, Guatemala, p. 321, pl. xxxi, fig. 6, *lineata*, Mexico, p. 321, pl. xxxi, figg. 7 & 7*a*, *canalis*, Mexico, p. 321, pl. xxxi, fig. 8; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.: *P. scita*, Philadelphia, p. 573, pl. xxx, figg. 37 & 38, *solivaga*, Pennsylvania, p. 574, pl. xxx, fig. 39; MONTGOMERY, P. Ac. Philad. liv: *P. bilobata*, p. 22, fig. 12, *longispinata*, p. 23, fig. 13, Florida, TULLGREN, Bih. Svenska Ak. xxvii (4) i: **n. spp.**

Rothus lineatus, Cape Colony, p. 16, pl. iii, fig. 2; POCOCK, Ann. Nat. Hist. (7) x, **n. sp.**

Sosippus, p. 332, *mexicanus*, p. 332, pl. xxxi, figg. 30, 31 & 31*a–c*; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

Spencerella signata, Grahamstown, p. 17, pl. iii, figg. 4 & 4*a*; POCOCK, Ann. Nat. Hist. (7) x, **n. sp.**

Syntrechalea **n. g.**, p. 313, *tenuis*, Panama, p. 314, pl. xxx, fig. 18; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer. **n. sp.**

Thalassius rossii, Durban, p. 15, pl. iii, fig. 1; POCOCK, Ann. Nat. Hist. (7) x: *T. unicolor*, Shebeli River, p. 389; SIMON in DONALDSON SMITH, "Through Unknown African Countries" (1897): **n. spp.**

Trechalea habilis, p. 313, pl. xxx, fig. 15, *extensa*, p. 313, pl. xxx, figg. 16, 16*a* & *b*, *connexa*, p. 313, pl. xxx, fig. 17; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

T. macconnelli, Mt. Roraima, p. 67, fig. 2*e*; POCOCK, Tr. Linn. Soc. London (2) viii, **n. sp.**

Trechona, type *lycosiformis* (C. L. Koch), p. 17; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.

Trochosa parva, p. 217, pl. vii, fig. 10; BANKS, P. U. S. Mus. xxv: *T.* sp., Caucasus, p. 500, pl. vi, figg. 4 & 5; VERZHBĪTZKIĬ, Zapiski Kiev. Obshch. xvii.

Senoculidæ.

Senoculidæ, p. 349; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

Senoculus, key to Centr. American spp., p. 349, *prolatus*, p. 350, pl. xxxiii, figg. 1, 1*a*, *b* & 2; CAMBRIDGE, F., t. c.

S. canaliculatus, Mexico, etc., p. 350, pl. xxxiii, figg. 3, 4 & 4*a*; CAMBRIDGE, F., t. c. **n. sp.**

Oxyopidæ.

Hamataliwa, p. 348, *facilis*, p. 349, pl. xxxii, figg. 36, 36*a* & *b*; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.

Oxyopeidon, p. 346, key to Centr.-American spp., p. 346, *putum*, p. 347, pl. xxxii, figg. 30, 30*a*, *b*, 31 & 31*a*, *flebile*, p. 347, pl. xxxii, fig. 32,

lætum, p. 347, pl. xxxii, fig. 33, *subfacile*, p. 348, pl. xxxii, figg. 34 & 34*a*, *molestum*, p. 348, pl. xxxii, fig. 35; CAMBRIDGE, F., t. c.

Oxyopes compacta, p. 217, pl. vii, figg. 5 & 6; BANKS, P. U. S. Mus. xxv: *O.*, p. 341, key to Centr.-American spp., p. 341, *gracilis*, p. 342, pl. xxxii, figg. 14, 14*a*, *b*, 15, 15*a* & *b*; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.: *O. salticus*, Pennsylvania, p. 590, pl. xxx, fig. 52; MONTGOMERY, P. Ac. Philad. liv.

O. pictipes, New Mexico, p. 587; BANKS, P. Ac. Philad. liii: *O. laminatus*, Florida, p. 24, fig. 14; TULLGREN, Bih. Svenska Ak. xxvii (4) i: *O. cornutus*, Mexico, p. 343, pl. xxxii, fig. 16, *tricuspidatus*, Panama, p. 343, pl. xxxii, figg. 17, 17*a* & *b*, *globosus*, Panama, p. 343, pl. xxxii, figg. 18, 18*a-c*, 19 & 19*a*, *bifidus*, Mexico, p. 344, pl. xxxii, figg. 20 & 20*a*, *bifissus*, Mexico, p. 344, pl. xxxii, figg. 21, 21*a* & 22, *tibialis*, Guatemala, p. 344, pl. xxxii, figg. 23 & 23*a*, *calcarifer*, Costa Rica, p. 344, pl. xxxii, fig. 24, *lingulifer*, Costa Rica, p. 345, pl. xxxii, figg. 25 & 25*a*, *clypeatus*, Panama, p. 345, pl. xxxii, fig. 26, *annulipes*, Mexico, p. 345, pl. xxxii, fig. 27, *transversus*, Mexico, p. 345, pl. xxxii, fig. 28, *brunneus*, Mexico, p. 346, pl. xxxii, fig. 29; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.: *O. baccatus*, Galla country, p. 390; SIMON in DONALDSON SMITH, "Through Unknown African Countries" (1897): **n. spp.**

Oxyopidæ, p. 338, key to Centr.-American genera, p. 338; CAMBRIDGE, F., t. c.: characters, p. 590; MONTGOMERY, P. Ac. Philad. liv.

Peucetia, p. 339, key to Centr.-American spp., p. 339, *longipalpis*, Mexico, p. 340, pl. xxxii, fig. 11, *bibranchiata*, Mexico &c., p. 340, pl. xxxii, figg. 12, 12*a*, 13 & 13*a-c*; CAMBRIDGE, F., Arach. Aran. ii, Biol. Centr.-Amer.: *P. luteiceps*, E. Africa, p. 391; SIMON in DONALDSON SMITH, "Through Unknown African Countries" (1897): **n. spp.**

Palpimanidæ.

Palpimanus leppanæ, Jansenville, p. 18; POCOCK, Ann. Nat. Hist. (7) x, **n. sp.**

Clubionidæ (Drassidæ, Zodariidæ, Anyphænidæ, Ctenidæ, Sparassidæ).

Agrœca notata, Folkestone, p. 30; CAMBRIDGE, O., P. Dorset Club xxiii, **n. sp.**

Anyphæna quelchii, p. 67, figg. 2*c* & *d*; POCOCK, Tr. Linn. Soc. London (2) viii.

A. verrilli, Bermudas, p. 270, fig. 2; BANKS, Tr. Connect. Ac. xi, **n. sp.**

Aporatea valdiviensis, p. 56, pl. v, figg. 6*a* & *b*; TULLGREN, Bih. Svenska Ak. xxviii (4) No. 1.

Aysenia **n. g.** (*Clubionidæ*), p. 54, *elongata*, S. Chile, p. 54, pl. v, figg. 5*a* & *b*; TULLGREN, t. c. **n. sp.**

Aysha pacifica, Albemarle and Chatham Is., Galapagos, p. 58, pl. i, fig. 11; BANKS, P. Washington Ac. iv: *A. orlandensis*, Florida, p. 13, fig. 4; TULLGREN, Bih. Svenska Ak. xxvii (4) i: **n. spp.**

Curator, type *saxatilis* (Blackwall) = *Drassus atropos* Walckenaer, p. 20; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.

Cercetius **n. g.** (*Sparassidæ*) *perezi*, Dibba, Arabia, p. 253; SIMON, Bull. Mus. Paris viii, **n. sp.**

Chemmis unicolor, Arizona, p. 583, pl. xxii, fig. 11; BANKS, P. U. S. Mus. xxiii, **n. sp.**

Clubiona subalba, Borkum I., p. 272, pl. xxv, fig. 396; BÖSENBERG, Zoologica xiv, **n. sp.**

Cteniform spiders, list of spp. described since 1898, p. 407; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.

Ctenus, synopsis of Neotropical spp., p. 407, alphabetical list of spp., p. 412, *unilineatus*, p. 406, pl. vii, figg. 3–5, *coxalis* **nom. nov.** for *velox* Keyserling non Blackwall, p. 413, *fœa* **nom. nov.** for *obscurus* Thorell non Keyserling, *ceylonensis*, p. 414, pl. vii, fig. 14; CAMBRIDGE, F., t. c.: *C. trabifer*, p. 363; LEARDI IN AIRAGHI, Atti Mus. Milano xl.

C. falcatus, St. Lucia, p. 402, pl. vii, figg. 6 & 7, *ellacomei*, Surinam, p. 403, pl. vii, fig. 8, *thomasi*, La Plata, p. 403, pl. vii, figg. 1 & 2, *tarsalis*, Argentina, p. 404, pl. vii, fig. 9, *vertebratus*, Brazil, p. 404, pl. vii, fig. 11, *calcarifer*, Borneo, p. 405, pl. vii, fig. 10, *cuspidatus*, Ceylon, p. 406, pl. vii, figg. 12 & 13; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix, **n. spp.**

Drassus coloradensis, p. 212, pl. vii, fig. 4; BANKS, P. U. S. Mus. xxv.

Echemus chilensis, Chile, p. 12, *argutus*, Chile, p. 13; SIMON, Arach. Hamb. Magalh. Sammelreise: *E. pavesii*, E. Africa, p. 387; SIMON in DONALDSON SMITH, "Through Unknown African Countries" (1897): **n. spp.**

Eutichurus insulanus, Bermudas, p. 270, fig. 3; BANKS, Tr. Connect. Ac. xi, **n. sp.**

Gayenna immanis, p. 58, pl. vi, figg. 1*a* & *b*; TULLGREN, Bih. Svenska Ak. xxviii (4) No. 1.

G. marginalis, New Mexico, p. 574, pl. xxxiii, fig. 22; BANKS, P. Ac. Philad. liii: *G. saccata*, p. 60, pl. vii, fig. 1*a*, *rufithorax*, p. 62, pl. vii, fig. 2, *chilensis*, p. 63, pl. vi, fig. 3, *pallida*, p. 64, pl. vi, fig. 4, S. Chile; TULLGREN, Bih. Svenska Ak. xxviii (4) No. 1: **n. spp.**

Gnaphosa hirsutipes, New Mexico, p. 573, pl. xxxiii, fig. 4; BANKS, P. Ac. Philad. liii, **n. sp.**

Hermippus loricatus, Shebeli River, p. 387; SIMON in DONALDSON SMITH, "Through Unknown African Countries" (1897), **n. sp.**

Isopoda striatipes, Mahé, p. 366; LEARDI IN AIRAGHI, Atti Mus. Milano xl, **n. sp.**

Lagenicola, type *Doumerci* (Walck.), p. 17; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.

Leptodrassus insulans, New Hebrides, p. 523, pl. xxviii, figg. 1 & 1*a*; RAINBOW, P. Linn. Soc. N. S. Wales xxvi, **n. sp.**

Liparotoma villosa, S. Chile, p. 66, pl. vii, fig. 3; TULLGREN, Bih. Svenska Ak. xxviii (4) No. 1, **n. sp.**

Lycœna, type *spinimana*, Sundevall, p. 10; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.

Lycodia, type *spinimana*, Sundevall, p. 11; CAMBRIDGE, F., t. c.

Meriola inornata, New Mexico, p. 574, pl. xxxiii, fig. 6; BANKS, P. Ac. Philad. liii, **n. sp.**

Mezenia dorsalis, p. 67, pl. vii, fig. 4; TULLGREN, Bih. Svenska Ak. xxviii (4) No. 1.

Micaria albocincta, New Mexico, p. 573; BANKS, P. Ac. Philad. liii: *M. similis*, Pforzheim, p. 285, pl. xxvii, fig. 418, *simplex*, Hamburg, p. 286, pl. xxvii, fig. 420; BÖSENBERG, Zoologica xiv: **n. spp.**

Odo insularis, Albemarle I., Galapagos, p. 64, pls. i, fig. 14, ii, fig. 12, *galapagoensis*, Hood, Tower and Chatham Is., Galapagos, p. 64, pl. ii, fig. 2; BANKS, P. Washington Ac. iv, **n. spp.**

Olios galapagoensis, Chatham, Albemarle and Narboro Is., Galapagos, p. 63, pl. i, fig. 7; BANKS, t. c. **n. sp.**

Palystes, key to some spp., p. 23; POCOCK, Ann. Nat. Hist. (7) x.

P. leppanæ, p. 23, pl. iii, fig. 9, *whiteæ*, p. 24, pl. iii, fig. 11, *scutatus*, p. 24, pl. iii, fig. 13, all from Cape Colony, *crawshayi*, p. 27, Basutoland; POCOCK, t. c. **n. spp.**

Phrurolithus, type *festivus* C. L. Koch, p. 13; CAMBRIDGE, F., Ann. Nat. Hist. (7) ix.

Platyoides, key to S. African spp., p. 20; POCOCK, Ann. Nat. Hist. (7) x.
P. pictus, p. 19, pl. iii, fig. 7, *leppanæ*, p. 19, pl. iii, fig. 8, Cape Colony; POCOCK, t. c. **n. spp.**
Pœcilochroa bifasciata, Narboro I., Galapagos, p. 57, pl. i, fig. 4; BANKS, P. Washington Ac. iv, **n. sp.**
Prosthesima arizonensis, p. 582, pl. xxii, fig. 3, *schwarzi*, p. 582, pl. xxii, fig. 7, Arizona; BANKS, P. U. S. Mus. xxiii: *P. decepta*, Alabama, p. 531; BANKS, P. Ac. Philad. 1900: *P. barberi*, Arizona, p. 212, pl. vii, figg. 7 & 11; BANKS, P. U. S. Mus. xxv: *P. galapagoensis*, Albemarle I., Galapagos, p. 57, pl. ii, fig. 7; BANKS, P. Washington Ac. iv: *P. cockerelli*, New Mexico, p. 571, pl. xxxiii, figg. 2 & 3; BANKS, P. Ac. Philad. liii: *P. kulczyński*, Pforzheim, p. 313, pl. xxix, fig. 463; BÖSENBERG, Zoologica xiv: **n. spp.**
Scotophæus quilpuensis, Chile, p. 12; SIMON, Arach. Hamb. Magalh. Sammelreise, **n. sp.**
Selenops, key to S. African spp., p. 22; POCOCK, Ann. Nat. Hist. (7) x.
S. galapagoensis, Chatham and Albemarle Is., Galapagos, p. 63, pl. i, fig. 8; BANKS, P. Washington Ac. iv: *S. marshalli*, Natal, p. 21, pl. ii, fig. 6, *whiteæ*, Cape Colony, p. 21, pl. ii, fig. 7, *schönlandi*, Cape Colony, p. 22, pl. iii, fig. 15, *stauntoni*, Durban, p. 330; POCOCK, Ann. Nat. Hist. (7) x: **n. spp.**
Sparassus minax, pl. xxii, fig. 8; BANKS, P. U. S. Mus. xxiii.
S. fonticola, Cape Colony, p. 25, pl. iii, fig. 14; POCOCK, Ann. Nat. Hist. (7) x: *S. lævatus*, p. 388, *vestigator*, p. 389, Shebeli River; SIMON in DONALDSON SMITH, "Through Unknown African Countries" (1897): **n. spp.**
Thargalia luctuosa, Arizona, p. 584, pl. xxii, fig. 1; BANKS, P. U. S. Mus. xxiii: *T. modesta*, New Mexico, p. 575, pl. xxxiii, fig. 5; BANKS, P. Ac. Philad. liii: **n. spp.**
Tomopisthes horrendus, p. 30, *backhauseni*, p. 32, *strigosus*, p. 34; SIMON, Arach. Hamb. Magalh. Sammelreise.
T. conspersus, p. 33, *injucundus*, p. 33, *modestus*, p. 35, Patagonia; SIMON, t. c. **n. spp.**

Thomisidæ.

Diæa bipunctata, New Hebrides, p. 528, pl. xxviii, figg. 4 & 4*a*, *regalis*, New Hebrides, p. 529, pl. xxviii, figg. 5 & 5*a*; RAINBOW, P. Linn. Soc. N. S. Wales xxvi, **n. spp.**
Midamus ceylonicus, Kandy, p. 367; LEARDI IN AIRAGHI, Atti Mus. Milano xl, **n. sp.**
Misumena inclusa, Albemarle I., Galapagos, p. 62, pl. i, fig. 12; BANKS, P. Washington Ac. iv, **n. sp.**
Oxyptila rubicunda, Hamburg, p. 364, pl. xxxiv, fig. 536; BÖSENBERG, Zoologica xiv, **n. sp.**
Petricus niveus, p. 28; SIMON, Arach. Hamb. Magalh. Sammelreise.
Philodromus marginellus, Arizona, p. 586, pl. xxii, fig. 10; BANKS, P. U. S. Mus. xxiii: *P. reussii*, Pforzheim, p. 329, pl. xxxi, fig. 487, *albicans*, Ems a. d. Lahn, p. 330, pl. xxxi, fig. 488; BÖSENBERG, Zoologica xiv: **n. spp.**
Platythomisus sexmaculatus, W. Shebeli River, p. 388; SIMON in DONALDSON SMITH, "Through Unknown African Countries" (1897), **n. sp.**
Runcinia aleatoria, p. 12; TULLGREN, Bih. Svenska Ak. xxvii (4) i.
Stephanopsis antennata, S. Chile, p. 52, pl. v, fig. 4; TULLGREN, op. cit. xxviii (4) No. 1, **n. sp.**
Thomisus bonnieri, Dibba, Arabia, p. 252; SIMON, Bull. Mus. Paris viii, **n. sp.**
Tmarus stolzmanni, p. 62, pl. ii, fig. 5; BANKS, P. Washington Ac. iv.

Xysticus concinnus, Pforzheim, p. 353, pl. xxxiii, fig. 522; BÖSENBERG, Zoologica xiv: *X. kulczyński*, Caucasus, p. 494, pl. vi, fig. 3; VERZHBĪTZKIĬ, Zapiski Kiev. Obshch. xvii : **n. spp.**

Salticidæ (= *Attidæ*).

Admestina, p. 629; SIMON, Hist. Araign. ii: *A. bitæniata*, Chile, p. 28; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Ælurilleæ, group of *Salticidæ unidentati*, p. 658, key to genera, p. 667; SIMON, Hist. Araign. ii.
Ælurillus, p. 668; SIMON, t. c.: *Æ. cristatopalpus*, S. Africa, p. 36; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Æragas, p. 426; SIMON, Hist. Araign. ii.
Agassa **n. g.** in group *Rheneæ* of *Salticidæ unidentati* (type *A. georgiana* E. Simon), p. 643; SIMON, t. c.
Agelista, p. 439; SIMON, t. c.
Agorieæ, group of *Salticidæ pluridentati*, p. 534; SIMON, t. c.
Agorius, p. 537; SIMON, t. c.
Akela, p. 571; SIMON, t. c.
Alcimonotus **n. g.** (*Salticidæ*, aff. *Chira*), p. 54, *gounellei*, Brazil, p. 54; SIMON, Ant. Soc. ent. Belgique xlvi, **n. sp.**
Alcmena, p. 640; SIMON, Hist. Araign. ii.
Alfenus **n. g.** (*Salticidæ*) *calamistratus*, Congo, p. 411; SIMON, Ann. Soc. ent. France lxxi, **n. sp.**
Amphidraus, p. 428; SIMON, Hist. Araign. ii.
Amycieæ, group of *Salticidæ pluridentati*, p. 413, key to genera, p. 424; SIMON, t. c.
Amycus, p. 425; SIMON, t. c.
Anarrhotus **n. g.** (*Salticidæ*) *fossulatus*, Malay peninsula, p. 421; SIMON, Ann. Soc. ent. France lxxi, **n. sp.**
Anaurus, p. 439; SIMON, Hist. Araign. ii.
Anoka, p. 630; SIMON, t. c.
Arægeus, p. 526; SIMON, t. c.
Arasia **n. g.** in group *Astieæ* of *Salticidæ pluridentati* (type *A. mollicoma* L. Koch), p. 438; SIMON, t. c.
Artabrus **n. g.** (*Salticidæ*, type *Plexippus erythrocephalus* C. Koch), *jolensis*, Jolo I., p. 404; SIMON, Ann. Soc. ent. France lxxi, **n. sp.**
Asaphobelis **n. g.** (*Salticidæ*, aff. *Coryphasia*), p. 384, *physonychus*, Brazil, p. 384, *fasciiventris*, Brazil, p. 385; SIMON, Ann. Soc. ent. Belgique xlvi, **n. spp.**
Asemonea, p. 399, SIMON, Hist. Araign. ii.
Ashtabula, p. 633; SIMON, t. c.: *A. glauca*, Mexico, p. 31, *dentichelis*, Venezuela, p. 31, *sexguttata*, Brazil, p. 32; SIMON, Ann. Soc. ent. Belgique xlvi : **n. spp.**
Astænorchestes, p. 452; SIMON, Hist. Araign. ii.
Astia, p. 438; SIMON, t. c.
Astieæ, group of *Salticidæ pluridentati*, p. 429, key to genera, p. 436; SIMON, t. c.
Atelurius **n. g.** in group *Hurieæ* of *Salticidæ unidentati* (type *A. segmentatus* E. Simon), p. 585; SIMON, t. c.
Atmosphyrus **n. g.** (*Salticidæ*, aff. *Tanybelus*), p. 405, *tristiculus*, Chile, p. 405; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Attulus, p. 582; SIMON, Hist. Araign. ii.
Avitus, p. 630; SIMON, t. c.: *A. longidens*, Argentina, p. 30; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Bagheera, p. 630; SIMON, Hist. Araign. ii.
Balleæ, group of *Salticidæ pluridentati*, p. 481, key to genera, p. 485; SIMON, t. c.

Ballus, p. 485; SIMON, t. c.
Baryphas **n. g.** (*Salticidæ*, aff. *Hyllus*), p. 42, *ahenus*, S. Africa, p. 42, *jullieni*, Liberia, p. 42, *eupogon*, Ins. S. Thome, p. 43; SIMON, Ann. Soc. ent. Belgique xlvi, **n. spp.**
Bathippus palabuanensis, Java, p. 419, *manicatus*, Borneo, p. 420, *schalleri*, Penang, p. 420; SIMON, Ann. Soc. ent. France lxxi, **n. spp.**
Bavia, p. 470; SIMON, Hist. Araign. ii: *B. thorelli*, Celebes, p. 24; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Bavieæ, group of *Salticidæ pluridentati*, p. 460, key to genera, p. 469; SIMON, Hist. Araign. ii.
Baviola, p. 471; SIMON, t. c.
Beata germaini, Brazil, p. 396, *cinereo-nitida*, Brazil, p. 396; SIMON, Ann. Soc. ent. Belgique xlvi, **n. spp.**
Belliena **n. g.** (*Salticidæ*, aff. *Nagaina*), p. 403, *biocellosa*, Venezuela, p. 403, *phalerata*, Venezuela, p. 403, *flavimana*, Venezuela, p. 403; SIMON, t. c. **n. spp.**
Bellota, p. 534; SIMON, Hist. Araign. ii.
Bianor, p. 641; SIMON, t. c.: *B. biocellosus*, Brazil, p. 33; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Bindax, p. 428; SIMON, Hist. Araign. ii.
Bocus, p. 505; SIMON, t. c.
Bœtheæ, group of *Salticidæ pluridentati*, gen. account, p. 400, genera, p. 402; SIMON, t. c.
Bœthus, p. 402; SIMON, t. c.
Brancus **n. g.** (*Salticidæ*), type *muticus*, Congo, p. 400, *blaisei*, W. Africa, p. 401; SIMON, Ann. Soc. ent. France lxxi, **n. spp.**
Breda, p. 608; SIMON, Hist. Araign. ii.
Capidava **n. g.** (*Salticidæ*) type *auriculata*, Brazil, p. 418, *biuncata*, Amazons, p. 419, *rufithorax*, Peru, p. 419; SIMON, Ann. Soc. ent. France lxxi, **n. spp.**
Ceglusa, p. 556; SIMON, Hist. Araign. ii.
Ceriomura, p. 459; SIMON, t. c.
Cerionesta **nom. nov.** (=*Cydonia* G. & E. Peckham), p. 606; SIMON, t. c.
Chalcolecta, p. 481; SIMON, t. c.
Chalcoscirteæ, group of *Salticidæ unidentati*, p. 572, key to genera, p. 576; SIMON, t. c.
Chalcoscirtus, p. 576; SIMON, t. c.
Chalcotropis **n. g.** (*Salticidæ*, aff. *Donoessus*), p. 377, *acutefrenatus*, Java, p. 377, *præclarus*, Luzon, p. 378, *pennatus*, India, p. 378, *radiatus*, Celebes, p. 379, *decemstriatus*, Luzon, p. 380; SIMON, Ann. Soc. ent. Belgique xlvi, **n. spp.**
Charippus, p. 439; SIMON, Hist. Araign. ii.
Chasidamna **n. g.** (*Salticidæ*, aff. *Viciria*), p. 50, *rufociliata*, Brazil, p. 50, *semifimbriata*, Amazons, p. 51; SIMON, Ann. Soc. ent. Belgique xlvi, **n. spp.**
Chinoscopus **nom. nov.** for *Epicharmus* E. Simon, p. 399; SIMON, Hist. Araign. ii.
Chira (=*Shira* G. & E. Peckham), *trivittata*, p. 51; SIMON, Ann. Soc. ent. Belgique xlvi.
C. luctuosa, Peru, p. 52, *lucina*, Brazil, p. 53, *thysbe*, Brazil, p. 53, *aculeata*, Lombok, p. 53; SIMON, t. c. **n. spp.**
Chirothecia, p. 533; SIMON, Hist. Araign. ii.
Chloridusa, **n. g.** (*Salticidæ*, aff. *Sidusa*), p. 388, *viridiaurea*, Amazons, p. 388; SIMON, Ann. Soc. ent. Belgique xlvi, **n. spp.**
Chrysilla, p. 553; SIMON, Hist. Araign. ii.
Chrysilleæ, group of *Salticidæ unidentati*, p. 539, key to genera, p. 551; SIMON, t. c.
Cineas, p. 522; SIMON, t. c.

Clynotis **n. g.** in group *Marpisseæ* of *Salticidæ unidentati* (type *C. viduus* L. Koch), p. 612; SIMON, t. c.
Cocaleæ, group of *Salticidæ pluridentati*, gen. account, p. 405, genera, p. 407; SIMON, t. c.
Cocalodeæ, group of *Salticidæ pluridentati*, gen. account, p. 403; SIMON, t. c.
Cocalodes, p. 405; SIMON, t. c.
Cocalus, p. 408; SIMON, t. c.
Coccorchesteæ, group of *Salticidæ unidentati*, p. 643, key to genera, p. 646; SIMON, t. c.
Coccorchestes, p. 647; SIMON, t. c.
Codeta, p. 413; SIMON, t. c.
Codeteæ, group of *Salticidæ pluridentati*, p. 411, genera, p. 412; SIMON, t. c.
Colaxes, p. 492; SIMON, t. c.
Colopsus, **n. g.** type *cancellatus*, Ceylon, p. 409; SIMON, Ann. Soc. ent. France lxxi, **n. sp.**
Commoris **n. g.** (*Salticidæ*, aff. *Coryphasia*), p. 382, *enoplognatha*, Antilles, p. 382; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Consingis, p. 496; SIMON, Hist. Araign. ii.
Copocrossa **nom. nov.** (=*Stenodina* E. Simon), p. 475; SIMON, t. c.
Copocrosseæ, group of *Salticidæ pluridentati*, p. 473, key to genera, p. 475; SIMON, t. c.
Corambis **n. g.** in group *Marpisseæ* of *Salticidæ unidentati* (type *C. insignipes* E. Simon), p. 609; SIMON, t. c.
Corrhotus scriptus, W. Africa, p. 393, *taprobanicus*, Ceylon, p. 394, *singularis*, Bloemfontein, p. 395; SIMON, Ann. Soc. ent. France lxxi, **n. spp.**
Coryphasia **n. g.** (*Salticidæ*, aff. *Donoessus*), p. 380, *albibarbis*, Brazil, p. 380, *furcata*, Brazil, p. 381; SIMON, Ann. Soc. ent. Belgique xlvi, **n. spp.**
Corythalia, p. 657; SIMON, Hist. Araign. ii.
Cosmophasis **n. g.** in group *Chrysilleæ* of *Salticidæ unidentati* (type *C. thalassina* C. Koch), p. 553; SIMON, t. c.: *C. australis*, S. Africa, p. 25; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Cotinusa, p. 459; SIMON, Hist. Araign. ii.
Curubis **n. g.** (*Salticidæ*, aff. *Hasarius*), p. 372, *erratica*, Ceylon, p. 373, *annulata*, Ceylon, p. 373, *tetrica*, Ceylon, p. 373; SIMON, Ann. Soc. ent. Belgique xlvi, **n. spp.**
Cylistella **n. g.** in group *Balleæ* of *Salticidæ pluridentati* (type *C. cuprea* E. Simon), p. 487; SIMON, Hist. Araign. ii.
Cyllobelus, p. 554; SIMON, t. c.: *C. australis*, Algoa Bay, p. 334; PECKHAM, Psyche ix, **n. sp.**
Cyllodania **n. g.** (*Salticidæ*, aff. *Scopocira*), p. 363, *bicruciata*, Venezuela, p. 363; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Cynăpes, p. 471; SIMON, Hist. Araign. ii.
Cyrba, p. 449; SIMON, t. c.: *C. insularis*, Albemarle I., Galapagos, p. 66; BANKS, P. Washington Ac. iv, **n. sp.**
Cyrbeæ, group of *Salticidæ pluridentati*, p. 447; SIMON, Hist. Araign. ii.
Cytæa oreophila, Java, p. 392, *hæmatica*, Java, p. 393, *æneomicans*, Lombok, p. 393; SIMON, Ann. Soc. ent. Belgique xlvi, **n. spp.**
Damœtas, p. 534; SIMON, Hist. Araign. ii.
Dasycyptus **n. g.** (*Salticidæ*, aff. *Colyttus*), p. 364, *dimus*, W. Africa, p. 364; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Deloripa **n. g.** in group *Marpisseæ* of *Salticidæ unidentati* (type *D. semialba* E. Simon), p. 607; SIMON, Hist. Araign. ii.
Dendryphanteæ, group of *Salticidæ unidentati*, p. 612, key to genera, p. 626; SIMON, t. c.
Dendryphantes, p. 630; SIMON, t. c.
Descanso, p. 533; SIMON, t. c.
Dexippus, p. 612; SIMON, t. c.

Diagondas **n. g.** type *viridiaureus*, Brazil, p. 396, *micans*, Paraguay, p. 397; SIMON, Ann. Soc. ent. France lxxi, **n. spp.**
Dioleniea, group of *Salticidæ pluridentati*, p. 476, key to genera, p. 479; SIMON, Hist. Araign. ii.
Diolenius, p. 480; SIMON, t. c.
Discocnemius, p. 480; SIMON, t. c.
Donoessus **n. g.** (*Salticidæ*, aff. *Hasarius*), p. 376, *striatus*, Borneo, p. 376; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Dryphias **n. g.** in group *Rheneæ* of *Salticidæ unidentati* (type *D. maccuni* G. & E. Peckham), p. 642; SIMON, Hist. Araign. ii.
Echinussa **n. g.** in group *Chrysilleæ* of *Salticidæ unidentati* (type *E. vibrabunda* E. Simon), p. 555; SIMON, t. c.
Emertonius, p. 504; SIMON, t. c.
Encolpius, p. 427; SIMON, t. c.
Encymachus **n. g.** (*Salticidæ*, aff. *Semnolius*), p. 370, *livingstonei*, Zambesi, p. 370; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Epidelaxia **n. g.** (*Salticidæ*, aff. *Hasarius*), p. 367, *albostellata*, p. 367, *albocruciata*, Ceylon, p. 367, *obscura*, Ceylon, p. 368; SIMON, t. c. **n. spp.**
Epinga, p. 471; SIMON, Hist. Araign. ii.
Epocilla, p. 555; SIMON, t. c.
Erasinus flavibarbis, Java, p. 50; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Erica, p. 508; SIMON, Hist. Araign. ii.
Eugasmia **n. g.** (*Salticidæ*) (type E. (*Plexippus*) *sannio* Thorell), *barbata*, p. 395; SIMON, Ann. Soc. ent. France lxxi.
Euophrys saltiformis, p. 73, pl. vii, fig. 6; TULLGREN, Bih. Svenska Ak. xxviii (4) No. 1.
Eustiromastix **nom. nov.** (=*Cybele* Peckham, præocc.) *major*, Brazil, p. 416, *chaperi*, Colombia, p. 417, *rufohirta*, Para, p. 417, *stylifera*, Amazons, p. 418; SIMON, Ann. Soc. ent. France lxxi, **n. spp.**
Evarcha **n. g.** (*Salticidæ*) (type *Araneus flammatus* (*falcatus*) Clerck), *kochi*, Java, p. 397, *natalica*, Natal, p. 398; SIMON, t. c. **n. spp.**
Evophrydeæ, group of *Salticidæ unidentati*, p. 568, key to genera, p. 571; SIMON, Hist. Araign. ii.
Evophrys, p. 572; SIMON, t. c.
Festucula **n. g.** in group *Marpisseæ* of *Salticidæ unidentati* (type *F. vermiformis* E. Simon), p. 607; SIMON, t. c.
Flacilla **n. g.** in group *Flacilleæ* of *Salticidæ unidentati* (type *F. lubrica* E. Simon), p. 558; SIMON, t. c.
Flacilleæ, group of *Salticidæ unidentati*, p. 556; SIMON, t. c.
Fluda, p. 515; SIMON, t. c.
Freya exculta, Upper Amazons, p. 412, *chionopogon*, Amazons, p. 413, *perelegans*, Venezuela, p. 414; SIMON, Ann. Soc. ent. France lxxi, **n. spp.**
Fuentes vittata, New Mexico, p. 590, pl. xxxiii, fig. 20; BANKS, P. Ac. Philad. liii, **n. sp.**
Gangus **n. g.** (*Salticidæ*) (type *G.* (*Acompse*) *concinnus* Keyserling), *longulus*, p. 390, *decorus*, p. 390, Queensland; SIMON, Ann. Soc. ent. France lxxi, **n. spp.**
Gedea **n. g.** (*Salticidæ*, aff. *Emathis*), p. 390, *flavogularis*, Java, p. 390; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Gelotia, p. 413; SIMON, Hist. Araign. ii.
Goleta, p. 472; SIMON, t. c.
Gophoa **n. g.** in group *Gophoeæ* (type *G. falcigera* E. Simon), p. 590; SIMON, t. c.
Gophoeæ, group of *Salticidæ unidentati*, p. 588; SIMON, t. c.
Gypogyna, p. 444; SIMON, t. c.
Haterius, p. 493; SIMON, Hist. Araign. ii.
Heliophanus, p. 555; SIMON, t. c.: *H. peckhami*, S. Africa, p. 26; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**

Helpidius **nom. nov.** for *Helorus* G. & E. Peckham, p. 428; SIMON, Hist. Araign. ii.
Helpis **n. g.** in group *Astieæ* of *Salticidæ pluridentati* (type *H. minitabunda* L. Koch), p. 438; SIMON, t. c.
Helvetia, p. 607; SIMON, t. c.
Hispo, p. 452; SIMON, t. c.
Hisponeæ, group of *Salticidæ pluridentati*, p. 449, key to genera, p. 451; SIMON, t. c.
Holcolæteæ, group of *Salticidæ pluridentati*, p. 452; SIMON, t. c.
Holcolætis, p. 454; SIMON, t. c.
Holoplatys, p. 608; SIMON, t. c.
Homalattus, p. 643; SIMON, t. c.: *H. coriaceus*, W. Africa, p. 34; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Hurieæ, group of *Salticidæ unidentati*, p. 583, key to genera, p. 585; SIMON, Hist. Araign. ii.
Hurius **n. g.** in group *Hurieæ* of *Salticidæ unidentati* (type *H. vulpinus* E. Simon), p. 585; SIMON, t. c.
Hyctia, p. 609; SIMON, t. c.
Hyetussa **n. g.** (*Salticidæ*, aff. *Belliena*), p. 404, *cribrata*, Venezuela, p. 404; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Hyllus argyrotoxus, Zululand, p. 391, *brevitarsis*, S. Africa, p. 391, *aurantiacus*, S. E. Africa, p. 392, *flavescens*, Natal, p. 393; SIMON, Ann. Soc. ent. France lxxi: *H. treleavenii*, Mashonaland, p. 334; PECKHAM, Psyche ix : **n. spp.**
Hypœus, p. 426; SIMON, Hist. Araign. ii.
Hypoblemum, p. 567; SIMON, t. c.
Icius, p. 629; SIMON, t. c.: *I. neomexicanus*, New Mexico, p. 589, pl. xxxiii, fig. 21; BANKS, P. Ac. Philad. liii, **n. sp.**
Ilargus, p. 566; SIMON, Hist. Araign. ii.
Iona, p. 556; SIMON, t. c.
Itata, p. 539; SIMON, t. c.
Itateæ, group of *Salticidæ unidentati*, p. 537, SIMON, t. c.
Jasoda **n. g.** (*Attidæ unidentati*), p. 331, *woodii*, Mashonaland, p. 332; PECKHAM, Psyche ix, **n. sp.**
Jolias **n. g.** in group *Chalcoscirteæ* of *Salticidæ unidentati* (type *J. geniculatus* E. Simon), p. 577; SIMON, Hist. Araign. ii.
Jotus, p. 566; SIMON, t. c.
Keyserlingella, p. 516; SIMON, t. c.
Kima **n. g.** (*Attidæ unidentati*), p. 333, *africana*, Cape Colony, p. 334; PECKHAM, Psyche ix, **n. sp.**
Lagnus, p. 437; SIMON, Hist. Araign. ii.
Lapsias, p. 439; SIMON, t. c.
Lauharulla, p. 567; SIMON, t. c.
Leptorchesteæ, group of *Salticidæ unidentati*, p. 523, key to genera, p. 525; SIMON, t. c.
Leptorchestes, p. 525; SIMON, t. c.
Letoia, p. 429; SIMON, t. c.
Ligdus, p. 475; SIMON, t. c.
Ligonipedeæ, group of *Salticidæ pluridentati*, p. 487, key to genera, p. 491; SIMON, t. c.
Ligonipes, p. 493; SIMON, t. c.
Lineæ, group of *Salticidæ pluridentati*, p. 408; SIMON, t. c.
Linus, p. 410; SIMON, t. c.
Lophostica **n. g.** (*Salticidæ*, aff. *Emathis*), p. 390, *mauriciana*, Mauritius, p. 390; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Lurio **n. g.** in group *Dendryphanteæ* of *Salticidæ unidentati* (type *L. solennis* C. Koch), p. 631; SIMON, Hist. Araign. ii.
Lyssomaneæ, group of *Salticidæ pluridentati*, gen. account, p. 390, synopsis of genera, p. 397; SIMON, t. c.

Lyssomanes, p. 398; SIMON, t. c.
Lystrocteisa, p. 480; SIMON, t. c.
Macopœus, p. 399; SIMON, t. c.
Mœnola, p. 426; SIMON, t. c.
Mœota, p. 566; SIMON, t. c.
Mago, p. 427; SIMON, t. c.
Malloneta **n. g.** (*Salticidæ*) type *guineensis*, W. Africa, p. 405; SIMON, Ann. Soc. ent. France lxxi, **n. sp.**
Mantisatta, p. 475; SIMON, Hist. Araign. ii.
Marengo, p. 492; SIMON, t. c.
Margaromma, p. 657; SIMON, t. c.: *M. marginatum*, E. Australia, p. 35, *soligena*, New Guinea, p. 35, *torquatum*, Halmahera, p. 36; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Marma **n. g.** (*Salticidæ*, aff. *Tarna*), p. 376, *baeri*, Ecuador, p. 376; SIMON, t. c. **n. sp.**
Marpissa, p. 610; SIMON, Hist. Araign. ii.
M. albopilosa, Arizona, p. 219, pl. vii, figg. 2, 3, 9; BANKS, P. U. S. Mus. xxv, **n. sp.**
Marpisseæ, group of *Salticidæ unidentati*, p. 591, key to genera, p. 604; SIMON, t. c.
Massagris, p. 452; SIMON, t. c.
Menemerus, p. 611; SIMON, t. c.
Mexcala **n. g.** (*Attidæ unidentati*), p. 332, *rufa*, Cape Colony, p. 333; PECKHAM, Psyche ix, **n. sp.**
Microhasarius **n. g.** (*Salticidæ*, aff. *Hasarius*), p. 395, *pauperculus*, Java, p. 395; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Mithion, p. 610; SIMON, Hist. Araign. ii.
Modunda **n. g.** in group *Dendryphanteæ* of *Salticidæ unidentati* (type *M. phragmitis* E. Simon), p. 629; SIMON, t. c.
Mollica, p. 657; SIMON, t. c.
Monoclova **n. g.** (*Attidæ fissidentati*), p. 331, *braunii*, Cape Colony, p. 331; PECKHAM, Psyche ix, **n. sp.**
Mopiopia **n. g.** (*Salticidæ*, aff. *Panysinus*), p. 375; *comatala*, Brazil, p. 375; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Muziris **n. g.** in group *Marpisseæ* of *Salticidæ unidentati* (type *M. doleschalli* Thorell), p. 611; SIMON, Hist. Araign. ii.
Myrmarachne, p. 504; SIMON, t. c.
Myrmarachneæ, group of *Salticidæ pluridentati*, p. 496, key to genera, p. 503; SIMON, t. c.
Nagaina diademata, Brazil, p. 404, *tricincta*, Amazons, p. 404; SIMON, Ann. Soc. ent. Belgique xlvi, **n. spp.**
Nannenus **n. g.** (*Salticidæ*, aff. *Hasarius*), p. 370, *syrphus*, Singapore, p. 370, *lyriger*, Singapore, p. 371; SIMON, t. c. **n. spp.**
Napoca **n. g.** in group *Rheneæ* of *Salticidæ unidentati* (type *N. insignis* O. P. Cambridge), p. 642; SIMON, Hist. Araign. ii.
Naubolus **n. g.** in group *Marpisseæ* of *Salticidæ unidentati* (type *N. micans* E. Simon), p. 610; SIMON, t. c.
Nebridia **n. g.** (*Salticidæ*, aff. *Curubis*), p. 373, *semicana*, Venezuela, p. 373; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Neon, p. 577; SIMON, Hist. Araign. ii.
Nilacantha, p. 459; SIMON, t. c.
Noegus, p. 427; SIMON, t. c.
Ocnotelus, **n. g.** (*Salticidæ*, aff. *Coryphasia*) p. 382, *imberbis*, Brazil, p. 382; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Ocrisiona, p. 608; SIMON, Hist. Araign. ii.
Omœdus, p. 647; SIMON, t. c.
Omœdus piceus, Halmahera, p. 35; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**

Onomastus, p. 400; SIMON, Hist. Araign. ii.
Oningis, **n. g.** in group *Saiteæ* of *Salticidæ unidentati* (type *O. pompatus* G. & E. Peckham), p. 567; SIMON, t. c.
Orsima **n. g.** in group *Chrysilleæ* of *Salticidæ unidentati* (type *O. constricta* E. Simon), p. 554; SIMON, t. c.
Oserieta, p. 534; SIMON, t. c.
Othrus, p. 400; SIMON, t. c.
Pachyballus, p. 486; SIMON, t. c.
Pachypoessa **n. g.** (*Salticidæ*) type *lacertosa*, Natal, Madagascar, p. 399, *albimana*, Sierra Leone, p. 399; SIMON, Ann. Soc. ent. France lxxi, **n. spp.**
Padilla, p. 471; SIMON, Hist. Araign. ii.
Padillothorax, p. 470; SIMON, t. c.: *P. taprobanicus*, Ceylon, p. 24; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Panachræsta, p. 504; SIMON, Hist. Araign. ii.
Pancorius **n. g.** (*Salticidæ*, type *Ergane dentichelis* Simon), *nævius* Java, p. 410, *scoparius*, Java, p. 410, *borneensis*, Borneo, p. 411; SIMON, Ann. Soc. ent. France, **n. spp.**
Pandisus, p. 398; SIMON, Hist. Araign. ii.
Panysinus vittatus, Java, p. 386, *grammicus*, India, p. 387, *semiermis*, Ceylon, p. 387; SIMON, Ann. Soc. ent. Belgique xlvi, **n. spp.**
Paradamœtas, p. 632; SIMON, Hist. Araign. ii.
Partona **n. g.** in group *Rheneæ* of *Salticidæ unidentati* (type *P. euchirus* E. Simon), p. 642; SIMON, t. c.: *P. euchirus*, Brazil, p. 34; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Peckhamia **n. g.** in group *Peckhamieæ* of *Salticidæ pluridentati* (type *P. scorpionea* Hentz), p. 496; SIMON, Hist. Araign. ii.
Peckhamieæ, group of *Salticidæ pluridentati*, p. 494, key to genera, p. 496; SIMON, t. c.
Pellenes cockerelli, New Mexico, p. 591, pl. xxxiii, figg. 16 & 17; BANKS, P. Ac. Philad. liii, **n. sp.**
Pensacola cyaneochirus, Ecuador, p. 38, *gaujoni*, Ecuador, p. 38, *castanea*, Brazil, p. 39, *ornata*, Para, p. 39, *murina*, Brazil, p. 40; SIMON, Ann. Soc. ent. Belgique xlvi, **n. spp.**
Peplometus, p. 486; SIMON, Hist. Araign. ii.
Phœacius, p. 408; SIMON, t. c.
Pharacocerus **n. g.** (*Salticidæ*) type *sessor*, Madagascar, p. 405; SIMON, Ann. Soc. ent. France lxxi, **n. sp.**
Phaulostylus **n. g.** (*Salticidæ*) type *furcifer*, p. 406, *grandidieri*, p. 407, *grammicus*, p. 407, *leucolophus*, p. 408, Madagascar; SIMON, Ann. Soc. ent. France lxxi, **n. spp.**
Phausina **n. g.** (*Salticidæ*, aff. *Epidelaxia*) p. 368, *flavofrenata*, Ceylon, p. 368, *guttipes*, Ceylon, p. 368, *bivittata*, Ceylon, p. 369; SIMON, Ann. Soc. ent. Belgique xlvi, **n. spp.**
Phidippus morsitans, p. 25; TULLGREN, Bih. Svenska Ak. xxvii (4) i.
P. bilineatus, p. 26, fig. 15, *oaklandensis*, p. 27, fig. 16, *clarconensis*, p. 28, fig. 17, Florida; TULLGREN, t. c. **n. spp.**
Philæus pacificus, Albemarle and Narboro Is., Galapagos, p. 67; BANKS, P. Washington Ac. iv, **n. sp.**
Philates, p. 493; SIMON, Hist. Araign. ii.
Phintia **n. g.** in group *Chrysilleæ* of *Salticidæ unidentati* (type *P. viridimicans* E. Simon), p. 552; SIMON, t. c.
Phyaces **n. g.** (*Salticidæ*, aff. *Stertimus*) p. 399, *comosus*, Ceylon, p. 399; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Pilia **n. g.** (*Salticidæ*, aff. *Tara*) p. 402, *saltabunda*, India, p. 402; SIMON, t. c. **n. sp.**
Piranthus, p. 473; SIMON, Hist. Araign. ii.
Plexippus redimitus, Ceylon, p. 401, *tortilis*, W. Africa, p. 402, *coccineus*,

Turcomania, p. 403, *rubrogularis*, Transvaal, p. 403; SIMON, Ann. Soc. ent. France lxxi, **n. spp.**

Plotius **n. g.** (*Salticidæ*, aff. *Cytæa*) p. 394, *breviusculus*, Ceylon, p. 394, *curtus*, Halmahera, p. 394; SIMON, Ann. Soc. ent. Belgique xlvi, **n. spp.**

Pochyta, p. 567; SIMON, Hist. Araign. ii: *P. major*, W. Africa, p. 414, *occidentalis*, W. Africa, p. 415, *albimana*, Madagascar, p. 415; SIMON, Ann. Soc. ent. France lxxi, **n. spp.**

Pacilorchestes **n. g.** in group *Coccorchesteæ* of *Salticidæ unidentati* (type *P. decoratus* E. Simon), p. 647; SIMON, Hist. Araign. ii: *P. decoratus*, New Guinea, p. 34; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**

Poessa **n. g.** (*Salticidæ*) type *argenteofrenata*, Madagascar, p. 398; SIMON, Ann. Soc. ent. France lxxi, **n. sp.**

Polemus **n. g.** (*Salticidæ*, aff. *Baryphas*) p. 43, *chrysochirus*, Sierra Leone, p. 43, *squamulatus*, Sierra Leone, p. 44, *galeatus*, Sierra Leone, p. 44; SIMON, Ann. Soc. ent. Belgique xlvi, **n. spp.**

Policha, p. 413; SIMON, Hist. Araign. ii.

Porius, p. 487; SIMON, t. c.

Portia, p. 403; SIMON, t. c.

Pristobæus **n. g.** (*Salticidæ*, aff. *Emathis*) p. 391, *jocosus*, Celebes, p. 391; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**

Prostheclina signata, Porto Rico, p. 225, pl. xv, figg. 1, 4 & 6; BANKS, P. U. S. Mus. xxiv, **n. sp.**

Pseudamycus protervus, Singapore, p. 404; SIMON, Ann. Soc. ent. France lxxi, **n. sp.**

Pseudemathis **n. g.** (*Salticidæ*, aff. *Emathis*), p. 391, *trifida*, Mauritius, p. 392; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**

Pseudicius, p. 628; SIMON, Hist. Araign. ii: *P. histrionicus*, S. Africa, p. 27, *zebra*, S. Africa, p. 27; SIMON, Ann. Soc. ent. Belgique xlvi: **n. spp.**

Ptocasius fulvonitens, Ceylon, p. 386; SIMON, t. c. **n. sp.**

Pystira **n. g.** in group *Zenodoreæ* of *Salticidæ unidentati* (type *P. ephippigera* E. Simon), p. 656; SIMON, Hist. Araign. ii.

Quekettia **n. g.** (*Attidæ unidentati*), p. 333; PECKHAM, Psyche ix.

Rhene, p. 641; SIMON, Hist. Araign. ii: *R. flavicomans*, Ceylon, p. 33; SIMON, Ann. Soc. ent. Belgique xlvi: *R. foai*, tropical Africa, p. 514; SIMON, Bull. Mus. Paris viii: *R. banksii*, Cape Town, p. 335; PECKHAM, Psyche ix: **n. spp.**

Reneæ, group of *Salticidæ unidentati*, p. 633, key to genera, p. 639; SIMON, Hist. Araign. ii.

Rhetenor **n. g.** (*Salticidæ*, aff. *Zygoballus*), p. 406, *diversipes*, Amazons, p. 406; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**

Rhondes **n. g.** in group *Chrysilleæ* of *Salticidæ unidentati* (type *R. neocaledonicus* E. Simon), p. 552; SIMON, Hist. Araign. ii.

Rhyphelia **n. g.** (*Salticidæ*, aff. *Evophrys*), p. 363, *variegata*, Venezuela, p. 363; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**

Rogmocrypta, p. 446; SIMON, Hist. Araign. ii.

Rogmocrypteæ, group of *Salticidæ pluridentati*, p. 445; SIMON, t. c.

Saiteæ, group of *Salticidæ unidentati*, p. 558, key to genera, p. 564; SIMON, t. c.

Saitis, p. 565; SIMON, t. c.

Salpesia, p. 566; SIMON, t. c.

Salticidæ, gen. account, p. 381, *S. pluridentati*, def. and synopsis of groups, p. 388, *S. unidentati*, def. and synopsis of groups, p. 516; SIMON, t. c.

Salticus, p. 606; SIMON, t. c.

Sandalodes calvus, Queensland, p. 389; SIMON, Ann. Soc. ent. France lxxi, **n. sp.**

Sarinda, p. 508; SIMON, Hist. Araign. ii.

Sarindeæ, group of *Salticidæ pluridentati*, p. 505, key to genera, p. 508; SIMON, t. c.
Sassacus, p. 631; SIMON, t. c.
S. arcuatus, Amazons, p. 28, *trochilus*, Brazil, p. 29, *biaccentuatus*, Paraguay, p. 29, *aurantiacus*, Brazil, p. 29, *resplendens*, Venezuela, p. 30, *marginellus*, Brazil, p. 30; SIMON, Ann. Soc. ent. Belgique xlvi, **n. spp.**
Scopocira, p. 444; SIMON, Hist. Araign. ii.
Scopocireæ, group of *Salticidæ pluridentati*, p. 442, genera, p. 444; SIMON, t. c.
Scoturius **n. g.** in group *Hurieæ* of *Salticidæ unidentati* (type *T. tigris* E. Simon), p. 585; SIMON, t. c.
Sebastira, p. 533; SIMON, t. c.
Semiopyla **n. g.** in group *Chalcoscirteæ* of *Salticidæ unidentati* (type *S. cataphracta* E. Simon), p. 577; SIMON, t. c.
Semnolius **n. g.** (*Salticidæ*, aff. *Epidelaxia*), p. 369, *chrysotrichus*, Brazil, p. 369; SIMON, Ann. Soc. ent Belgique xlvi, **n. sp.**
Semora, p. 532; SIMON, Hist. Araign. ii.
Semorina, p. 533; SIMON, t. c.
Servœa murina, Java, p. 394; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Shira [see *Chira*].
Sidusa angulitarsis, Brazil, p. 388; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Sigytes **n. g.** (*Salticidæ*) type *paradisiacus*, Ceylon, p. 401; SIMON, Ann. Soc. ent. France lxxi, **n. sp.**
Siloca **n. g.** (*Salticidæ*, aff. *Sidusa*), p. 389, *sanguiniceps*, Brazil, p. 389, *campestrata*, Brazil, p. 389; SIMON, Ann. Soc. ent. Belgique xlvi, **n. spp.**
Simæthula **n. g.** (*Salticidæ*, aff. *Stertinius*), p. 399, *janthina*, Queensland, p. 399; SIMON, t. c. **n. sp.**
Simonella, p. 511; SIMON, Hist. Araign. ii.
Simprulla, p. 523; SIMON, t. c.
Sitticeæ, group of *Salticidæ unidentati*, p. 577, key to genera, p. 581; SIMON, t. c.
Sitticus **nom. nov.** for *Euophrys* subgen. *Phoebe* et *Ino* C. Koch, p. 581; SIMON, t. c.
Sobasina, p. 515; SIMON, t. c.
Sobasineæ, group of *Salticidæ pluridentati*, p. 513, key to genera, p. 515; SIMON, t. c.
Spilargis **n. g.** (*Salticidæ*, aff. *Eupalia*), p. 366, *ignicolor*, Halmahera, p. 366; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Stagetillus, p. 472; SIMON, Hist. Araign. ii.
Stenœlurillus leucogramma, S. Africa, p. 37; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Stenodeza, p. 472; SIMON, Hist. Araign. ii.
Stergusa aurichalcea, Ceylon, p. 401, *aurata*, Ceylon, p. 401, *stelligera*, Ceylon, p. 402; SIMON, Ann. Soc. ent. Belgique xlvi, **n. spp.**
Stertinius splendens, Celebes, p. 397, *pilipes*, Luzon, p. 397, *capucinus*, Java, p. 398, *patellaris*, Halmahera, p. 399; SIMON, t. c. **n. spp.**
Stoidis **n. g.** in group *Zenodoreæ* of *Salticidæ unidentati* (type *S. pygmæa* G. & E. Peckham), p. 658; SIMON, Hist. Araign. ii.
Synageleæ, group of *Salticidæ unidentati*, p. 526, key to genera, p. 531; SIMON, t. c.
Synageles, p. 532; SIMON, t. c.
Synemosyna, p. 512; SIMON, t. c.
Synemosyneæ, group of *Salticidæ pluridentati*, p. 508, key to genera, p. 511; SIMON, t. c.
Tanybelus **n. g.** (*Salticidæ*, aff. *Hyetussa*), p. 405, *æneiceps*, Venezuela, p. 405; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**

Tariona **n. g.** (*Salticidæ*, aff. *Coryphasia*), p. 383, *gounellei*, Brazil, p. 383; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Tarne dives, p. 374; SIMON, t. c.
Tarodes, p. 481; SIMON, t. c.
Telamonia, p. 552; SIMON, t. c.
Thammaca **n. g.** in group *Dendryphanteæ* of *Salticidæ unidentati* (type *Th. coriacea* E. Simon), p. 632; SIMON, t. c.: *T. nigritarsis*, Upper Amazons, p. 32, *coriacea*, Upper Amazons, p. 33; SIMON, Ann. Soc. ent. Belgique xlvi, **n. spp.**
Thiania, p. 588; SIMON, Hist. Araign. ii.
Thianieæ, group of *Salticidæ unidentati*, p. 586; SIMON, t. c.
Thiodina, p. 458; SIMON, t. c.
Thiodineæ, group of *Salticidæ pluridentati*, p. 454, key to genera, p. 458; SIMON, t. c.
Thyene vittata, Natal, p. 40, *coronata*, S. E. Africa, p. 41; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Thyenula **n. g.** (*Salticidæ*, aff. *Thyena*), p. 41, *juvenca*, S. Africa, p. 41; SIMON, t. c. **n. sp.**
Thyratoscyrtus versicolor, W. Africa, p. 416; SIMON, Ann. Soc. ent. France lxxi, **n. sp.**
Titanattus, p. 438; SIMON, Hist. Araign. ii.
Tomocyrba, p. 441; SIMON, t. c.
Tomocyrbeæ, group of *Salticidæ pluridentati*, p. 440; SIMON, t. c.
Trite lucida, New Zealand, p. 395; SIMON, Ann. Soc. ent. Belgique xlvi, **n. sp.**
Tulpius, p. 632; SIMON, Hist. Araign. ii.
Tusitala **n. g.** (*Attidæ fissidentati*), p. 330, *barbata*, Algoa Bay, p. 330, *hirsuta*, Zululand, p. 330; PECKHAM, Psyche ix, **n. spp.**
Tutelina **n. g.** in group *Chrysilleæ* of *Salticidæ unidentati* (type *T. elegans* Hentz), p. 554; SIMON, Hist. Araign. ii.
Tylogonus **n. g.** (*Salticidæ*, aff. *Tariona*), p. 384, *auricapillus*, Ecuador, p. 384, *prasinus*, Amazons, p. 384; SIMON, Ann. Soc. ent. Belgique xlvi, **n. spp.**
Uroballus **n. g.** (*Salticidæ*, aff. *Phyaces*), p. 400, *octovittatus*, Ceylon, p. 400, *henicurus*, Ceylon, p. 401; SIMON, t. c. **n. spp.**
Uxuma **n. g.** (*Salticidæ*, aff. *Nannenus*), p. 372, *impudica*, W. Africa, p. 372; SIMON, t. c. **n. sp.**
Viciria diademata, India, p. 46, *polysticta*, Ceylon, p. 47, *sponsa*, Ceylon, p. 47, *mustela*, S. Africa, p. 48, *lupula*, W. Africa, p. 48, *niveimana*, W. Africa, p. 49, *semicoccinea*, Java, p. 49, *bombycina*, Borneo, p. 364, *formosa*, Java, p. 364, *diatreta*, India, p. 366; SIMON, t. c. **n. spp.**
Viunius **n. g.** (*Salticidæ*, aff. *Viciria*), p. 44, *calcarifer*, Brazil, p. 44, *carinatus*, Venezuela, p. 45, *uncatus*, Brazil, p. 45, *maculaticeps*, Brazil, p. 46; SIMON, t. c. **n. spp.**
Yllenus, p. 582; SIMON, Hist. Araign. ii.
Zenodoreæ, group of *Salticidæ unidentati*, p. 648, key to genera, p. 655; SIMON, t. c.
Zenodorus, p. 656; SIMON, t. c.
Zeuxippus, p. 643; SIMON, t. c.
Zuninga, p. 522; SIMON, t. c.
Zuningeæ, group of *Salticidæ unidentati*, p. 519, key to genera, p. 522; SIMON, t. c.

INCERTÆ SEDIS.

†*Arthrolycosa prolifera*, p. 61, pl. 153, figg. 1–3, text-fig. 366, *salticoides*, p. 62, pl. 153, fig. 9, *carcinoides*, p. 62, text-fig. 367, Permian, Bohemia; FRITSCH, Fauna der Gaskohle iv (2), **n. spp.**

†*Promygale* **n. g.**, p. 58, *bohemica*, p. 58, pls. 153, figg. 6–8, 154, figg. 1–4, text-figg. 361 & 362, *rotundata*, p. 60, pl. 153, figg. 4–6, text-figg. 363 & 364, *elegans*, p. 61, text-fig. 365, Permian, Bohemia; FRITSCH, t. c. **n. spp.**

†*P.*, notes on g.; FRITSCH, Zool. Anz. xxv, p. 484.

†*Pyritaranea tubifera*, p. 62, text-fig. 368, Permian, Bohemia; FRITSCH. Fauna der Gaskohle iv (2), **n. sp.**

5. SOLIFUGÆ.

Entosternite of *Solifugæ*; POCOCK, Quart. J. Micr. Sci. (n. s.) xlvi, p. 237: Mouth-parts; POCOCK, P. Zool. Soc. London 1902, ii, p. 179.

Solpugidæ, def. and synopsis of subfamilies, p. 59; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer.

Ammotrecha, def. and key to spp., p. 64, *stolli*, p. 65, pl. xii, figg. 8, 8*a* & *b*, *peninsulana*, p. 65, *limbata*, p. 66; POCOCK, t. c.

A. solitaria, Albemarle I., Galapagos, p. 69, pl. i, fig. 5; BANKS, P. Washington Ac. iv: *A. picta*, Guatemala, p. 65, pl. xii, figg. 9 & 9*a*; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer.: **n. spp.**

Broomiella **n. g.** *lineata*, Cape Colony, p. 7, pl. ii, figg. 3, 3*a* & *b*; POCOCK, Ann. Nat. Hist. (7) x, **n. sp.**

Ceroma pictulum, Grahamstown, p. 8, pl. ii, fig. 2; POCOCK, t. c. **n. sp.**

Dæsia, p. 68, *præcox*, p. 68, pl. xii, fig. 11; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer.

D. bellula, Egypt, p. 6, pl. ii, figg. 1 & 1*a*; POCOCK, Ann. Nat. Hist. (7) x, **n. sp.**

Dæsiinæ, def. and synopsis of C. American genera, p. 64; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer.

Eremobates, def. and synopsis of C. American spp., p. 59, *toltecus*, p. 61, pl. xii, fig. 4, *cinerascens*, p. 61, pl. xii, fig. 5, *lentiginosus*, p. 62, *elongatus*, p. 62, pl. xii, fig. 6, *formicarius*, p. 62, *formidabilis*, p. 63, pl. xii, fig. 7; POCOCK, t. c.

E. aztecus, Mexico, p. 60, pl. xii, figg. 2, 2*a*, 3 & 3*a*; POCOCK, t. c. **n. sp.**

Eremobatinæ, p. 59; POCOCK, t. c.

Galeodes araneoides subsp. *araneoides*, p. 4, *fumigatus*, p. 5, *caspius*, p. 7, subsp. *lehmanni*, p. 9, subsp. *turkestanus* **n. subsp.**, p. 10; HEYMONS, Abh. Ak. Berlin 1901, Anh. i.

Hemiblossia, p. 67, *vittata*, Guatemala, p. 67, pl. xii, figg. 10 & 10*a–d*; POCOCK, Arach. Scorpiones, Biol. Centr.-Amer. **n. sp.**

Mesogaleodes **n. g.**, p. 12, *heliophilus*, p. 13; HEYMONS, Abh. Ak. Berlin 1901, Anh. i, **n. sp.**

Rhagodes melanus subsp. *melanochætus* **n. subsp.**, p. 15; HEYMONS, t. c.

6. PSEUDOSCORPIONES.

Mouth-parts of *Pseudoscorpiones*; POCOCK, P. Zool. Soc. London 1902, ii, p. 179.

Atemnus [see also *Chelifer*] *insularis*, Albemarle I., Galapagos, p. 68, pl. ii, fig. 11; BANKS, P. Washington Ac. iv, **n. sp.**

Chelanops arizonensis, Arizona, p. 589, pl. xxii, fig. 2; BANKS, P. U. S. Mus. xxiii: *C. nigrimanus*, Albemarle I., Galapagos, p. 69, pl. ii, fig. 6; BANKS, P. Washington Ac. iv: **n. spp.**

Chelifer (*Atemnus*) *nidificator*, p. 146, (*Lamprochernes*) *macrochelatus*, p. 152, (*Trachychernes*) *brevifemoratus*, p. 156, (*Chelifer*) *rufus*, p. 158; ELLINGSEN, Mem. Soc. zool. France xv: *C. cancroides*, habits; FENIZIA, Boll. Nat. xxii, pp. 55–58.

C. (*Atemnus*) *gracilis*, p. 148, *elongatus*, p. 149, *rotundatus*, p. 151, (*Lam-*

prochernes) *nitidus*, p. 155, Ecuador; ELLINGSEN, Mem. Soc. zool. France xv: *C. hubbardi*, Arizona, p. 588, pl. xxii, fig. 9; BANKS, P. U. S. Mus. xxiii: *C. michaelseni*, Patagonia etc., p. 44; SIMON, Arach. Hamb. Magalh. Sammelreise : **n. spp.**

Chernes (*Lamprochernes*) *cervus*, p. 165, *communis*, p. 167; ELLINGSEN, Mem. Soc. zool. France xv: *C. cimicoides* and *Ch.* sp., structure of respiratory organs; STSCHELKANOVZEFF, Zool. Anz. xxv, pp. 126–135, 5 figg.

C., remarks on g., *multidentatus* Tschernigow, p. 350, figg. 1 & 2; STSCHELKANOVZEFF, t. c. **n. sp.**

Chthonius (*Pseudochthonius*) *naranjitensis*, p. 162, (*Typhlochthonius*) *pulchellus*, p. 164, Ecuador; ELLINGSEN, Mem. Soc. zool. France xv, **n. spp.**

Olpium ortonedæ, Ecuador, p. 159; ELLINGSEN, t. c. **n. sp.**

7. OPILIONES.

Remarks on classification and distribution, p. 163, def., p. 169, table of sub-orders, p. 170; LOMAN, Zool. Jahrb. Syst. xvi.

Classification of *Opiliones*.

A. *Plagiostethi* (= *Palpatores*).
  a. *Apagosterni*.
  b. *Eupagosterni*.

B. *Mecostethi*.
  a. *Insidiatores*.
  b. *Laniatores*.

C. *Cyphophthalmi* (= *Anepignathi*).

POCOCK, Ann. Nat. Hist. (7) x, p. 512.

Acanthophrys **n. g.** (*Assamiidæ*) *pectinata*, German E. Africa, p. 194, pl. ix, fig. 13; LOMAN, Zool. Jahrb. Syst. xvi, **n. sp.**

Acadorsum **n. g.** (*Biantidæ* aff. *Hinzuanius*), *albimanum*, Seychelles, p. 209, pl. ix, fig. 7; LOMAN, t. c. **n. sp.**

Adæidæ, **n. fam.** of *Opiliones insidiatores*, for *Adæum* and *Larifuga*, p. 513; POCOCK, Ann. Nat. Hist. (7) x.

Adæum nigriflavum, New Zealand, p. 211; LOMAN, Zool. Jahrb. Syst. xvi, **n. sp.**

†*Anthracomarti*: def., p. 492, key to families and genera, p. 491; POCOCK, Geol. Mag. (iv) ix: notes; FRITSCH, Zool. Anz. xxv, p. 484.

†*Anthracomartus palatinus*, Ottweiler beds, Upper Carboniferous, Ohmbach, pp. 1–6, figg. 1–4; VON AMMON, Geognost. Jahresh. xiii, **n. sp.**

Apagosterni **new group** of *Opiliones plagiostethi*, incl. *Ischyropsalidæ* and *Phalangiidæ*, p. 510; POCOCK, Ann. Nat. Hist. (7) x.

Assamiidæ, def. and key to genera, p. 186; LOMAN, Zool. Jahrb. Syst. xvi.

Balta **n. g.** (*Gonyleptidæ*), p. 21, *meridionalis*, Patagonia, p. 22; SÖRENSEN, Gonyleptiden Hamb. Magalh. Sammelreise, **n. sp.**

Biantidæ, def. and key to genera, p. 208; LOMAN, Zool. Jahrb. Syst. xvi.

†*Brachypyge carbonis*, p. 488; POCOCK, Geol. Mag. (iv) ix.

†*B. celtica* = *Eophrynus carbonis* Howard and Thomas, non Woodward, p. 488, fig. 2A; POCOCK, t. c. **n. sp.**

Centrobunus **n. g.** (*Epidanidæ*), *braueri*, Seychelles, p. 205, pl. ix, fig. 9; LOMAN, Zool. Jahrb. Syst. xvi, **n. sp.**

Chondrobunus, **n. g.** (*Epedanidæ* aff. *Sterrhosoma*), p. 207, *granulatus*, Bismarck Archipelago, p. 208, pl. ix, fig. 8; LOMAN, t. c. **n. sp.**

Cœlobunus **n. g.** (*Assamiidæ*) *melanacanthus*, German E. Africa, p. 196, pl. ix, fig. 11; LOMAN, t. c. **n. sp.**
Conomma **n. g.** (*Assamiidæ*) *fortis*, Cameroon, p. 190, pl. ix, fig. 16; LOMAN, t. c. **n. sp.**
Cosmetidæ, def. and notes, p. 183; LOMAN, t. c.
Cristina **n. g.** (*Phalangiinæ*) *crassipes*, Togoland, W. Africa, p. 174, pl. ix, fig. 3; LOMAN, t. c. **n. sp.**
Cynorta obscura, Porto Rico, p. 226, pl. xv, fig. 5; BANKS, P. U. S. Mus. xxiv, **n. sp.**
Diasia **n. g.** (*Trionychidæ*), p. 11, *michaelsenii*, Chile, p. 11; SÖRENSEN, Gonyleptiden Hamb. Magalh. Sammelreise, **n. sp.**
Dicoryphus **n. g.** (*Assamiidæ*), p. 192, *furrus*, German E. Africa, p. 193, pl. ix, fig. 12; LOMAN, Zool. Jahrb. Syst. xvi, **n. sp.**
†*Eophrynus prestricii*, morphology and systematic position, p. 439, fig. 1; POCOCK, Geol. Mag. (iv) ix.
†*Eotrogulus fayoli*, Carboniferous, Commentry; THÉVENIN, Rev. Sci. Bourbonnais xv, p. 43 (name only); Bull. Soc. geol. France (4) i, p. 607, pl. xiii, fig. 1, **n. sp.**
Epedanidæ, def. and key to genera, p. 197; LOMAN, Zool. Jahrb. Syst. xvi.
Eupagosterni **new group** of *Opiliones plagiostethi* incl. *Nemastomidæ*, *Dicranolasmidæ*, and *Trogulidæ*, p. 509; POCOCK, Ann. Nat. Hist. (7) x.
Gagrella luzonica, Philippines, p. 175, *simplex*, Java, p. 176, *ferruginea*, China, Japan, p. 176, pl. ix, fig. 19*b*; LOMAN, Zool. Jahrb. Syst. xvi, **n. spp.**
Gonyleptes, p. 24, *docilis*, p. 24, *depressus*, p. 29, *modestus*, p. 30; SÖRENSEN, Gonyleptiden Hamb. Magalh. Sammelreise.
G. processiger, p. 25, *karschii*, p. 26, *frontalis*, p. 28, Chile; SÖRENSEN, t. c. **n. spp.**
Gonyleptidæ, def. and key to genera, p. 184; LOMAN, Zool. Jahrb. Syst. xvi: *G.*, def., p. 13; SÖRENSEN, Gonyleptiden Hamb. Magalh. Sammelreise.
Guruia **n. g.** (*Phalangiini*, aff. *Rhampsinitus*) *frigescens*, E. Africa, p. 172, pl. ix, fig. 1, *levis*, Zanzibar, p. 173, pl. ix, fig. 2; LOMAN, Zool. Jahrb. Syst. xvi, **n. spp.**
Holozoster **n. g.** (*Epidanidæ*) p. 203, *ovalis*, Seychelles, p. 204, pl. ix, fig. 5; LOMAN, t. c. **n. sp.**
Hypoxestus **n. g.** (*Assamiidæ*) *levis*, Madschame and Kilimanjaro, p. 192, pl. ix, fig. 15; LOMAN, t. c. **n. sp.**
Ibalonius, key to spp., p. 200, *inscriptus*, p. 201, *bimaculatus*, p. 202, *karschi*, p. 203, all from Seychelles; LOMAN, t. c. **n. spp.**
Insidiatores, key to families, p. 512; POCOCK, Ann. Nat. Hist. (7) x.
Ischyropsalis luteipes, p. 606, fig. 3; VIRÉ, Bull. Mus. Paris viii.
Laniatores, key to families, p. 179; LOMAN, Zool. Jahrb. Syst. xvi: *L.* (*Gonyleptoidea*), gen. notes, p. 1; SÖRENSEN, Gonyleptiden Hamb. Magalh. Sammelreise.
Liobunum giganteum, Japan, p. 177; LOMAN, Zool. Jahrb. Syst. xvi: *L. speciosum*, Alabama, p. 541; BANKS, P. Ac. Philad. 1900: **n. spp.**
Lycomedes **n. g.** (*Gonyleptidæ*), p. 17, *asperatus*, p. 17, *calcitrosus*, p. 19, *funestus*, p. 20, *bicornis*, p. 20, (?) *planiceps*, p. 21, (?) *reedii*, p. 21; SÖRENSEN, Gonyleptiden Hamb. Magalh. Sammelreise.
Mitraceras **n. g.** (*Assamiidæ*) *crassipalpum*, Seychelles, p. 189, pl. ix, fig. 10; LOMAN, Zool. Jahrb. Syst. xvi, **n. sp.**
Monorhabdium **n. g.** (*Assamiidæ*) *singulare*, Cameroon, p. 191, pl. ix, fig. 17; LOMAN, t. c. **n. sp.**
†*Nemastomoides elaveris*, Carboniferous, Commentry; THÉVENIN, Rev. Sci. Bourbonnais xv, p. 43 (not descr.); Bull. Soc. geol. France (4) i, p. 609, pl. xiii, fig. 2, **n. sp.**

Nuncia **n. g.** (*Triænonychidæ*), p. 213, *sperata*, New Zealand, p. 214, pl. ix, fig. 4; LOMAN, Zool. Jahrb. Syst. xvi, **n. sp.**
Oncopodidæ, key to genera, p. 182; LOMAN, t. c.
Pachylus, p. 30, *chilensis*, p. 31, *pulchellus*, p. 34, *pustulatus*, p. 34, *glabrio*, p. 35, *acanthops*, p. 35; SÖRENSEN, Gonyleptiden Hamb. Magalh. Sammelreise: *P. chilensis*, structure of mouth, p. 105, fig. 6; BÖRNER, Zool. Anz. xxvi.
P. martensii, Chile &c., p. 32; SÖRENSEN, Gonyleptiden Hamb. Magalh. Sammelreise, **n. sp.**
Pelitnus segnipes, p. 182, pl. ix, figg. 20 & 21; LOMAN, Zool. Jahrb. Syst. xvi.
Phalangiomorphæ **nov.**, p. 493; POCOCK, Geol. Mag. (iv) ix.
Plagiostethi, key to families, p. 509; POCOCK, Ann. Nat. Hist. (7) x.
Polycoryphus **n. g.** (*Assamiidæ*) *asper*, Algoa Bay, p. 195, pl. ix, fig. 14; LOMAN, Zool. Jahrb. Syst. xvi, **n. sp.**
Prionomma **n. g.** (*Gagrellini*, aff. *Zuleptus*), p. 177, *coronatum*, Venezuela, p. 178, pl. ix, fig. 19*d*, *unicolor*, Bolivia, p. 178, pl. ix, fig. 19*c*; LOMAN, t. c. **n. spp.**
Protolophus tuberculatus, p. 219, pl. vii, fig. 1; BANKS, P. U. S. Mus. xxv.
Pyramidops **n. g.** (*Epedanidæ*), p. 206, *pygmæa*, Togoland, p. 207, pl. ix, fig. 6; LOMAN, Zool. Jahrb. Syst. xvi, **n. sp.**
Sadocus, p. 13, *polyacanthus*, p. 14, (*?*) *subsimilis*, p. 16; SÖRENSEN, Gonyleptiden Hamb. Magalh. Sammelreise.
S. guttatus, Chile, p. 15; SÖRENSEN, t. c. **n. sp.**
Scotolemon brunnea, North Carolina, p. 142; BANKS, J. N. York Ent. Soc. x, **n. sp.**
Stygnus insulanus, Porto Rico, p. 226, pl. xv, fig. 7; BANKS, P. U. S. Mus. xxiv, **n. sp.**
Thrasychirus modestus, Tierra del Fuego, p. 46; SIMON, Arach. Hamb. Magalh. Sammelreise, **n. sp.**
Triænobunidæ **n. fam.** of *Opiliones insidiatores* for *Triænobunus*, p. 512; POCOCK, Ann. Nat. Hist. (7) x.
Triænonychidæ, def. and key to genera, p. 210; LOMAN, Zool. Jahrb. Syst. xvi: *T.*, def., p. 6; SÖRENSEN, Gonyleptiden Hamb. Magalh. Sammelreise.
Triænonyx, p. 7, *chilensis*, p. 8, *valdiviensis*, p. 9, Chile; SÖRENSEN, t. c.: *T. chilensis*, Chile, p. 212; LOMAN, Zool. Jahrb. Syst. xvi: **n. spp.**
Tumbesia, p. 23, *fuliginosa*, p. 24; SÖRENSEN, Gonyleptiden Hamb. Magalh. Sammelreise.

8. ACARI.

Key to families of *Acari*; SALMON & STILES, Rep. U. S. Dep. Agric. Animal Ind. xvii, p. 383.
Structure of skin in *Acari*; THOR, Arb. Inst. Wien xiv, p. 291.

Acarus dimidiatus, p. 16; OUDEMANS, Ent. Ber. Nederland. Ver. No. 3.
Amblyomma, p. 470, key to spp., p. 471, *americanum*, p. 475, figg. 236-255; SALMON & STILES, Rep. U. S. Dep. Agric. Animal Ind. xvii.
A. neumanni, Argentina, p. 508; RIBAGA, Zool. Anz. xxv, **n. sp.**
Amerus polonicus, Galicia, p. 89, pl. iv, fig. 1; KULCZYŃSKI, Bull. Ac. Cracovie 1902, **n. sp.**
Ammonia americana, Washington, p. 171, fig. 5; BANKS, Canad. Ent. xxxiv, **n. sp.**
Antennophorus, key to European spp., p. 68, to American spp., p. 73, habits, p. 69 &c.; WASMANN, Zool. Anz. xxv.
A. foreli, Holland, Luxemburg, in nests of *Lasius niger* and *L. alienus*, p. 68, *wheeleri*, Connecticut, in nests of *Lasius aphidicola*, p. 72; WASMANN, Zool. Anz. xxv, **n. spp.**

Aponomma, p. 469, key to spp., p. 470; SALMON & STILES, Rep. U. S. Dep. Agric. Animal Ind. xvii.

Argas, bibliography; HUBER, Bibl. klin. Ent. ii, p. 14: *A.*, p. 401, *miniatus*, p. 402, figg. 56–58, 69–81; SALMON & STILES, Rep. U. S. Dep. Agric. Animal Ind. xvii: *A. americanus* on fowls; BROWN, J. Dept. Agric. Victoria i, pp. 86–90, figg., pp. 209–212.

A. transversa, Albemarle I., Galapagos, p. 70, pl. ii, fig. 9; BANKS, P. Washington Ac. iv, **n. sp.**

Argasidæ, p. 400; SALMON & STILES, Rep. U. S. Dep. Agric. Animal Ind. xvii.

Arrenurella **n. g.** (*Hydrachnidæ*) *convexa*, Valparaiso, p. 504; RIBAGA, Zool. Anz. xxv, **n. sp.**

Arrenurus claviger, p. 94, pl. xii, fig. 4, *bruzelii*, p. 94, pl. xii, fig. 5, *leuckarti*, p. 95, pl. xii, fig. 6; CRONEBERG, Bull. Soc. Moscou 1902.

A. lævis, Woronesch, p. 95, pl. xii, fig. 7; CRONEBERG, t. c.: *A. adnatus*, Hamburg, p. 615; KOENIKE, Zool. Anz. xxv: *A. oxyurus*, Argentina, p. 504; RIBAGA, Zool. Anz. xxv: *A. purcelli*, Capetown, p. 457, pl. xx, figg. 31–34, *capensis*, Cape Flats, p. 458, pl. xx, figg. 35–39, *meridionalis*, Cape Flats, p. 459, pl. xxi, figg. 40–42, *convexus*, Cape Flats, p. 460, pl. xxi, figg. 43–45; THOR, Ann. S. African Mus. ii : **n. spp.**

Asca affinis (on *Putorius vulgaris* and *P. putorius*), Holland, p. 45, pl. vi, figg. 109 & 110; OUDEMANS, Tijdschr. Ent. xlv, **n. sp.**

Atax figuralis, p. 91, pl. xii, fig. 1; CRONEBERG, Bull. Soc. Moscou 1902.

A. adensameri in *Unionidæ*, Texas, p. 31, pl. iii; THON, Ann. Hofmus. Wien xvi, **n. sp.**

Atractideidæ **n. fam.** separated from *Lebertiidæ*, p. 408; THOR, Zool. Anz. xxv.

Atractides spinipes, p. 92, pl. xii, fig. 2; CRONEBERG, Bull. Soc. Moscou 1902.

A. subasper, Bohemia, p. 616; KOENIKE, Zool. Anz. xxv, **n. sp.**

Aturellus, see *Hjartdalia*.

Aturus, note on g., p. 157, *crinitus*, Switzerland, p. 155, fig. 5; THOR, Zool. Anz. xxvi, **n. sp.**

Bdella, list of described littoral spp., p. 9, discussion of same with ref. to type specimens, p. 11, all probably reduced to two species *B. littoralis* (L.), and *B. decipiens* Thorell, p. 23; TRÄGÅRDH, Bih. Svenska Ak. xxvii (4) ix.

Bdellidæ, def. and list of genera, synonymy &c.; THOR, Verh. Ges. Wien lii, pp. 159–165.

†*Belbites disodilis*, Middle Miocene, Melilli, Sicily, p. 252; PAMPALONI, Rend. Acc. Lincei xi, 1 Sem. [**n. sp.** ?].

Boophilus, p. 419, key to spp., p. 420; *annulatus*, p. 420, figg. 42–54, 60, 62–64, 68, 151, 153*a*, *b* & 154*a*, *australis*, p. 426, figg. 114–151, 153*d* & 154*c*, *decoloratus*, p. 433, figg. 152, 153*c*, 154*d* & 155; SALMON & STILES, Rep. U. S. Dep. Agric. Animal Ind. xvii.

Bryobia pretiosa, bibliography; HUBER, Bibl. klin. Ent. ii, p. 11: *B. ribis* on *Ribes grossularia*; HANSTEIN, SB. Ges. naturf. Berlin 1902, pp. 128–136.

Cœleno, synonymy, p. 48; OUDEMANS, Tijdschr. Ent. xlv.

Cœnonychus **n. g.** (aff. *Tydeus* and *Eupodes*) *fallax*, Rotterdam, p. 17; OUDEMANS, Ent. Ber. Nederland. Ver. No. 3, **n. sp.**

Camisia biciliata, p. 10, pl. ii, figg. 4–8; TRÄGÅRDH, Bih. Svenska Ak. xxviii (iv) No. 5: *C. horrida* var. *borealis*, notes, p. 351; KULCZYŃSKI, Annuaire Mus. St. Petersb. vii.

Capeulais **n. subg.** of *Eylais* (q.v.), p. 452; THOR, Ann. S. African Mus. ii.

Carabodes elongatus var. *subarctica* **n. var.**, p. 21, pl. ii, fig. 1; TRÄGÅRDH, Bih. Svenska Ak. xxviii (iv) No. 5.

C. marginepunctatus, Lapland, p. 20; TRÄGÅRDH, t. c. **n. sp.**
†*Carabodites pavesii*, Middle Miocene, Melilli, Sicily, p. 252; PAMPALONI, Rend. Acc. Lincei xi, 1 Sem. [**n. sp.**?].
Ceratixodes **n. g.** (*Ixodidæ*), p. 115, *putus*, p. 117, fig. 4; NEUMANN, Arch. parasit. vi.
Cheyletus clavispinus, Indiana, p. 172; BANKS, Canad. Ent. xxxiv: *C. patagiatus*, Finland, p. 37, fig.; NORDENSKIÖLD, Medd. Soc. Faun. Fenn. xxvii : **n. spp.**
Cillibæna minor (= *Discopoma cassideus* var. *minor* Berlese), p. 46; OUDEMANS, Tijdschr. Ent. xlv.
Cœpophagus echinopus, destroying vines; MANGIN & VIALA, C.R. Ac. Sci. cxxxiv, pp. 251–253; JOURDAIN, t. c. p. 316.
Cunaxidæ, def. and list of genera, synonymy &c.; THOR, Verh. Ges. Wien lii, pp. 159–165.
Curvipes rotundus var. *pauciporus* **n. var.**, p. 503; RIBAGA, Zool. Anz. xxv: *C.*, characters, distrib. in N. America &c., p. 201, keys to spp., p. 249, *rotundus*, p. 231, pl. xxxii, figg. 40–43, *obturbans*, p. 240, pl. xxxii, fig. 39; WOLCUTT, Tr. Amer. micr. Soc. xxiii.
C. tridens, Cape Flats, p. 456, pl. xix, figg. 27–30; THOR, Ann. S. African Mus. ii: *C. coronis*, Lake Michigan, p. 208, pl. xxix, figg. 1 & 2, *exilis*, Lake St. Clair &c., p. 210, pl. xxix, figg. 3–8, *pugilis*, Lake St. Clair &c., p. 213, pl. xxix, figg. 9–12, *turgidus*, L. Michigan &c., p. 216, pl. xxx, figg. 19–23, *triangularis*, Missouri, p. 220, pl. xxxi, figg. 32 & 33, *constrictus*, Michigan &c., p. 222, pls. xxix, fig. 13, xxx, figg. 14–18, *spinulosus*, Michigan &c., p. 226, pl. xxxi, figg. 24–29, *medius*, Lake Michigan, p. 229, pl. xxxi, figg. 30 & 31, *debilis*, Massachusets, p. 234, pl. xxxii, figg. 44–46, *reighardi*, Michigan &c., p. 235, pls. xxxi, fig. 34, xxxii, figg. 35–38, *inconstans*, Massachusets &c., p. 241, pls. xxxi, fig. 47, xxxii, figg. 48–50, *setiger*, Nebraska, p. 243, pl. xxxiii, figg. 51–56, *crassus*, Michigan, p. 246, pl. xxxiii, figg. 57–60; WOLCUTT, Tr. Amer. micr. Soc. xxiii : **n. spp.**
Cyrtolælaps, key to spp., p. 29, *cervus*, p. 26, pl. ii, figg. 34–36, *nemorensis*, p. 27, pl. iii, figg. 37–42; OUDEMANS, Tijdschr. Ent. xlv.
C. transisalæ, Holland, p. 28, pl. iii, figg. 43–46; OUDEMANS, t. c. **n. sp.**
Dameosoma cornigerum, Monte Senario, p. 697; BERLESE, Zool. Anz. xxv, **n. sp.**
Demodex folliculorum: as a parasite of man; GUIART, Bull. Soc. zool. France xxvii, p. 128: bibliography; HUBER, Bibl. klin. Ent. ii, p. 1.
Dermacentor auratus, p. 126; NEUMANN, Arch. parasit. vi: *D.*, p. 447, keys to spp., pp. 447 & 448, *reticulatus*, p. 448, figg. 61, 169–177, *variegatus*, p. 452, figg. 178–185, *electus*, p. 455, figg. 186–214, *nitens*, p. 447, figg. 215–217; SALMON & STILES, Rep. U. S. Dep. Agric. Animal Ind. xvii.
Dermanyssus, bibliography; HUBER, Bibl. klin. Ent. ii, p. 12: *D. gallinæ*, p. 13, pl. i, figg. 2 & 3; OUDEMANS, Tijdschr. Ent. xlv.
Discopoma comata, p. 42, figg. 3 & 4; TROUESSART, Bull. Soc. zool. France xxvii.
D. hirsuta, Arizona, p. 221, pl. vii, fig. 8; BANKS, P. U. S. Mus. xxv: *D. littoralis*, Croisic, p, 41, *robusta*, S. Brazil, p. 44, *depilata*, Brazil (on *Copris* sp.), p. 45; TROUESSART, Bull. Soc. zool. France xxvii : **n. spp.**
Ecpolus papillosus, New River, p. 251, pl. xv; SOAR, J. Quekett Club (2) viii, **n. sp.**
Emeus, key to spp., p. 291, *pyrenaicus*, S. France, p. 289, pl. viii, figg. 14 & 15, *bosschai*, Borneo, p. 290, pl. viii, figg. 16–18; OUDEMANS, Tijdschr. Nederland. Dierk. Ver. (2) vii, **n. spp.**
Epitrimerus flammulæ (on *Clematis flammula* L.), Marseilles, p. 526, figg. 3–5; GERBER, C.R. Ass. Franc. Ajaccio 1901 (ii), **n. sp.**
Eremaeus bipilis var. *sphærica*, notes, p. 351; KULCZYŃSKI, Annuaire

Mus. St. Petersb. vii: *E. crassipes*, p. 22, pl. iii, fig. 5; TRÄGÅRDH, Bih. Svenska Ak. xxviii (iv) No. 5.

E. minutipes, Monte Senario, p. 697; BERLESE, Zool. Anz. xxv: *E. novus*, OUDEMANS, Ent. Ber. Nederland. Ver., No. 3, p. 17 (name only), descr., ibid., No. 6, p. 36 : **n. spp.**

Eriophyes pyri, notes, p. 43; BANKS, Bull. U. S. Dep. Agric. Ent. n. s., No. 34: *E. caulobius* on *Suæda fruticosa*, p. 324; CAVARA, Bull. Soc. bot. Ital. in Nuovo Giorn. Botan. Ital. vii: *E. macrochelus*, p. 223, *affinis*, p. 223, *artemisiæ*, p. 224, *brevipes*, p. 225, *heimi*, p. 225, *centaureæ*, p. 226, *chondrillæ*, p. 226, *avellanæ*, p. 227, *vermiformis*, p. 227, *fraxini*, p. 228, *galiobius*, p. 228, *tristriatus*, p. 229, var. *erinea*, p. 229, *malpighianus*, p. 230, *eucricotes*, p. 230, *stefanii*, p. 231, *pistaciæ*, p. 231, *barroisi*, p. 232, *populi*, p. 232, *similis*, p. 232, *padi*, p. 233, *granati*, p. 233, *piri*, p. 234, *ilicis*, p. 234, *suberinus*, p. 235, *rubiæ*, p. 235, *salicis*, p. 236, *tetanotrix*, p. 236, *triradiatus*, p. 237, *truncatus*, p. 237, *salviæ*, p. 238, *spartii*, p. 238, *ulmi*, p. 238, *massalongoi*, p. 239, *vitis*, p. 239; DESTEFANI PEREZ, Giorn. Soc. Palermo xxiii: *E. affinis*, p. 550, *padi*, p. 551, *ilicis*, p. 552, *suberinus*, p. 554; DESTEFANI PEREZ, Nuovo Giorn. Bot. Ital. viii: *E. ribis*; LEWIS, J. S. East. Agric. Coll., No. 11, pp. 55–80, 1 pl.: *E. ribis*, life history, WARBURTON & EMBLETON, J. Linn. Soc. xxviii, p. 366.

E. calathidis (on *Centaurea aspera* L.), Provence, p. 536, figg. 17–21; GERBER, C.R. Ass. Franc. Ajaccio 1901 (ii): *E. gymnoproctus*, (on *Malva moschata*), Germany, p. 273; NALEPA in GEISENHEYNER, Allg. Zeitschr. Ent. vii: *E. oleæ*, Cyprus; [NALEPA, Anz. Ak. Wiss. xv, 15 June 1900, p. ?]; CECCONI, Malpighia xv, p. 39 : **n. spp.**

Eriophyidæ, Morphology, p. 221; DESTEFANI PEREZ, Giorn. Soc. Palermo xxiii: from Vallombrosa; CECCONI, Malpighia xv, pp. 49–70, 261–276: Valtellina; CORTI, Atti Mus. Milano xl, pp. 153–268, xli, pp. 177–283: Europe and Mediterranean region; DARBOUX & HOUARD, Bull. Sci. France Belgique xxxiv bis.: Germany; GEISENHEYNER, Allg. Zeitschr. Ent. vii, p. 193 etc.: Algiers; HOUARD, C.R. Ass. Franc. Ajaccio 1901, pp. 699–707: Finland; LINDROTH, Medd. Soc. Faun. Fenn. xxviii, pp. 3–7: Italy; MASSALONGO, Malpighia xv, pp. 75–91: Asia Minor etc.; RÜBSAAMEN, Zool. Jahrb. Syst. xvi, p. 243: Balkan Peninsula; RÜBSAAMEN, Allg. Zeitschr. Ent. vii, p. 14: Portugal; TAVARES, Ann. Sci. nat. Porto vii (1900), pp. 90 & 91: Vienna; TAVARES, Broteria i, p. 92.

Erythræus hibernans, San Remo, hybernating cyst, p. 218; OUDEMANS, Zool. Anz. xxv, and Ent. Ber. Nederland. Ver., No. 6, p. 36: *E. lomani* (on *Discocyrtus funestus*, *Opiliones*) Chile, p. 39; OUDEMANS, Ent. Ber. Nederland. Ver., No. 6 : **n. spp.**

Eschatocephalus, p. 469; SALMON & STILES, Rep. U. S. Dep. Agric. Animal Ind. xvii.

Eulais, see *Eylais*.

Eupodidæ, def. and list of genera, synonymy etc.; THOR, Verh. Ges. Wien lii, pp. 159–165.

Euryparasitus **n. g.** (*Parasitidæ*, *Parasitinæ*) for *Gamasus terribilis* Michael, p. 30; OUDEMANS, Tijdschr. Ent. xlv.

Eylais soari, p. 98, pl. xii, fig. 10, *hamata*, p. 99, pl. xii, fig. 11, *rimosa*, p. 99, pl. xii, fig. 12, *bisinuosa*, p. 100, pl. xii, fig. 13; CRONEBERG Bull. Soc. Moscou 1902: *E. protendens*, p. 504, var. *ornatula* **n. var.** p. 505; RIBAGA, Zool. Anz. xxv.

E. unisinuata, Woronesch, p. 98, pl. xii, fig. 9; CRONEBERG, Bull. Soc. Moscou 1902: *E. armata*, Buenos Ayres, *multispina*, Buenos Ayres, with **n. var.** *brevipalpis*, Chile, p. 505, *montana*, Argentina, *orthophthalma*, Argentina, *perincisa*, Chile, *colpophthalma*, Argentina, p. 506; RIBAGA, Zool. Anz. xxv; *Eulais* [=*Eylais*] *purcelli*, p. 447,

pls. xvi & xvii, figg. 1–4, *lightfooti*, p. 449, pls. xvi & xvii, figg. 5–8, *variabilis*, p. 450, pls. xvi & xvii, figg. 9–15, (*Capeulais*) *crassipalpis*, p. 452, pl. xviii, figg. 16–22, Cape Flats; THOR, Ann. S. African Mus. ii, **n. spp.**

Faculifer rostratus, polymorphism of males, p. 69, figg.; MARUCCI, Boll. Soc. zool. Ital. (2) iii (Anno xi), Fasc. i, ii & iii.

[*Feltria minuta*, ♂ descr.; KOENIKE, Mt. badischen zool. Ver., No. 13–14, pp. 45–58, 1 pl.]

Gamasidæ, respiratory system; JOURDAIN, C.R. Ass. Franc. Ajaccio 1901, 1re Partie, p. 144: [*G.*; RIBAGA, Riv. Patol. Veg. x, pp. 176–178.]

Glyciphagus bomborum, (on *Bombus terrestris*), Arnhem, p. 20: *fuscus* [locality?], p. 21; OUDEMANS, Ent. Ber. Nederland. Ver., No. 4, **n. spp.**

Greenia parkinsi, symbiosis with bees, p. 233; GREEN, Ent. Mag. (2) xiii.

G. alfkeni (on *Koptorthosoma æstuans*), Malacca, p. 37; OUDEMANS, Ent. Ber. Nederland. Ver., No. 6, **n. sp.**

Gymnobates **n. g.** (*Oribatidæ*, aff. *Oribates*), p. 175, *glaber*, Washington, p. 176, fig. 8; BANKS, Canad. Ent. xxxiv, **n. sp.**

Gymnodamæus **nom. nov.** for *Damæus* Berlese, p. 93, *bicostatus*, p. 94, pls. iv, figg. 28, 30, 32 & 34, v, fig. 70, *femoratus*, p. 94, pls. iv, figg. 29, 31, 33 & 35, v, fig. 71; KULCZYŃSKI, Bull. Ac. Cracovie 1902.

Hæmaphysalis, p. 457, key to spp., p. 458, *rosea*, p. 445, figg. 167 & 168; SALMON & STILES, Rep. U. S. Dep. Agric. Animal Ind. xvii.

H. calcarata (on a squirrel), Abyssinia, p. 113, figg. 2 & 3; NEUMANN, Arch. parasit. vi, **n. sp.**

Halacaridæ, Gulf of Finland; LEVANDER, Acta Soc. Faun. Fenn. xx, No. 6.

Halacarus (*Leptospathis*) *alberti*, p. 67, (*Halacarus*) *cœcus*, p. 68, *princeps*, p. 69, (*Copidognathus*) *richardi*, p. 69, Spitzbergen; TROUESSART, Bull. Soc. zool. France xxvii, **n. spp.**

Histiogaster spermaticus, parasitic in man, p. 456, figg. 1–4; TROUESSART, Arch. parasit. v, **n. sp.**

Hjartdalia, note on g., p. 157; THOR, Zool. Anz. xxvi: *H. runcinata* Thor, =*Aturus crassipalpis* Protz, =*Aturellus crassipalpis* Piersig, p. 202; PIERSIG, Zool. Centrlbl. ix.

Holothyrus coccinella, bibliography; HUBER, Bibl. klin. Ent. ii, p. 12.

Hoploderma granulata, Ottawa, p. 175; BANKS, Canad. Ent. xxxiv, **n. sp.**

Hyalomma, p. 478, key to spp., p. 478; SALMON & STILES, Rep. U. S. Dep. Agric. Animal Ind. xvii.

Hydrachna miliaria, p. 507; RIBAGA, Zool. Anz. xxv: *H. bi-nominata*, p. 97, pl. xii, fig. 8; CRONEBERG, Bull. Soc. Moscou 1902.

H. silvestri, Argentina, p. 507; RIBAGA, Zool. Anz. xxv, **n. sp.**

Hydrachnidæ: of Lake of Geneva; FOREL, Le Léman: Lincolnshire; GEORGE, Naturalist 1902, pp. 13 & 14: Black Forest; KOENIKE, Mt. badischen zool. Ver. Nos. 13 & 14, pp. 45–58, 1 pl.: in Gulf of Finland; LEVANDER, Acta Soc. Faun. Fenn. xx, Nos. 5 & 6: Bohemia, THON, Bull. Ceska Ac. vi, pp. 15, 55, 115: in lake of Castel Gandolfo, Rome, p. 35; MARUCCI, Monit. Zool. ital. xiii, Suppl.: genera, p. 580; WOLCOTT, Science (n. s.) xv: reactions to light; RÁDL, Biol. Centrbl. xxii, p. 728.

Hydrogamasus salinus, p. 286; OUDEMANS, Tijdschr. Nederland. Dierk. Ver. (2) vii.

Hydrozetes **n. g.** (*Oribatidæ*, type *Notaspis lacustris* Mich.) *platensis*, Rio de la Plata, p. 698; BERLESE, Zool. Anz. xxv, **n. sp.**

[*Hydryphantes*, monograph of Bohemian spp.; THON, Bull. Ceska Ac. vi, pp. 15–18, 1 pl.]

Hypoaspis, key to spp., p. 23, *pacidus*, p. 19, *cossi*, p. 19, pl. ii, figg. 22–26, *krameri*, p. 22; OUDEMANS, Tijdschr. Ent. xlv.

H., p. 289, *fuscicolens*, "n. sp." but without description, p. 289; OUDEMANS, Tijdschr. Nederland. Dierk. Ver. (2) vii: *H. greeni* (on *Koptorthosoma*

tenuiscapa), E. Indies, p. 37; OUDEMANS, Ent. Ber. Nederland. Ver. No. 6: *H. hypudæi* (on *Paludicola amphibius*), Holland, p. 21, pl. ii, figg. 27 & 28, *celeripediformis* (on *Putorius ermineus*), Holland, p. 22, pl. ii, figg. 29 & 30; OUDEMANS, Tijdschr. Ent. xlv : **n. spp.**

Ixodes, bibliography; HUBER, Bibl. klin. Ent. ii, p. 18: *I. tenuirostris*, p. 119, fig. 5, *præcoxalis*, p. 119, *testudinis*, p. 124, *granulatus*, p. 125; NEUMANN, Arch. parasit. vi: *I.*, p. 459, key to spp., p. 461, *ricinus*, p. 463, figg. 222–227, *hexagonus*, p. 467, figg. 228–235; SALMON & STILES, Rep. U. S. Dep. Agric. Animal Ind. xvii.

I. minor (on *Hesperomys* sp.), Guatemala, p. 109, fig. 1; NEUMANN, Arch. parasit. vi, **n. sp.**

Ixodidæ, p. 414; SALMON & STILES, Rep. U. S. Dep. Agric. Animal Ind. xvii.

Ixodinæ, p. 459; SALMON & STILES, t. c.

Ixodoidea (super-family), key to families, sub-families and genera, p. 384, general structure, p. 387, life-history, p. 398; SALMON & STILES, t. c.

Lælaps, p. 287, key to spp., p. 289, *agilis*, p. 287, pl. viii, figg. 9–13; OUDEMANS, Tijdschr. Nederland. Dierk. Ver. (2) vii.

L. scalpriger, Portici, *calcariger*, Umbria, p. 699; BERLESE, Zool. Anz. xxv, **n. spp.**

Lebertia halberti, Dartrey, Ireland, p. 610, *densa*, Harburg, p. 611, *rufipes*, Switzerland etc., p. 611, *cognata*, Switzerland, p. 612, *plicata*, Denmark, p. 613, *maculosa*, Switzerland, p. 613, *zschokkei*, Switzerland, p. 614, *subtilis*, Switzerland, p. 614; KOENIKE, Zool. Anz. xxv, **n. spp.**

Lebertiidæ, anatomy, p. 401; THOR, Zool. Anz. xxv.

Leptus autumnalis: not larva of *Tetranychus telarius*, p. 103; HANSTEIN, Zeitschr. wiss. Zool. lxx: bibliography; HUBER, Bibl. klin. Ent. ii, p. 8.

Liacarus keretinus, p. 19, fig. 1, *auritus*, p. 20, fig. 2, Finland; NORDENSKIÖLD, Acta Soc. Faun. Fenn. xxi, No. 2, **n. spp.**

Limnesia minuscula, Buenos Ayres, *pauciseta*, Argentina, p. 503; RIBAGA, Zool. Anz. xxv: *L. africana*, p. 454, pl. xix, figg. 23–26, Cape Flats; THOR, Ann. S. African Mus. ii : **n. spp.**

Liponyssus, key to spp., p. 16, *albatus*, p. 14, pl. i, figg. 4–8, *saurarum* [given as "n. sp." but previously described, see Zool. Rec. 1901], p. 14; OUDEMANS, Tijdschr. Ent. xlv: *L. albatus*, p. 22, *saurarum* ["n. sp."], p. 23; OUDEMANS, Ent. Ber. Nederland. Ver. No. 4: *L. lepidopeltis*, p. 37; OUDEMANS, op. cit. No. 6: *L.*, key to spp., p. 297, *musculi*, p. 293, pls. viii, figg. 19–22, ix, figg. 23–26; OUDEMANS, Tijdschr. Nederland. Dierk. Ver. (2) vii.

L. corethroproctus (on *Vespertilio dasycneme*), Holland, p. 15, pl. i, figg. 9–14; OUDEMANS, Tijdschr. Ent. xlv: *L. chelophorus*, Germany, p. 295, pl. ix, figg. 27–29, *spinosus*, France, p. 296, pl. ix, figg. 30 & 31; OUDEMANS, Tijdschr. Nederland. Dierk. Ver. (2) vii : **n. spp.**

Liroaspis, **n. g.** (*Gamasidæ* aff. *Lercon*), p. 174, *americana*, N. America, p. 174, fig. 7; BANKS, Canad. Ent. xxxiv, **n. sp.**

Macrocheles, key to spp., p. 44, *longispinosus*, p. 42, pl. v, figg. 94–96, *longulus*, p. 42, *tridentinus*, p. 42, pl. v, figg. 97–103, *terreus*, p. 43, pl. vi, figg. 104 & 105, *vagabundus*, p. 43, pl. vi, figg. 106–108; OUDEMANS, Tijdschr. Ent. xlv.

Myrmozercon **n. g.**, p. 699, *brevipes*, Umbria, p. 700; BERLESE, Zool. Anz. xxv, **n. sp.**

Neopodocinum **n. g.** (*Parasitidæ*, *Lælaptinæ*), p. 24, *jaspersi*, Amsterdam, p. 25, pl. ii, figg. 31–33; OUDEMANS, Tijdschr. Ent. xlv, **n. sp.**

Notaspis notata, p. 347, pl. vii, fig. 19, *lucens*, p. 349, notes; KULCZYŃSKI, Annuaire Mus. St. Petersb. vii: *N.*, emendation of key to spp., p. 2; OUDEMANS, Tijdschr. Ent. xlv: *N. cuspidata* var. *borealis* **n. var.**, p. 17, pl. i, fig. 3, *setosa* var. *curta* **n. var.**, p. 19, pl. iii, fig. 3,

edwardsii var. *lapponica* **n. var.**, p. 19, pl. iii, fig. 4, *mollicoma*, p. 20, pl. iii, fig. 2; TRÄGÅRDH, Bih. Svenska Ak. xxviii (iv), No. 5.

N. birulai, Barents Land, p. 350, pl. vii, figg. 17, 20 & 23; KULCZYŃSKI, Annuaire Mus. St. Petersb. vii: *N. furcillata*, p. 22, fig. 3, Finland; NORDENSKIÖLD, Acta Soc. Faun. Fenn. xxi, No. 2: *N. schützi*, Rotterdam, p. 2, pl. i, fig. 1; OUDEMANS, Tijdschr. Ent. xlv: *N. voigtsi*, Göttingen, p. 473, footnote; OUDEMANS in VOIGTS, Zool. Anz. xxv: *N. monticola*, Lapland, p. 17, pl. iii, figg. 6–11; TRÄGÅRDH, Bih. Svenska Ak. xxviii (iv), No. 5 : **n. spp.**

Notophallus dorsalis, Washington, p. 172; BANKS, Canad. Ent. xxxiv, **n. sp.**

†*Oppites melilli*, Middle Miocene, Melilli, Sicily, p. 252; PAMPALONI, Rend. Acc. Lincei xi, 1 Sem. [**n. sp.** ?].

Oribata auritus, p. 90, pls. iv, fig. 9, v, figg. 42 & 43, *geniculatus*, p. 90, pls. iv, figg. 2–4 & 11, v, figg. 36 & 37, *clavipes*, p. 90, pls. iv, figg. 5 & 6, v, figg. 38 & 39, *riparius*, p. 90, pls. iv, fig. 10, v, figg. 44 & 45, *crispatus*, p. 90, pls. iv, fig. 8, v, figg. 46 & 47, *verticillipes*, p. 90, pls. iv, fig. 16, v, figg. 48 & 49, *tecticola*, p. 91, pls. iv, fig. 17, v, figg. 50 & 51, *pulverulentus*, p. 91, pls. iv, fig. 24, v, figg. 60 & 61, *sufflexus*, p. 92, pls. iv, figg. 26 & 27, v, figg. 67 & 68; KULCZYŃSKI, Bull. Ac. Cracovie 1902.

O. gracilipes, Galicia, p. 90, pls. iv, fig. 7, v, figg. 40 & 41, *nivalis*, Tatra, p. 90, pls. iv, figg. 12, 13 & 18, v, figg. 52 & 53, *setiger*, Cracow, p. 91, pl. iv, fig. 19, v, figg. 52 & 53, *bituberculatus*, Cracow, p. 91, pls. iv, figg. 20 & 21, v, figg. 56 & 57, *tatricus*, Tatra, p. 91, pl. iv, fig. 14, v, figg. 62 & 63, *propexus*, Tatra, p. 91, pls. iv, fig. 15, v, figg. 58 & 59, *comptus*, Cracow, p. 92, pls. iv, fig. 22, v, figg. 64 & 65, *montanus*, Tatra, p. 92, pls. iv, fig. 23, v, figg. 66–69, *ægrotus*, Cracow, p. 92, pls. iv, fig. 25; KULCZYŃSKI, t. c.: *O. farinosa*, Lapland, p. 15, pls. i, figg. 5–9, ii, figg. 2 & 3; TRÄGÅRDH, Bih. Svenska Ak. xxviii (iv), No. 5: *Oribates* [*Oribata*] *minusculus*, Vallombrosa, p. 698; BERLESE, Zool. Anz. xxv : **n. spp.**

Oribatidæ: nomenclature of genera etc.; MICHAEL, Ann. Nat. Hist. (7) ix, p. 309: sub-fossil from peat, Finland; NORDENSKIÖLD, Acta Soc. Faun. Fenn. xxi, No. 6, p. 30: of Holland, p. 1; OUDEMANS, Tijdschr. Ent. xlv.

Oribatula caliptera, Italy, p. 698; BERLESE, Zool. Anz. xxv, **n. sp.**

Ornithodoros, p. 407, *megnini*, p. 408, figg. 65–67, 82–108; SALMON & STILES, Rep. U. S. Dep. Agric. Animal Ind. xvii.

Ottonia, p. 9, *pusilla*, p. 10, *planca*, p. 11, pl. i, fig. 11, *pexata*, p. 11, pl. i, figg. 12–17, *purpurea*, p. 15, pl. i, figg. 22, 23*a* & *b*; THOR, Forh. Selsk. Christian. 1900, No. 2.

O. spinifera, Norway, p. 9, pl. i, figg. 3–6, *strandi*, Norway, p. 10, pl. i, figg. 7–10, *vesiculosa*, Norway, p. 14, pl. i, figg. 18–21; THOR, Forh. Selsk. Christian. 1900, No. 2, **n. spp.**

Pachylælaps furcifer "n. sp." *ensifer* "n. sp." without descr. p. 31; OUDEMANS, Tijdschr. Ent. xlv.

Paraphytoptus septemscutatus, p. 224; DESTEFANI PEREZ, Giorn. Soc. Palermo xxiii.

Parasitidæ (=*Gamasidæ*) of Holland, p. 6, key to subfamilies, p. 49; OUDEMANS, Tijdschr. Ent. xlv.

Parasitinæ, key to genera, p. 30; OUDEMANS, t. c.

Parasitus, key to spp., p. 40, *subterraneus*, p. 31, pl. iii, figg. 47–51, *cornutus*, p. 34, pl. iv, figg. 58–68, *longulus*, p. 37, pl. iv, figg. 72–79, var. *robusta* **n. var.**, p. 38, pl. iv, figg. 80–84, *dentipes*, p. 38, pl. iv, figg. 85 & 86; OUDEMANS, t. c.: *P.*, key to spp., p. 284, *marinus*, p. 281, pl. viii, figg. 1–5, OUDEMANS, Tijdschr. Nederland. Dierk. Ver. (2) vii:

P. (=*Gamasus*) *crassipes*, structure of mouth, p. 105, fig. 4; BÖRNER, Zool. Anz. xxvi.

P. vespillonum (on *Necrophorus vespillo*) Holland, p. 33, pl. iii, figg. 52 & 53, *bomborum*, Holland, p. 33, pl. iii, figg. 54–57, *sexclavatus* [name only], p. 33, *mustelarum* [name only], p. 33, *kempersi*, Holland, p. 36, pl. iv, figg. 69–71, *wasmanni*, Holland, p. 39, pl. v, figg. 87 & 88, *septentrionalis*, Holland, p. 39, pl. v, figg. 89–93; OUDEMANS, Tijdschr. Ent. xlv: *P. sexclavatus* (on *Geotrupes sylvaticus*), Arnhem, pp. 17 & 20, *vespillonum* (on *Necrophorus vespillo*), Arnhem, p. 17; OUDEMANS, Ent. Ber. Nederland. Ver., Nos. 3 & 4: *P. evertsi*, S. France, p. 283, pl. viii, figg. 6–8; OUDEMANS, Tijdschr. Nederland. Dierk. Ver. (2) vii : **n. spp.**

Pediculoides, bibliography; HUBER, Bibl. klin. Ent. ii, p. 21: *P. ventricosus*, parasitic on *Musca*, preyed upon by *Chelifer*; FENIZIA, Boll. Nat. xxii, pp. 55–58.

Penthaleus belli, Cape Adare, p. 225, *villosus*, Antarctic land, p. 227; TROUESSART, Arachnida "Southern Cross," **n. spp.**

Periglischrus, p. 38, *iheringi* (on *Vampyrops lineatus*), Brazil, p. 38; OUDEMANS, Ent. Ber. Nederland. Ver. No. 6, **n. sp.**

Phyllocoptes minutus, p. 224, *genistæ*, p. 229, *phytoptoides*, p. 237; DESTEFANI PEREZ, Giorn. Soc. Palermo xxiii.

Pimelobiinæ **n. subfam.** (*Sarcoptidæ*), p. 617; TRÄGÅRDH, Zool. Anz. xxv.

Pimelobia **n. g.** *apoda*, parasitic on *Pimelia* sp. (*Coleoptera*), Cairo, p. 617, figg. 1–3; TRÄGÅRDH, t. c. **n. sp.**

Pseudoparasitus **n. g.** (*Parasitidæ*, *Parasitinæ*, for *Lælaps meridionalis* G. & R. Can.), p. 29; OUDEMANS, Tijdschr. Ent. xlv.

Pteroptus americanus, Indiana, p. 173, fig. 6; BANKS, Canad. Ent. xxxiv, **n. sp.**

Raillietia **n. g.** (*Gamasidæ lælaptinæ*), p. 1337 for *auris*; TROUESSART, C.R. Soc. Biol. liv, and Bull. Soc. zool. France xxvii, p. 232.

Rhipicephalinæ, p. 415; SALMON & STILES, Rep. U. S. Dep. Agric. Animal Ind. xvii.

Rhipicephalus hæmaphysaloides ruber, p. 125, fig. 6; NEUMANN, Arch. parasit. vi: *R.*, p. 415, key to spp., p. 417, *caudatus*, p. 437, fig. 154*b*, sp.?, p. 439, *calcaratus*, p. 441, figg. 156–166, *annulatus* var., p. 445; SALMON & STILES, Rep. U. S. Dep. Agric. Animal Ind. xvii.

R. erlangeri (on Horse) R. Daroli, p. 111, *hilgerti* (on *Canis variegatus*), Abyssinia, p. 111, *shipleyi* (on *Hyæna* sp.), Soudan, p. 112; NEUMANN, Arch. parasit. vi, **n. spp.**

Rhizoglyphus echinopus: destroying oat-crops; REUTER, Medd. Soc. Faun. Fenn. xxvii, pp. 121–125: polymorphism of males, p. 69, figg.; MARUCCI, Boll. Soc. zool. Ital. (2) iii (Anno xi), Fasc. i, ii & iii.

Rhodacarinæ **n. subfam.** (*Parasitidæ*), p. 48; OUDEMANS, Tijdschr. Ent. xlv.

Rhodacarus **n. g.** (*Parasitidæ*, *Rhodacarinæ*) *roseus*, Holland, p. 50, pl. vi, figg. 115–120; OUDEMANS, t. c. **n. sp.**

Rhyncholophus intermedius, Lapland, p. 4, pl. i, fig. 4; TRÄGÅRDH, Bih. Svenska Ak. xxviii (iv), No. 5, **n. sp.**

Ritteria vertex, p. 8, pl. ii, fig. 34; THOR, Forh. Selsk. Christian. 1900, No. 3.

R. norvegica, Norway, p. 7, pl. ii, figg. 26–30, *plumosa*, Norway, p. 9, pl. ii, figg. 31–33; THOR, t. c. **n. spp.**

Sarcoptes scabiei, bibliography, with notes; HUBER, Bibl. klin. Ent. iv.

Seiulus, p. 17, key to spp., p. 18, *plumosus* (on *Vespertilio dasycneme*), Holland, p. 17, pls. i, figg. 15–19, ii, figg. 20 & 21; OUDEMANS, Tijdschr. Ent. xlv, **n. sp.**

Smaris expalpis, p. 3; THOR, Forh. Selsk. Christian. 1900, No. 3.

Spelæorhynchus **n. g.** (? family), p. 37, *præcursor* (? Africa), p. 31, figg. 1–9; NEUMANN, Arch. parasit. v, **n. sp.**

Sperchon vaginosus, Freiburg, p. 151, figg. 1–3, *plumifer*, Geneva, p. 153, fig. 4; THOR, Zool. Anz. xxvi, **n. spp.**

Spinturnix, key to spp., p. 302, *mystacina*, p. 299, pls. ix, figg. 32–37, x, figg. 38–42; OUDEMANS, Tijdschr. Nederland. Dierk. Ver. (2) vii.

Tarsonemus, biology, p. 103, *spirifex*, on Oats, France, p. 99, figg. 1–3; MARCHAL, Bull. Soc. ent. France 1902, **n. sp.**

Tetranychus, discussion of species, p. 68, *telarius* def., p. 74, anatomy, p. 75, reproduction, seasonal cycle, metamorphosis, habits, p. 81, supposed relation to *Leptus autumnalis*, p. 103; HANSTEIN, Zeitschr. wiss. Zool. lxx, and Zeitschr. Pflanzenkrankheiten xii, pp. 1–7: *T. molestissimus*, bibliography; HUBER, Bibl. klin. Ent. ii, p. 22.

T. althææ, Germany, p. 74, pl. vi, figg. 1, 2, 4 & 5; HANSTEIN, Zeitschr. wiss. Zool. lxx, and Zeitschr. Pflanzenkrankheiten xii, p. 2, **n. sp.**

Trichostigma **n. g.** (*Eriophyidæ*) *erodii* (on *Erodium ciconium* Willd.), Marseilles, p. 547, figg. 34–36; GERBER, C.R. Ass. Franc. Ajaccio 1901 (ii) **n. sp.**

Trichotarsus, p. 309, key to spp., p. 310, *intermedius*, Germany, p. 308, pl. x, figg. 49 & 50; OUDEMANS, Tijdschr. Nederland. Dierk. Ver. (2) vii, **n. sp.**

Trombella otiorum, Italy, p. 126, fig.; BERLESE, Riv. Patol. Veg. ix, **n. sp.**

Trombidium tinctorium, p. 303, pl. x, figg. 43–48; OUDEMANS, Tijdschr. Nederland. Dierk. Ver. (2) vii: *T. fulginosum* var. *norvegicum* **n. var.**, p. 7, pl. i, figg. 1 & 2, *filipes*, p. 7, pl. i, figg. 24 & 25; THOR, Forh. Selsk. Christian. 1900, No. 2.

T. gemmosum, New Mexico, p. 595; BANKS, P. Ac. Philad. liii: *T. granulatum*, New Jersey, p. 171; BANKS, Canad. Ent. xxxiv: *T. novum* (on *Scatophaga merdaria*), Utrecht; OUDEMANS, Ent. Ber. Nederland. Ver. No. 4, p. 22, No. 6, p. 37 : **n. spp.**

†*Tyroglyphites miocenicus*, Middle Miocene, Melilli, Sicily, p. 252; PAMPALONI, Rend. Acc. Lincei xi, 1 Sem. [**n. sp.** ?].

Tyroglyphus, bibliography; HUBER, Bibl. klin. Ent. ii, p. 22: *T. siro*, on fungus *Sporotrichum globuliferum*, p. 73; WEBSTER, Rep. ent. Soc. Ontario 1901.

T. fucorum (on *Bombus terrestris*), Arnhem, p. 17; OUDEMANS, Ent. Ber. Nederland. Ver. No. 3, **n. sp.**

Uropoda tecta, p. 45, pl. vi, fig. 111, *krameri*, p. 46; OUDEMANS, Tijdschr. Ent. xlv: *U. vegetans*, parasitic on beetles and moths in New Zealand; SMITH, Tr. N. Zealand Inst. xxxiv, pp. 199–201: *U. vegetans*, parasitic on *Porcellio* (*Isopoda*, *Crustacea*), p. 132; SMITH, Ent. Mag. (2) xiii: *U. ovalis*, p. 30, *subovalis* **nom. nov.** (for *U. ovalis* Kramer nec Koch), p. 33, fig. 1, *orchestiidarum*, p. 38 (*Glyphopsis*), p. 39, *riccardiana*, p. 40; TROUESSART, Bull. Soc. zool. France xxvii: *U.* synonymy, *plumifera* withdrawn = *clavipilis* Canestrini, p. 158; TROUESSART, Bull. Soc. zool. France xxvii.

U. wagneri (on a bat), Hanover, p. 38; OUDEMANS, Ent. Ber. Nederland. Ver. No. 6: *U. anchor*, Martinique, p. 34, *concinna*, Martinique, p. 35, *plumifera*, N. Brazil (on a beetle, *Rhina barbata*), p. 35, *philoctena*, Oise (on an ant, *Lasius mixtus*), p. 38, fig. 2; TROUESSART, Bull. Soc. zool. France xxvii : **n. spp.**

Uroseius novus [loc. ?], p. 47, pl. vi, figg. 112–114; OUDEMANS, Tijdschr. Ent. xlv, **n. sp.**

9. TARDIGRADA.

[Vacant.]

10. PENTASTOMIDA.

[Vacant.]

XII. MYRIOPODA AND PROTOTRACHEATA.

BY

W. T. Calman, D.Sc.

CONTENTS.

	Page
Introduction	1
MYRIOPODA.	
I. Titles	2
II. Subject Index.	
1. Morphology	6
2. Physiology	7
3. Reproduction & Development	7
4. Bionomics	7
5. Miscellaneous	7
III. Distribution.	
A. Geographical	7
B. Geological	9
IV. Systematic Index.	
Chilopoda	9
Symphyla	11
Pauropoda	12
Diplopoda	13
PROTOTRACHEATA.	
I. Titles	22
II. Subject Index	23
III. Distribution	23
IV. Systematic Index	23

INTRODUCTION.

As in the case of *Crustacea* and *Arachnida* it is possible that some papers may have been overlooked owing to the shortness of the time available for the preparation of the present Record. The thanks of the Recorder are due to Mr R. I. Pocock for much advice and assistance in classifying the references.

MYRIOPODA.

I. TITLES.*

1. Attems, Carl. Neue Polydesmiden des Hamburger Museums. Mt. Mus. Hamburg xviii, pp. 83–107, 3 pls. (1901).

2. ——. Neue durch den Schiffsverkehr in Hamburg eingeschleppte Myriopoden. T. c. pp. 109–116, 1 pl.

3. ——. Myriapodes. Résultats du voyage du S. Y. Belgica. Zoologie. 6 pp., 1 pl., 4to, Anvers, 1902.

4. Bergh, R. S. Beiträge zur vergleichenden Histologie. III. Ueber die Gefässwandung bei Arthropoden. Anat. Hefte Arb. xix, pp. 349–386, pls. ix–xi.
Myriopoda, pp. 371–374. Abstracts: by author Zool. Centrlbl. ix, pp. 461 & 462; Zool. Jahresber. 1902, Arthrop. p. 21.

5. Berlese, A. Acari, Myriopoda et Scorpiones hucusque in Italia reperta. Acari Miriapodi e Scorpioni italiani. Fasc. xciii–xcvi, 8vo, Padova, 1902.
Diagnosis of g. *Symphylella* in Fasc. xcvi, No. 10, and descr. of *Scolopendrella pygmæa* in Fasc. xcvi, No. 12, are accompanied by references to "Silvestri, *Symphyla* in Berlese A. M. S." with the date 1902. The Recorder is indebted to Prof. F. Silvestri for the information that his work on the *Symphyla* from which these passages are quoted is not yet published.

6. Blanchard, Raphaël. Nouvelles observations sur le pseudo-parasitisme des Myriapodes chez l'homme. Arch. parasit. vi, pp. 245–256, 2 figg.

7. Börner, C. Ueber die Gliederung der Laufbeine der *Atelocerata* Heymons. SB. Ges. naturf. Berlin 1902, pp. 205–229, 2 pls.

8. *Bouin, P. & M. Réduction chromatique chez les Myriapodes. C.R. Ass. Anat. 4 Sess., pp. 74–78.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 46.

9. Boyd, D. A. *Myriapoda* (p. 318) in, Fauna, Flora and Geology of the Clyde Area, edited by G. F. Scott Elliot, Malcolm Laurie and J. Barclay Murdoch (Brit. Ass. Handbook), 8vo, Glasgow, 1901.

10. Brölemann, Henry W. Description d'un nouveau Polydesme d'Espagne. Bull. Soc. ent. France 1902, pp. 13 & 14, 1 fig. in text.

11. ——. Matériaux pour servir à une faune des Myriapodes de France. Feuille Natural. xxxii, pp. 73, 98–104, figg. in text.

12. ——. Le Genre *Paraiulus* (Myriapodes-Diplopodes). Ann. Soc. ent. France lxxi, pp. 440–447, pls. i & ii.

13. ——. Myriapodes cavernicoles. iime Note. T. c. pp. 448–460, 13 figg. in text.

14. ——. Myriapodes du Musée de Saõ Paulo. Revist. Mus. Paulista v, pp. 35–233, Resumo, pp. 234–237, pls. i–x.

---

* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

15. Carl, Joh. Exotische Polydesmiden. Rev. Suisse Zool. x, pp. 563–679, pl. x–xii.

——. [See also Rothenbühler (46).]

16. Chamberlin, Ralph V. A new genus and three new species of Chilopods. P. Ac. Philad. liv, 1902, pp. 39–43.

17. ——. Utah Chilopods of the *Geophilidæ*. Amer. Natural. xxxvi, pp. 473–480.

18. ——. *Henicops dolichopus* a New Chilopod from Utah. P. U. S. Mus. xxiv, pp. 797–800.

19. ——. List of the Myriapod Family *Lithobiidæ* of Salt Lake County, Utah, with Descriptions of Five New Species. T. c. pp. 21–25 (1901).

20. Cook, O. F. Evolutionary inferences from the *Diplopoda*. P. ent. Soc. Washington v, pp. 14–20.

21. ——. The Earwig's forceps and the Phylogeny of insects. T. c. pp. 84–92.

22. Cuénot, L. *Legerella testiculi*, nov. sp. Coccidie parasite du testicule de *Glomeris*. Arch. zool. exp. Notes (3) x, pp. xlix–liii, 6 figg. in text.

Duboscq, O. [See Léger & Duboscq (34 & 35).]

23. Faes, Henry. Quelques nouveaux Myriopodes du Valais. Zool. Anz. xxv, pp. 256–260.

24. ——. Myriapodes du Valais (in C.R. Soc. Vaudoise). Arch. Sci. Nat. (4) xiv, pp. 73 & 74.

25. ——. Distribution géographique des Myriapodes dans le Valais (in 85me Sess. Soc. Helvet.). T. c. pp. 554–556.

Nos. 23–25 are preliminary abstracts of No. 26.

26. ——. Myriopodes du Valais (Valée du Rhone et vallées latérales). Rev. Suisse Zool. x, pp. 31–164, pls. i–iii.

Abstract by K. Verhoeff, Zool. Centrlbl. ix, pp. 521–523.

27. Fritsch, Ant. Fauna der Gaskohle und der Kalksteine der Permformation Böhmens. iv (1–3), 1899–1901.

Myriopoda, pp. 13–15, pls. 134–152 and col. frontispiece, text-figg. 322–338.

28. Fürth, Otto von. Vergleichende chemische Physiologie der niederen Tiere, pp. xiv + 670, 8vo, Jena, 1903 [Received in London, December 1902].

29. Giesbrecht, W. & Mayer, P. Arthropoda. Zool. Jahresber. 1902, 72 pp.

Myriopoda, pp. 43–46.

Goldschmidt, R. Abstract in Zool. Centrlbl. ix, see No. 59.

Grandidier, Alfred. [See Saussure & Zehntner (49).]

30. Hansen, H. J. On the Genera and Species of the Order Pauropoda. Vid. Medd. 1901, pp. 323–424, pls. i–vi.

Heider, K. [See Korschelt & Heider (31).]

[Hesse, R. Author's abstract of "Untersuchungen über die Organe der Lichtempfindung bei niederen Tieren. vii. Von den Arthropoden-Augen" (Zeitschr. wiss. Zool. lxx (1901), pp. 347–473).] Zool. Centrlbl. ix, pp. 79–82.

31. Korschelt, E. & Heider, K. Lehrbuch der vergleichenden Entwicklungsgeschichte der wirbellosen Thiere. Allgemeiner Theil. 1st Lief. 1 & 2 Aufl., pp. x+538, 318 figg. in text. 8vo, Jena, 1902.

32. Kraepelin, Karl. Ueber die durch den Schiffsverkehr in Hamburg eingeschleppten Tiere. Mt. Mus. Hamburg xviii, pp. 183–209.
List of *Myriopoda*, pp. 200 & 201.

33. Lankester, E. Ray. Arthropoda. Encycl. Brit. xxv, pp. 689–701, 11 figg.

34. Léger, L. & Duboscq, O. Sur la régénération épithéliale dans l'intestin moyen de quelques Arthropodes. Arch. zool. exp. Notes (3) x, pp. xxxvi–xlii.
Abstracts: J. R. Micr. Soc. 1902, p. 551; Zool. Jahresber. 1902, Arthrop. p. 21.

35. —— & ——. Les grégarines et l'épithélium intestinal chez les Trachéates. Arch. parasit. vi, pp. 377–473, pls. ii–vi.
Intestine of *Scolopendra*, p. 433, Gregarine, pp. 437–445, pl. vi.

36. Lucas, Robert. Bericht über...Myriopoda (for 1898). Arch. Naturg. lxv (2), pp. 913–938.

37. Marlatt, C. L. The House Centipede (*Scutigera forceps* Raf.). Circ. U. S. Dep. Agric. Ent. (2) No. 48, 4 pp., 2 figg. in text.

Mayer, P. [See Giesbrecht & Mayer (29).]

38. Morgan, Thos. Hunt. Regeneration (Columbia University Biological Series, vii), pp. xii+316, figg. in text. 8vo, New York, 1901.

39. Morse, Max. Myriopods from Vinton, Ohio. Ohio Natural. ii, p. 187.
List of spp.

40. Peach, B. N. Scottish Palæontology during the last Twenty Years. P. Phys. Soc. Edinb. xiv (4), pp. 361–394.
Myriopoda, pp. 375 & 376.

41. Pocock, R. I. Myriopoda and Arachnida; in Report on a Collection made by Messrs F. V. McConnell and J. J. Quelch at Mount Roraima in British Guiana. Tr. Linn. Soc. London (2) viii, pp. 64–71, 2 figg. in text. (1900.)

42. ——. A new and Annectant Type of Chilopod. Quart. J. Micr. Sci. (n. s.) xlv, pp. 417–448, pl. xxiii, 1 fig. in text.
Abstracts: by K. Verhoeff, Zool. Centrlbl. ix, pp. 464 & 465; J. R. Micr. Soc. 1902, pp. 429 & 430; Zool. Jahresber. 1902, Arthrop. p. 43.

43. Rossi, Giovanni. Sull' apparecchio digerente dell' *Julus communis*. Bull. Soc. ent. Ital. xxxiv, pp. 1–9, pl. i.
Abstracts: by K. Verhoeff, Zool. Centrlbl. ix, pp. 629 & 630; in J. R. Micr. Soc. 1902, p. 553; Zool. Jahresber. 1902, Arthrop. p. 45.

44. ——. Sulla locomozione dei Miriapodi. Atti Soc. Ligustica xii, pp. 169–183.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 43.

45. *——. Sulla organizzazione dei Miriapodi. Ric. Labor. anat. Roma ix, pp. 5–88, 10 figg., pls. i & ii.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 44.

46. Rothenbühler, H. Myriopoden des Bündnerischen Rheingebietes. (Fauna der Rhätischen Alpen von Dr J. Carl, ii Beitrag.) Rev. Suisse Zool. x, pp. 549–561.

47. SAUSSURE, HENRI DE. Myriapodes de Madagascar. (85me Sess. Soc. Helvet.) Arch. Sci. Nat. (4) xiv, pp. 524–528.
Abstract, Zool. Jahresber 1902, Arthrop. p. 44.

48. —— & ZEHNTER, LÉO. Myriopoden aus Madagaskar und Zanzibar, gesammelt von Dr A. Voeltzkow. Abh. Senckenb. Ges. xxvi, pp. 429–460, pls. xxxix & xl, 1902 [but quoted by authors in (49) with date 1901].
Abstract by K. VERHOEFF, Zool. Centrlbl. ix, p. 368.

49. —— & ——. Histoire Naturelle des Myriapodes: in Histoire physique, naturelle et politique de Madagascar publiée par ALFRED GRANDIDIER, xxvii, 53e Fasc., pp. viii+356, pls. xiii–xv. 4to, Paris, 1902. [Atlas of pls. i–xii published in 1897.]
Quoted hereafter as Myriapodes Madagascar.

SCHULTZ, E. Abstract in Zool. Centrlbl. ix. See No. 69.

50. SILVESTRI, FILIPPO. Note preliminari sui Termitidi e Termitofili sud-americani. Frammenti biografici. Boll. Mus. Torino xvii, No. 419, 29 pp. [*Diplopoda*, pp. 21 & 22.]
Abstract, Zool. Jahresber. 1902, Arthrop. p. 56.

51. ——. Viaggio del Dr A. Borelli nel Matto Grosso. VII. Diplopodi. T. c., No. 432, 25 pp.

52. ——. Acari, Myriopoda et Scorpiones hucusque in Italia reperta. Ordo *Pauropoda*. 8vo, 85 pp., 56 figg. in text. Portici, 1902.
Quoted hereafter as *Pauropoda*.

53. ——. Einige Bemerkungen über den sogenannten Mikrothorax der Insecten. Zool. Anz. xxv, pp. 619 & 620.

54. *——. Note preliminari sulla morfologia dei Diplopodi e Chilopodi. Riv. Patol. Veg. x, pp. 179–184.
Abstracts: Zool. Jahresber. 1902, Arthrop. p. 45; J. R. Micr. Soc. 1902, p. 306.

55. *——. Sulle ghiandole cefaliche o anteriori del *Pachyiulus communis* (Savi). Lab. Zool. Scuola Sup. Agric. Portici 1902, 2 pp.
Abstracts: by K. VERHOEFF, Zool. Centrlbl. ix, p. 698; J. R. Micr. Soc. 1902, p. 553.

——. [See also BERLESE (5).]

56. SINCLAIR, F. G. (formerly F. G. HEATHCOTE). On the Myriapods collected during the "Skeat Expedition" to the Malay Peninsula, 1899 & 1900. P. Zool. Soc. London 1901, ii, pp. 505–533, pls. xxx–xxxii.

57. ——. Myriapoda. Encycl. Brit. xxxi, pp. 61–64, 4 figg.

58. THOMAS, ROSE HAIG. A Luminous Centipede. Nature lxv, p. 223.
Abstract in J. R. Micr. Soc. 1902, p. 182.

59. TÖNNIGES, CARL. Beiträge zur Spermatogenese und Oogenese der Myriopoden. I. Die Bildung der Spermatogonien und Oogonien in den Genital-organen von *Lithobius forficatus* mit besonderer Berücksichtigung ihrer Nährzellen. Zeitschr. wiss. Zool. lxxi, pp. 328–358, pls. xix & xx, and 3 figg. in text.
Abstracts: by R. GOLDSCHMIDT, Zool. Centrlbl. ix, p. 368; J. R. Micr. Soc. 1902, pp. 304 & 305; Zool. Jahresber. 1902, Arthrop. p. 46.

60. VERHOEFF, KARL W. Zur vergleichenden Morphologie der Chilopoden. Zool. Anz. xxv, pp. 118–120.
Abstracts: J. R. Micr. Soc. 1902, p. 305; Zool. Jahresber. 1902, Arthrop. p. 46.

61. [VERHOEFF, KARL W.] Ueber Dermapteren. 1. Aufsatz: Versuch eines neuen natürlicheren Systems auf vergleichend-morphologischer Grundlage, und über den Mikrothorax der Insecten. Zool. Anz. xxv, pp. 181–208.
Chilopoda, p. 205.

62. ——. Ueber einige paläarktische Geophiliden. T. c. pp. 557–561, 2 figg. in text.

63. ——. Ueber die Nerven des Metacephalsegmentes und die Insectenordnung *Oothecaria*. Op. cit. xxvi, pp. 20–31.

64. ——. Zur vergleichenden Morphologie der Coxalorgane und Genitalanhänge der Tracheaten. T. c. pp. 60–77, 15 figg. in text.

65. ——. Ueber Diplopoden. 1. Aufsatz; Formen aus Tirol, Italien, und Cypern. Arch. Naturg. lxviii (1), pp. 175–198, pl. ix.

66. ——. *Myriapoda*. Bronn's Klassen und Ordnungen des Thier-Reichs. v (2), Lief. 63–65, pp. 1–42, pls. i–vi.
Author's abstract, Zool. Centrlbl. ix, p. 524.

67. *——. Beiträge zur vergleichenden Morphologie des Thorax der Insekten mit Berücksichtigung der Chilopoden. Acta Ac. German. lxxxi, pp. 63–110, pls. vii–xiii.

68. ——. Ueber Chilopoden von Südsteiermark, Krain und Kroatia. SB. Ges. naturf. Berlin 1902, pp. 90–93, 1 fig.

——. Abstracts in Zool. Centrlbl. ix. See Nos. 26, 42, 43, 48, 55.

ZEHNTNER, LÉO. [See SAUSSURE & ZEHNTNER (48 & 49).]

69. *ZOGRAFF, N. Beiträge zur Kenntniss der Genealogie der Arthropoden. II. Der Bau der Seitenorgane am Kopfe von *Glomeris*. Mt. Freunde Naturw. Moskau xcviii (1901), pp. 1–6. [Russian.]
Abstract by E. SCHULTZ, Zool. Centrlbl. ix, p. 201.

II. SUBJECT-INDEX.

1. *Morphology.*

Morphology and relationships of *Myriopoda*; LANKESTER (33).
Morphology of *Chilopoda* and *Insecta*; VERHOEFF (60, 61, 63, 67); SILVESTRI (53): of *Craterostigmus*, n. g. in relation to classification of *Chilopoda*; POCOCK (42): of *Diplopoda* and *Chilopoda*; SILVESTRI (54).
Morphology of *Pauropoda*, external and internal anatomy, development, affinities; SILVESTRI (52).
External anatomy and systematic position of *Paraiulus*; BRÖLEMANN (12).
Morphology and classification of Palæozoic *Myriopoda*; FRITSCH (27).
Morphology of legs in *Myriopoda* compared with insects; BÖRNER (7): of Coxal organs and Genital appendages in *Diplopoda* and *Insecta*; VERHOEFF (64): of copulatory appendages &c. of *Myriopoda*; SAUSSURE & ZEHNTNER (49).
Digestive system of *Julus communis*; ROSSI (43): Histology of intestine in *Scolopendra*; LÉGER & DUBOSCQ (35): Midgut of *Chilopoda*, regeneration of epithelium; LÉGER & DUBOSCQ (34), pp. xxxix & xl.
Nervous system of *Scolopendra*; VERHOEFF (63).
Histology of bloodvessels in *Chilopoda*; BERGH (4).

2. *Physiology.*

Chemical physiology of *Myriopoda*, nutrition, p. 238, poison, p. 332, &c.; FÜRTH (28).

3. *Reproduction and Development.*

Oogenesis in *Myriopoda*, p. 317, Spermatozoa, p. 454, Spermatogenesis, p. 524; KORSCHELT & HEIDER (31).
Oogenesis and Spermatogenesis in *Lithobius*; TÖNNIGES (59).

4. *Bionomics.*

Bionomics of *Myriopoda*, reproductive habits, variation, seasonal cycles, habitats, parasites; FAES (26), pp. 118–140.
Habits &c. of *Scutigera*; MARLATT (37).
Defensive use of luminous secretion by *Geophilus*; THOMAS (58).
Stridulating organs; SAUSSURE (47): SAUSSURE & ZEHNTNER (49).
Autotomy and regeneration of appendages, p. 154 &c.; MORGAN (38).
Locomotion of *Myriopoda*; ROSSI (44).
Pseudo-parasitism of *Myriopoda* in man; BLANCHARD (6).
Termitophilous *Diplopoda* of S. America; SILVESTRI (50), pp. 21 & 22.
Gregarine (*Pterocephalus*) parasitic in *Scolopendra*; LÉGER & DUBOSCQ (35): parasitic Coccidian (*Legerella*) in testis of *Glomeris*; CUÉNOT (22).

5. *Miscellaneous.*

General account of *Myriopoda* begun; VERHOEFF (66).
Summary of recent work; SINCLAIR (57).
Review of literature for 1898; LUCAS (36): for 1902; GIESBRECHT & MAYER (29).
Terminology of parts in *Myriopoda*, FAES (26), p. 35.
Evolution of *Diplopoda*; COOK (20): *Diplopoda* in relation to phylogeny of insects; COOK (21).

III. DISTRIBUTION.

A. GEOGRAPHICAL.

Distribution of *Myriopoda* in Valais, horizontal and vertical, habitats &c.; FAES (25 & 26).
Exotic *Myriopoda* introduced into Hamburg; ATTEMS (2), KRAEPELIN (32).

(1) *Arctic and Antarctic.*

(Vacant.)

(2) *Europe and Mediterranean Islands.*

Denmark: *Pauropoda*, n. spp.; HANSEN (30).
Germany. Marburg: *Pauropoda*, n. spp.; HANSEN (30).
Great Britain. Clyde Area: *Myriopoda*; BOYD (9).
France: *Myriopoda*, n. spp.; BRÖLEMANN (11): S. E. France, cavernicolous *Diplopoda*, n. g. and spp.; BRÖLEMANN (13).

Spain: *Polydesmus*, n. sp.; BRÖLEMANN (10).
Italy: *Pauropoda*, n. spp.; HANSEN (30): *Pauropoda*, n. gg. and spp.; SILVESTRI (52): *Myriopoda*, n. spp.; BERLESE (5): *Diplopoda*; VERHOEFF (65).
Switzerland: *Pauropoda*, n. sp.; HANSEN (30): Valais, *Myriopoda*, n. spp.; FAES (23 & 26): Bündner Alps, *Myriopoda*; ROTHENBÜHLER (46): Switzerland and S. Europe, *Geophilidæ*, n. subspp.; VERHOEFF (62).
Tyrol, *Diplopoda*, n. g., sp. and varr.; VERHOEFF (65).
Carniola, Styria, Croatia, *Chilopoda*, n. sp.; VERHOEFF (68).
Greece, I. of Syra, *Geophilidæ*, n. sp.; VERHOEFF (62).

(3) *Asia (Palæarctic).*

Jerusalem, *Geophilidæ*, n. subsp.; VERHOEFF (62).
Cyprus, *Diplopoda*, n. sp.; VERHOEFF (65).
Japan, *Polydesmidæ*, n. sp.; CARL (15): Cent. Japan, *Polydesmidæ*, n. spp.; ATTEMS (1).

(4) *India and Further India.*

Ceylon, *Polydesmidæ*, n. sp.; CARL (15).

(5) *Malay Peninsula and Archipelago.*

Malay Peninsula, *Myriopoda*, n. spp.; SINCLAIR (56).
Siam, *Pauropoda*, n. spp.; HANSEN (30).
Java, Sumatra, *Polydesmidæ*, n. g. and spp.; CARL (15).
Sumatra, *Polydesmidæ*, n. sp.; ATTEMS (1).

(6) *Africa and Madagascar.*

Portuguese Guinea, *Polydesmidæ*, n. spp.; ATTEMS (1).
Port Elizabeth, *Polydesmidæ*, n. gg. and spp.; ATTEMS (1).
Zanzibar, *Myriopoda*, n. sp.; SAUSSURE & ZEHNTNER (48).
Madagascar, Nossibé and Sakatia, *Myriopoda*, n. gg. and spp.; SAUSSURE & ZEHNTNER (48).
Madagascar, Mauritius, Seychelles, *Myriopoda*, n. gg. and spp.; SAUSSURE & ZEHNTNER (49).

(7) *North America.*

N. America, *Diplopoda*, n. g. and spp.; ATTEMS (2).
Utah: *Chilopoda*, n. sp.; CHAMBERLIN (16): *Geophilidæ*, n. spp.; CHAMBERLIN (17): *Henicops*, n. sp.; CHAMBERLIN (18): *Lithobius*, n. spp.; CHAMBERLIN (19).
Vinton, Ohio, list of spp.; MORSE (39).
Texas, *Polydesmidæ*, n. spp.; CARL (15).
California, *Chilopoda*, n. spp.; CHAMBERLIN (16).

(8) *South and Central America and West Indies.*

Mexico, *Polydesmidæ*, n. spp.; ATTEMS (1): CARL (15).
Guatemala, Costa Rica, *Polydesmidæ*, n. g. and spp.; CARL (15).
British Guiana, Mt. Roraima, *Diplopoda*, n. spp.; POCOCK (41).
Brazil, Ecuador, Venezuela, *Polydesmidæ*, n. spp.; ATTEMS (1).

Brazil, Rio Grande do Sul, *Polydesmidæ*, n. spp.; CARL (15).
S. Brazil, *Diplopoda*, n. spp.; ATTEMS (2).
Brazil and Argentina, *Chilopoda*, n. spp., *Diplopoda*, n. gg. and spp.; BRÖLEMANN (14).
Paraguay and Matto Grosso, *Diplopoda*, n. gg. and spp.; SILVESTRI (51).
Argentina, Paraguay, Chile, *Pauropoda*, n. spp.; HANSEN (30).
Tierra del Fuego and S. Patagonia, 2 spp. *Myriopoda*; ATTEMS (3).

(9) *Australasia.*

Melbourne, *Polydesmidæ*, n. g. and sp.; CARL (15).
Mount Rumney, Tasmania, *Craterostigmus*, n. g. and sp. representing new order of *Chilopoda*; POCOCK (42).
New Zealand, *Polydesmidæ*, n. g. and spp.; CARL (15).

(10) *Atlantic Islands.*

(Vacant.)

(11) *Indian Ocean Islands.*

[See under (6) above.]

(12) *Pacific Ocean Islands.*

(Vacant.)

B. GEOLOGICAL.

Permian, Bohemia, n. gg. and spp. *Myriopoda*; FRITSCH (27).
Palæozoic *Myriopoda* of Scotland; PEACH (40), p. 375.

IV. SYSTEMATIC INDEX†.

CHILOPODA.

Classification of *Chilopoda*.

Sub-class *Pleurostigma*.

Orders (1) *Geophilomorpha*, (2) *Scolopendromorpha*, (3) *Craterostigmomorpha*, (4) *Lithobiomorpha*.

Sub-class *Notostigma*.

Order *Scutigeromorpha*; POCOCK, Quart. J. Micr. Sci. (n. s.) xlv, p. 437.

Chilopoda def., p. 441; POCOCK, t. c.

Alipedinæ (Alipédiens), p. 322; SAUSSURE & ZEHNTNER, Myriapodes Madagascar.

† This sign when prefixed to a quotation indicates a fossil form or forms. Where the character of a reference is not indicated the words "description" or "descriptive notes" are to be understood.

Allipes, p. 323, *madecassus*, Madagascar, p. 324; SAUSSURE & ZEHNTNER, t. c. **n. sp.**

Anethops, **n. g.** (*Cryptopinæ*) *occidentalis*, California, p. 40; CHAMBERLIN, P. Ac. Philad. liv, **n. sp.**

Aphilodon micronyx, Brazil, p. 46, pl. i, figg. 14–19; BRÖLEMANN, Revist. Mus. Paulista v, **n. sp.**

Chætechelyne vesuviana, p. 51, pl. i, fig. 5; FAES, Rev. Suisse Zool. x.

Cormocephalus fangaroka, Madagascar, p. 432; SAUSSURE & ZEHNTNER, Abh. Senckenb. Ges. xxvi: *C.*, p. 310, key to some spp., p. 311, *willsii*, p. 314, *fangaroka*, p. 316, pl. ii, figg. 10–10*c*; SAUSSURE & ZEHNTNER, Myriapodes Madagascar.

C. crudelis, Madagascar, p. 312, pl. xii, figg. 3 & 3*a*, *arantsoae*, Madagascar, p. 317, pl. xii, figg. 5–5*q*, *formidandus*, Madagascar, p. 319, pl. xv, fig. 20, *ferox*, Madagascar, p. 320, pl. xii, figg. 4 & 4*a*, *gracilipes* [locality?], p. 321; SAUSSURE & ZEHNTNER, t. c. **n. spp.**

Craterostigmomorpha, def., p. 444; POCOCK, Quart. J. Micr. Sci. (n. s.) xlv.

Craterostigmus **n. g.**, p. 418, *tasmanianus*, Mount Rumney, Tasmania, p. 423, pl. xxiii; POCOCK, t. c. **n. sp.**

Cryptopinæ, key to genera, p. 39; CHAMBERLIN, P. Ac. Philad. liv.

Cryptops biscarensis trisulcatus **n. var.**, p. 73; BRÖLEMANN, Feuille Natural. xxxii.

C. brasiliensis, Rio Grande do Sul, p. 112; ATTEMS, Mt. Mus. Hamburg xviii: *C. iheringi*, Brazil, p. 42, pl. i, figg. 6 & 7; BRÖLEMANN, Revist. Mus. Paulista v: **n. spp.**

Geophilomorpha, def., p. 442; POCOCK, Quart. J. Micr. Sci. (n. s.) xlv.

Geophilus, key to W. American spp., p. 473, *nealotus*, p. 474, *xenoporus*, p. 475, *atopus*, p. 476, *glyptus*, p. 477, Utah; CHAMBERLIN, Amer. Natural. xxxvi: *G. sedunensis*, Valais, p. 45, pl. i, figg. 2–4; FAES, Rev. Suisse Zool. x: *G. græcus*, Syra, p. 560, fig. 2; VERHOEFF, Zool. Anz. xxv: **n. spp.**

Henicops fulvicornis, p. 44; FAES, Rev. Suisse Zool. x.

H. dolichopus, Utah, p. 797; CHAMBERLIN, P. U. S. Mus. xxiv, **n. sp.**

Himantarium, p. 342, *hova*, Madagascar, p. 343, pl. xii, figg. 9–9*b*; SAUSSURE & ZEHNTNER, Myriapodes Madagascar, **n. sp.**

Linotænia, key to W. American spp., p. 478, *miuropus*, p. 478, *micropus*, p. 479, Utah; CHAMBERLIN, Amer. Natural. xxxvi, **n. spp.**

Lithobiomorpha, def., p. 445; POCOCK, Quart. J. Micr. Sci. (n. s.) xlv.

Lithobius, key to American spp. of group *Bothropolys*, p. 42; CHAMBERLIN, P. Ac. Philad. liv: *L.*, key to some spp., p. 21, *bipunctatus*, p. 22; CHAMBERLIN, P. U. S. Mus. xxiv: *L. forficatus*, notes, abnormality of maxillipeds, p. 37, pl. i, fig. 1; FAES, Rev. Suisse Zool. x; *L. forficatus*, spermatogenesis and oogenesis, pp. 328–358, pls. xix & xx; TÖNNIGES, Zeitschr. wiss. Zool. lxxi: *L. melanops* in nasal cavities of man, p. 246; BLANCHARD, Arch. parasit. vi.

L. filicium, N. America, p. 111; ATTEMS, Mt. Mus. Hamburg xviii: *L. permundus*, Utah (=*L. xanti*, Chamberlin, 1901 non Wood, 1863), p. 42; CHAMBERLIN, P. Ac. Philad. liv: *L. utahensis*, p. 22, *collium*, p. 23, *socius*, p. 23, *intermontanus*, p. 24, *purpureus*, p. 24, Utah; CHAMBERLIN, P. U. S. Mus. xxiv: **n. spp.**

Mecistocephalus, p. 327, *punctifrons*, p. 328, pl. xiv, figg. 14–14*b*; SAUSSURE & ZEHNTNER, Myriapodes Madagascar.

Notostigma, def., p. 445; POCOCK, Quart. J. Micr. Sci. (n. s.) xlv.

Orphnaeus fangaroka, Nossibé, p. 433, pl. xxix, figg. 2 & 3; SAUSSURE & ZEHNTNER, Abh. Senckenb. Ges. xxvi: *O.*, p. 335, *fangaroka*, p. 336, pl. xiv, figg. 15 & 15*a*; SAUSSURE & ZEHNTNER, Myriapodes Madagascar, **n. sp.**

Orya voeltzkowi, Nossibé, p. 434, pl. xxxix, figg. 4 & 5; SAUSSURE & ZEHNTNER, Abh. Senckenb. Ges. xxvi: *O.*, p. 339, *voeltzkowi*, p. 340,

pl. xiv, figg. 16 & 16*a*; SAUSSURE & ZEHNTNER, Myriopodes Madagascar, **n. sp.**

Otostigma orientale, var., p. 530, pl. xxxi, figg. 49, 55, 58, 59, 62, *aculeatum*, var., p. 530, pls. xxxi, fig. 38, xxxii, figg. 92, 94, 98; SINCLAIR, P. Zool. Soc. London 1901, ii.

Otostigmus caudatus, p. 37, pl. i, figg. 1–3, *tibialis*, p. 39, pl. i, figg. 4 & 5, Brazil; BRÖLEMANN, Revist. Mus. Paulista v, **n. spp.**

Pachymerium hirsutum, *atticum*, *ferrugineum*, p. 558; VERHOEFF, Zool. Anz. xxv.

P. ferrugineum insulanum, S. Europe, p. 558, *vosseleri*, Jerusalem, p. 559, *helveticum*, Switzerland, p. 559; VERHOEFF, t. c. **n. subspp.**

Pleurostigma, def., p. 442; POCOCK, Quart. J. Micr. Sci. (n. s.) xlv.

Schendyla imperfossa, Brazil, p. 44, pl. i, figg. 8–13; BRÖLEMANN, Revist. Mus. Paulista v: *S.*, p. 331, *grandidieri*, Madagascar, p. 332, pl. xii, figg. 8–8*g*; SAUSSURE & ZEHNTNER, Myriapodes Madagascar: *S. carniolensis*, Adelsberg, p. 91, fig. in text; VERHOEFF, SB. Ges. naturf. Berlin 1902 : **n. spp.**

Scolioplanes magellanicus, p. 3, pl., figg. 1–9; ATTEMS, Myriapodes "Belgica."

Scolopendra, nervous system etc., p. 20, fig. 2; VERHOEFF, Zool. Anz. xxvi: *S. cingulata*, histology of intestine, p. 433, parasitic gregarine (*Pterocephalus*), p. 437, pl. vi; LÉGER & DUBOSCQ, Arch. parasit. vi: *S. subspinipes*, p. 528, pl. xxxii, figg. 66, 72, 75, 76, 99, *hardwickii*, var., p. 529, pl. xxxii, figg. 101 & 102; SINCLAIR, P. Zool. Soc. London 1901, ii: *S.*, p. 301, key to some spp., p. 301, *angulipes*, p. 304, pl. xiv, figg. 13 & 13*a*, *rarispina*, p. 305, pls. iii, figg. 13*d*, 14 & 14*a*, xii, fig. 7, *machaeropus*, p. 310; SAUSSURE & ZEHNTNER, Myriapodes Madagascar.

S. aringensis, Kelantan, p. 529, pls. xxxi, fig. 46, xxxii, figg. 67, 85, 86, 93; SINCLAIR, P. Zool. Soc. London 1901, ii: *S. grandidieri*, Madagascar, Aldabra, p. 302, pls. iii, figg. 13–13*c* (nec 13*d*), xii, figg. 6 & 6*a*, *spinosella*, Madagascar, p. 308, pl. ii, figg. 11 & 11*, *lineata*, Madagascar, p. 308, pl. xv, fig. 19; SAUSSURE & ZEHNTNER, Myriapodes Madagascar : **n. spp.**

Scolopendridæ, p. 300; SAUSSURE & ZEHNTNER, t. c.

Scolopendrinæ (Scolopendriens), p. 301; SAUSSURE & ZEHNTNER, t. c.

Scolopendromorpha, def., p. 443; POCOCK, Quart. J. Micr. Sci. (n. s.) xlv.

Scutigera forceps; MARLATT, Circ. U. S. Dep. Agric. Ent. (2), No. 48: *S.*, p. 292, key to some spp., p. 293, *nossibei*, p. 297, pl. xiv, fig. 18; SAUSSURE & ZEHNTNER, Myriapodes Madagascar.

S. nossibei, Nossibé and Sakatia, p. 429, pl. xxxix, fig. 1, *voeltzkowi*, Zanzibar, p. 430; SAUSSURE & ZEHNTNER, Abh. Senckenb. Ges. xxvi: *S. hova*, Madagascar, p. 294, pls. xiv, fig. 17, xii, fig. 2, *malagassa*, Madagascar, p. 295, pls. xii, figg. 1–1*c*, xiv, fig. 19; SAUSSURE & ZEHNTNER, Myriapodes Madagascar : **n. spp.**

Scutigeridæ, p. 291; SAUSSURE & ZEHNTNER, t. c.

Stigmatogaster subterraneus in alimentary canal of man, p. 250; BLANCHARD, Arch. parasit. vi.

Theatops, key to American species, p. 40, *T. californiensis*, California, p. 41; CHAMBERLIN, P. Ac. Philad. liv, **n. sp.**

SYMPHYLA.

Scolopendrella notacantha, No. 11 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xcvi.

S. pygmæa, No. 12 and plate; SILVESTRI in Berlese, t. c. **n. sp.**

Symphylella **n. g.** no species named, No. 10 and plate; SILVESTRI in Berlese, t. c.

PAUROPODA.

Pauropoda, external characters, p. 330, classification, p. 338, distribution, p. 328; HANSEN, Vid. Medd. 1901: Morphology, affinities, classification; SILVESTRI, Pauropoda.

Allopauropus **n. g.**, *brevisetus*, Italy, p. 66, *furcula*, Italy, p. 66, *minutus*, Italy, p. 66, *productus*, Italy, p. 66; SILVESTRI, Pauropoda, **n. spp.**

A., No. 4, *gracilis*, No. 5 and plate, *vulgaris*, No. 6 and plate, *furcula*, No. 7 and plate, *minutus*, No. 8 and plate, *productus*, No. 9 and plate, *danicus*, No. 10 and plate, *pectinatus*, No. 11 and plate, *brevisetus*, No. 12 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xcv.

Brachypauropodidæ, p. 407; HANSEN, Vid. Medd. 1901.

Brachypauropus, No. 1, *superbus*, No. 2 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xcvi.

B., p. 410, *superbus*, Italy, p. 410, pl. vi, figg. 3*a–h*; HANSEN, Vid. Medd. 1901, **n. sp.**

Eurypauropodidæ sp. ?, p. 413, pl. vi, figg. 4*a–m*; HANSEN, t. c.

Eurypauropus hansenii, No. 2 and plate [*E. lutzelii* on plate], *pocillifer*, No. 4 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xciii.

Euripauropus hansenii, N. Italy, p. 68; SILVESTRI, Pauropoda, **n. sp.**

Hemipauropus [? **n. g.**] in synoptic table of genera, p. 65, not further described, *leptoproctus* mentioned on pp. 72 & 74, not described; SILVESTRI, Pauropoda: *H.*, No. 3, *leptoproctus*, No. 4 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xcvi : **n. sp.**

Pauropodidæ, p. 338, key to genera, p. 341; HANSEN, Vid. Medd. 1901.

Pauropus, No. 1, *huxleyi*, No. 2 and plate, *furcifer*, No. 3 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xcv: *P.*, p. 349, key to spp., p. 350, *huxleyi*, p. 355, pls. i, figg. 3*a–f*, ii, fig. 1*a*; HANSEN, Vid. Medd. 1901.

P. robustus, Chile, p. 360, pl. ii, figg. 2*a–f*, *intermedius*, Chile, p. 362, pl. ii, figg. 3*a–d*, *spectabilis*, Chile, p. 363, pl. ii, figg. 4*a–h*, *spinifer*, Siam, p. 366, pl. ii, figg. 5*a–e*, *armatus*, Siam, p. 368, pls. ii, figg. 6*a–c*, iii, figg. 1*a–c*, *argentinensis*, Argentina, p. 371, pl. iii, figg. 2*a–g*, *inornatus*, Paraguay, p. 374, pl. iii, figg. 3*a–e*, *danicus*, Denmark, p. 376, pl. iii, figg. 4*a–f*, *elegantulus*, Siam, p. 378, pls. iii, figg. 5*a–c*, iv, figg. 1*a–c*, *modestus*, Siam, p. 380, pl. iv, figg. 2*a–d*, *mortensenii*, Siam, p. 382, pls. iv, figg. 6*a* & *b*, v, figg. 1*a–c*, *siamensis*, Siam, p. 386, pl. iv, figg. 3*a–f*, *pectinatus*, S. Italy, p. 388, pl. iv, figg. 4*a–d*, *helveticus*, Lucerne, p. 390, pl. iv, figg. 5*a–e*, *vulgaris*, Denmark, p. 392, pl. iv, figg. 2*a g*, *gracilis*, Italy, etc., p. 395, pl. v, figg. 3*a–f*, *pygmæus*, Argentina, p. 397, pl. v, figg. 4*a–e*, *oculatus*, Siam, p. 399, pl. v, figg. 5*a–f*, *simulans*, Siam, p. 402, pl. vi, figg. 1*a–d*, *claviger*, Siam, p. 404, pl. vi, fig. 2*a–e*; HANSEN, Vid. Medd. 1901: *P. furcifer*, Italy, p. 65; SILVESTRI, Pauropoda : **n. spp.**

Scleropauropus **n. g.**, *hastifer*, Italy, p. 66; SILVESTRI, t. c.: *S.*, No. 8, *hastifer*, No. 9 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xcvi : **n. sp.**

Stylopauropus, No. 5, *pedunculatus*, No. 6 and plate, *pubescens*, No. 7 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xcvi: *S.*, p. 341, key to spp., p. 342, *pedunculatus*, p. 342, pl. i, figg. 1*a–i*; HANSEN, Vid. Medd. 1901.

S. pubescens, Marburg, p. 346, pl. i, figg. 2*a–e*; HANSEN, t. c. **n. sp.**

DIPLOPODA.

†*Acantherpestes*, p. 16, *gigas*, p. 16, pl. 134, figg. 1–7, text-figg. 323 & 324; FRITSCH, Fauna der Gaskohle iv (1).
†*A. vicinus*, p. 18, pl. 135, figg. 1–6, text-figg. 325 & 326, *ornatus*, p. 19, pl. 136, figg. 1–9, text-figg. 327 & 328, *foveolatus*, p. 21, pl. 137, figg. 1–6, text-figg. 329 & 330, Permian, Bohemia; FRITSCH, t. c. **n. spp.**
Aceratophallus **n. g.**, p. 608, *unicolor*, Costa Rica, p. 609, pl. xi, figg. 35 & 36; CARL, Rev. Suisse Zool. x, **n. sp.**
Alloporus, p. 175, *moramangæ*, Madagascar, p. 175, pl. ix, figg. 25–25*r*; SAUSSURE & ZEHNTNER, Myriapodes Madagascar, **n. sp.**
†*Amynilispes*, p. 33, *typicus*, p. 34, pls. 145, figg. 1 & 2, 147, figg. 1–3, text-fig. 340, *crescens*, p. 35, pl. 146, fig. 1, Permian, Bohemia; FRITSCH, Fauna der Gaskohle iv (2), **n. spp.**
Anamastigona, No. 5 and plate, *neapolitanum*, No. 6 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xciii.
†*Anthracojulus* **n. g.** (*Projulidæ*), p. 29, *pictus*, p. 30, pl. 143, figg. 1–8, text-figg. 337 & 338; FRITSCH, Fauna der Gaskohle iv (1).
Antiphonus **n. g.** (*Polydesmidæ*), p. 101, *diploconus*, Port Elizabeth, p. 101, pl. iii, figg. 34 & 35; ATTEMS, Mt. Mus. Hamburg xviii, **n. sp.**
Aporodesmus concolor, p. 667; CARL, Rev. Suisse Zool. x.
†*Archiglomeridæ* **n. fam.** (*Oniscomorpha*), p. 33; FRITSCH, Fauna der Gaskohle iv (2).
†*Archiscudderia* **n. g.** (*Proglomeridæ*), p. 35, *paupera*, p. 35, pl. 147, fig. 4, text-fig. 341, *tapeta*, p. 36, pl. 146, figg. 2 & 3, *coronata*, p. 36, pls. 148, figg. 4 & 5, 149, fig. 3, *regularis*, p. 37, pl. 148, figg. 1–3, (?) *problematica*, p. 37, pl. 151, figg. 1–6, Permian, Bohemia; FRITSCH, t. c. **n. spp.**
Archispirostreptus lobulatus, S. Brazil, p. 115, figg. 6 & 7; ATTEMS, Mt. Mus. Hamburg xviii, **n. sp.**
Atractosoma cecconii, No. 8 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xciii: *A. montivagum* var. *silvaticum*, p. 80, pl. i, fig. 17, *A. helveticum dentatum* **n. subsp.**, p. 83, pl. ii, figg. 27–30; FAES, Rev. Suisse Zool. x.
A. nivale, p. 258; FAES, Zool. Anz. xxv: *A. nivale*, p. 81, pl. ii, figg. 18–23, *valesiacum*, p. 84, pl. ii, figg. 24–26, Valais; FAES, Rev. Suisse Zool. x: **n. spp.**
Blaniulus fimbriatus, p. 95, pl. iii, fig. 42; FAES, t. c.
Bournellum **n. g.** (*Glomeridæ*, *Sphærotherinæ*), p. 20, *obtusum*, p. 21, *retusum*, p. 22, pl. xv, figg. 12 & 12*a*; SAUSSURE & ZEHNTNER, Myriapodes Madagascar.
Brachydesmus latzelii, No. 3 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xciv: *B. superus*, p. 72, pl. i, figg. 8 & 9; FAES, Rev. Suisse Zool. x.
Brachyiulus littoralis, p. 108, pl. iii, figg. 55–57; FAES, t. c.
Brachyurodesmus **n. g.** *parallelus*, descr.; SILVESTRI, Boll. Mus. Torino xvii, No. 432, p. 7.
Callipus cinciguerræ, No. 4 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xciv: *C. fœtidissimus*, p. 187, *spezianus*, **n. var.**, p. 187, *ligurinus*, **n. var.**, p. 187; VERHOEFF, Arch. Naturg. lxviii (1).
Cambala calva var., p. 522, pl. xxxii, fig. 84; SINCLAIR, P. Zool. Soc. London 1901, ii.
Catharosoma paraguayense, descr., p. 2; SILVESTRI, Boll. Mus. Torino xvii, No. 432.
C. peraccæ, Paraguay, p. 3; SILVESTRI, t. c. **n. sp.**
Ceratosoma pectiniger, France, p. 99, figg. lx–lxvi, *peyerimhoffi*, p. 102, figg. lxvi–lxxii; BRÖLEMANN, Feuille Natural. xxxii, **n. spp.**

Charactopygus (apparently **n. subgen.** of *Spirostreptus*), p. 190; SAUSSURE & ZEHNTNER, Myriapodes Madagascar.

Cladostreptus **n. subg.** of *Spirostreptus* (q.v.), p. 166; BRÖLEMANN, Revist. Mus. Paulista v.

Cordyloporus aubryi var. *luteola* **n. var.**, Gold Coast, p. 595; CARL, Rev. Suisse Zool. x.

Craspedosoma mevaniense, No. 9 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xciii: *C. rawlinsii serratum*, p. 86, pl. ii, figg. 31–34; FAES, Rev. Suisse Zool. x.

Craspedosoma Blanci, p. 258; FAES, Zool. Anz. xxv: *C. Blanci*, p. 88, pl. iii, figg. 35–37, *ornatum*, p. 90, pl. iii, figg. 38–40, Valais; FAES, Rev. Suisse Zool. x: **n. spp.**

Cyclodesmus aztecus, p. 678, pl. xii, fig. 109; CARL, Rev. Suisse Zool. x.

Devillea **n. g.** (*Leptodesminæ*), p. 452, *tuberculata*, in caves, Alpes Maritimes, p. 452, text-figg. v–xi; BRÖLEMANN, Ann. Soc. ent. France lxxi, **n. sp.**

Diaporus americanus, p. 15, *D. americanus perproximus* **n. subsp.**, Matto Grosso, p. 16; SILVESTRI, Boll. Mus. Torino xvii, No. 432.

Diploiulus sardous, No. 8 and plate, *siculus*, No. 9 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xciv.

Doratonotus cavernicola, Malay Peninsula, p. 521, pls. xxxi, fig. 54, xxxii, figg. 69–71, 73, 74, 78, 82; SINCLAIR, P. Zool. Soc. London 1901, ii, **n. sp.**

Epanerchodus **n. subgen.** of *Polydesmus* (q. v.), p. 102; ATTEMS, Mt. Mus Hamburg. xviii.

Erythrodesmus **n. g.** (*Chilodesmidæ*) *bocci*, p. 4; SILVESTRI, Boll. Mus. Torino xvii, No. 432.

†*Euphoberia*, p. 22, *varians*, p. 23, pl. 138, figg. 1–7, text-fig. 331, *hystrix*, p. 23, pl. 138, fig. 8, text-figg. 332 & 333, *absens*, p. 25, pl. 135, fig. 9, text-fig. 334, Permian, Bohemia; FRITSCH, Fauna der Gaskohle iv (1), **n. spp.**

Eurydesmus angulatus, p. 93, pl. v, figg. 93–96; BRÖLEMANN, Revist. Mus. Paulista v.

E. makrotrichus, Portuguese Guinea, p. 100; ATTEMS, Mt. Mus. Hamburg xviii, **n. sp.**

Euryurus atratus, Mt. Roraima, p. 65; POCOCK, Tr. Linn. Soc. London (2) viii, **n. sp.**

Euthydesmus **n. g.** (*Chilodesmidæ*) *acicarina*, Matto Grosso, p. 6; SILVESTRI, Boll. Mus. Torino xvii, No. 432, **n. sp.**

Fioria tuberculata, No. 1 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xciii.

Fontaria coarctata circula **n. subsp.**, Central Japan, p. 97, pl. 1, figg. 5–7; ATTEMS, Mt. Mus. Hamburg xviii.

Glomeridæ, p. 1; SAUSSURE & ZEHNTNER, Myriapodes Madagascar.

Glomeris connexa var. *lunato-signata*, No. 10 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xciv: *G. occulto-colorata gallica* **n. var.**, p. 73; BRÖLEMANN, Feuille Natural. xxxii: *G. marginata*, parasitic coccidian in testis; CUÉNOT, Arch. zool. exp. Notes (3) x, p. xlix: *G. connexa*, var. *helvetica* **n. var.**, Valais, p. 64; FAES, Rev. Suisse Zool. x: *G. conspersa*, colour varieties, p. 54, *hexasticha*, p. 59 & subsp., *intermedia*, p. 60, *ornata* var. *helvetica*, p. 62, *connexa* var. *tenebrosa*, p. 66, *marginata*, p. 67, *transalpina*, p. 68, colour variation; FAES, Rev. Suisse Zool. x: *G. tirolensis*, p. 181; VERHOEFF, Arch. Naturg. lxviii (1): *Glomeris conspersa*, key to some subspp., p. 177, subsp., *undulata*, with varr., *pseudoconspersa*, Württemberg, p. 177, *fischeri*, Württemberg, *undulata*, S. Germany, *roettgeni*, S. Tyrol, p. 178, **n. varr.**; VERHOEFF, Arch. Naturg. lxviii (1): *G. transalpina*, key to varr., p. 180, *spinalemontis*, **n. var.**, pp. 180 & 181, var. *intercedens*, p. 181; VERHOEFF, Arch. Naturg. lxviii (1).

G. montivaga, Simplon; FAES, Zool. Anz. xxv, p. 256, and Rev. Suisse Zool. x, p. 69, pl. i, figg. 6 & 7, **n. sp.**

†*Gilomeropsis* **n. g.** (*Sphærherpestidæ*), p. 38, *ovalis*, p. 38, pls. 149, figg. 1, 2, 4–7, 150, fig. 1, text-figg. 343 & 345, *crassa*, p. 40, pl. 150, figg. 2 & 3, *magna*, p. 40, pl. 152, figg. 1–5, text-fig. 344, Permian, Bohemia; FRITSCH, Fauna der Gaskohle iv (2), **n. spp.**

Gymnostreptus **n. subg.** of *Spirostreptus* (q.v.), p. 153; BRÖLEMANN, Revist. Mus. Paulista v.

Heptadesmus **n. g.** (*Oxydesmidæ*) p. 18; COOK, P. ent. Soc. Washington v.

Heteroryge paraguayensis, p. 17; SILVESTRI, Boll. Mus. Torino xvii, No. 432.

Heterozonium pallidum, p. 189; VERHOEFF, Arch. Naturg. lxviii (1).

Hyperothrix, notes, p. 673; CARL, Rev. Suisse Zool. x.

Icosidesmus def. p. 617, key to spp. p. 619, *hochstetteri*, p. 621, pl. xi, figg. 40–45; CARL, Rev. Suisse Zool. x.

I. olivaceus, p. 624, pl. xi, fig. 49, *variegatus*, p. 626, pl. xi, figg. 46–48, *schenkeli*, p. 628, pl. xi, figg. 53 & 54, *suteri*, p. 629, pl. xi, figg. 50–52, *nanus*, p. 631, pl. xi, figg. 55 & 56, all from New Zealand; CARL, Rev. Suisse Zool. x, **n. spp.**

†*Isojulus* **n. g.** (*Projulidæ*), p. 25, *constans*, p. 25, pl. 142, figg. 1–3, text-fig. 335; FRITSCH, Fauna der Gaskohle iv (1).

†*I. setipes*, p. 26, pl. 142, figg. 4–8, *marginatus*, p. 26, pls. 140, figg. 1 & 2, 142, figg. 9, 16, Permian, Bohemia; FRITSCH, Fauna der Gaskohle iv (1), **n. spp.**

Julidæ, copulatory organs, p. 438; SAUSSURE & ZEHNTNER, Abh. Senckenb. Ges. xxvi: *J.*, p. 97, copulatory organs, p. 100, habits, p. 107; SAUSSURE & ZEHNTNER, Myriapodes Madagascar.

Juloidea, classification, p. 106, key to Brazilian spp. p. 114; BRÖLEMANN, Revist. Mus. Paulista v.

Julus generosensis, p. 98, pl. iii, figg. 53 & 54, *odieri*, p. 103, pl. iii, figg. 49–52, *mediterraneus*, p. 109, pl. iii, figg. 46–48; FAES, Rev. Suisse Zool. x: *J. communis*, digestive system; ROSSI, Bull. Soc. ent. Ital. xxiv, p. 1: *J. braueri*, with subsp. *tosanus*, p. 183, *montivagus*, with var. *elucens*, p. 183, *baldensis*, p. 183; VERHOEFF, Arch. Naturg. lxviii (1).

J. zinalensis, Valais, FAES, Zool. Anz. xxv, p. 259 and Rev. Suisse Zool. x, p. 106, pl. iii, figg, 43–45, **n. sp.**

Leiodesmus carcani, Matto Grosso, p. 5, *orlandi*, Matto Grosso, p. 6; SILVESTRI, Boll. Mus. Torino xvii, No. 432, **n. spp.**

Leptodesmus (*Leptodesmus*) *biconicus*, p, 94, pl. ii, fig. 12, (*Rachidomorpha*) *tarascus*, p. 95, pl. ii, figg. 24 & 25; ATTEMS, Mt. Mus. Hamburg xviii: *L.* (*Pseudoleptodesmus*) *rubescens*, p. 89, pl. v, figg. 97–104; BRÖLEMANN, Revist. Mus. Paulista v: *L. deerrans*, copulatory limbs, p. 457, text-figg. xii & xiii; BRÖLEMANN, Ann. Soc. ent. France lxxi: *L. validus*, p. 604, *dilatatus*, p. 604, *contortus*, p. 607, pl. x, figg. 28–31, *L. plataleus granosus* **n. subsp.**, Costa Rica, p. 602, pl. x, fig. 27; CARL, Rev. Suisse Zool. x.

L. p. 88, key to subgg. p. 89, (*Strongylosomides*) *petropolites*, Brazil, p. 90, pls. ii, figg. 13–15, iii, fig. 36, (*Leptodesmus*) *witti*, Ecuador, p. 90, pl. ii, figg. 17 & 18, *virgulatus*, Brazil, p. 91, pl. ii, figg. 19–21, *appendiculatus*, Brazil, p. 92, pl. ii, fig. 16, *hübneri*, S. Venezuela, p. 93, pl. ii, figg. 22 & 23; ATTEMS, Mt. Mus. Hamburg xviii: *L. paulistus*, p. 59, pl. ii, figg. 20–29, *forceps*, p. 61, pl. ii, figg. 30–33, *furcilla*, p. 62, pl. ii, figg. 34–40, *jucundus*, p. 64, pls. ii & iii, fig. 41–44, *bidens*, p. 66, pl. iii, figg. 45–49, *infaustus*, p. 69, *cylindricus*, p. 71, pl. iii, figg. 50–55, *cognatus*, p. 73, pl. iii, figg. 50–60, *volutatus*, p. 75, pl. iii, figg. 61–65, *decipiens*, p. 77, pls. iii & iv, figg. 66–69, *deerrans*, p. 78, pl. iv, figg. 70–74, *lamellosus*, p. 80, pl. iv, figg. 75–79, *verrucula*, p. 83, pl. iv, figg. 80 & 81, *iheringi*, p. 84, pl. iv, figg. 82–89, *ornithopus*, p. 87, pls. iv

& v, figg. 90–92, Brazil; BRÖLEMANN, Revist. Mus. Paulista v: *L. oltramarei*, Guatemala, p. 600, pl. x, figg. 34, *tricolor*, Brazil, p. 605, pl. x, figg. 32 & 33; CARL, Rev. Suisse Zool. x : **n. spp.**

Lophodesmus, notes, p. 669 & 673, *pusillus*, p. 669, pl. xii, figg. 96–98; CARL, Rev. Suisse Zool. x.

Lophoproctus lucidus, p. 195; VERHOEFF, Arch. Naturg. lxviii (1).

†*Macrosterni*, **n. suborder**, p. 15; FRITSCH, Fauna der Gaskohle iv (1).

Mesoiulus berlesei, No. 6 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xciv.

M. siculus (Silvestri MS.), Italy, No. 7; BERLESE, t. c. **n. sp.**

Nanostreptus curiosus, p. 8, *libertinus*, p. 9, *microporus*, p. 10; SILVESTRI, Boll. Mus. Torino xvii, No. 432.

N. mattogrossensis, Matto Grosso, p. 10, *pirayanus*, Misiones, p. 11; SILVESTRI, Boll. Mus. Torino xvii, No. 432, **n. spp.**

Neotrachydesmus meridionalis, No. 5 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xciv.

Odontopeltis macconnelli, Mt. Roraima, p. 64, fig. 1; POCOCK, Tr. Linn. Soc. London (2) viii, **n. sp.**

Ophiulus lostiæ, No. 3 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xciii.

Orbainosoma flavescens setosum, p. 91, pl. iii, fig. 41; FAES, Rev. Suisse Zool. x.

Orthomorpha, [also as subg. of *Polydesmus* q. v.] p. 81; SAUSSURE & ZEHNTNER, Myriapodes Madagascar: *O. gracilis*, p. 100, pl. v, figg. 113 & 114; BRÖLEMANN, Revist. Mus. Paulista v.

O. armata, p. 579, pl. x, figg. 19 & 20, *coriacea*, p. 581, pl. x, fig. 21, *zehntneri*, p. 584, pl. x, fig. 22, *bipulvillata*, p. 586, pl. x, figg. 17 & 18, all from Java; CARL, Rev. Suisse Zool. x, **n. spp.**

Orthoporus heterogona, Paraguay, p. 14; SILVESTRI, Boll. Mus. Torino xvii, No. 432, **n. sp.**

Oxydesmus levipes, Portuguese Guinea, p. 98, pl. i, figg. 9 & 10; ATTEMS, Mt. Mus. Hamburg xviii, **n. sp.**

Pachyurus granosus, p. 638, pl. xii, fig. 76; CARL, Rev. Suisse Zool. x.

P. palicaudatus, Mexico, p. 98, pl. i, fig. 8; ATTEMS, Mt. Mus. Hamburg xviii: *P. convexus*, Costa Rica, p. 633, pl. xi, fig. 57, *heterosculptus*, Guatemala, p. 635, pl. xii, figg. 73–75; CARL, Rev. Suisse Zool. x : **n. spp.**

Paraiulidæ **fam nov.**; BRÖLEMANN, Ann. Soc. ent. France lxxi, p. 446.

Paraiulus, external anatomy, systematic position; BRÖLEMANN, t. c. pp. 440–447, pls. i & ii.

Paraspirobolus **n. g.** (*Spirobolidæ*) *paulistus*, Brazil, p. 184, pl. ix, figg. 223–227; BRÖLEMANN, Revist. Mus. Paulista v, **n. sp.**

Phymatodesmus **n. subg.** of *Polydesmus* (q.v.), p. 94; SAUSSURE & ZEHNTNER, Myriapodes Madagascar.

Platydesmus kelantanicus, Kelantan, p. 508, pl. xxx, figg. 4 & 6–9; SINCLAIR, Zool. Soc. London 1901, ii, **n. sp.**

Platyrrhacus annectens, p. 640, pl. xii, figg. 77, *insularis*, p. 641, *andersoni*, p. 648, pl. xi, figg. 62–64, *javanus*, p. 656, pi. xii, figg. 78 & 79, *areatus*, p. 661; CARL, Rev. Suisse Zool. x: *P. humberti* var., p. 509, pl. xxx, figg. 10–13 & 15, *marginellus*, p. 511, pl. xxx, figg. 14, 17, 18, 20 & 22, *beccarii* var., p. 514, pl. xxxi, figg. 35, 36, 51 & 60, *pfeifferæ*, p. 515, pl. xxxi, figg. 37, 44, 45, 48 & 50, *insularis* var., p. 516, pl. xxxi, figg. 40, 41, 47, 52 & 53, *malaccanus*, p. 517, pl. xxxii, figg. 63–65, 68, 87 & 88; SINCLAIR, P. Zool. Soc. London 1901, ii.

P. areatus, Sumatra, p. 100, pl. i, fig. 11; ATTEMS, Mt. Mus. Hamburg xviii: *P. riparius*, Rio General, p. 641, pl. xii, fig. 83, *cœlebs*, Sumatra, p. 644, pl. xi, figg. 69, 70 & 72, *modestus*, Sumatra, p. 646, pl. xi, fig. 66, *mecheli*, Sumatra, p. 650, pl. xi, figg. 58–61, *bivirgatus*, Costa Rica,

p. 652, pl. xi, fig. 65, *fraternus*, Costa Rica, p. 655, pl. xi, fig. 71, *biolleyi*, Costa Rica, p. 658, pl. xi, figg. 67 & 68, *montivagus*, Costa Rica, p. 662, pl. xii, figg. 84–88, *propinquus*, Costa Rica, p. 665, pl. xii, figg. 80–82; CARL, Rev. Suisse Zool. x: *P. kelantanicus*, Kelantan, p. 512, pl. xxx, figg. 19, 21, 24, 25 & 31, and var., p. 513, pl. xxxi, figg. 32–34, 42 & 56; SINCLAIR, P. Zool. Soc. London 1901, ii: **n. spp.**

†*Pleurojulus* **n. g.** (*Projulidæ*), p. 27, *biornatus*, p. 27, pls. 139, figg. 1–9, 143, fig. 9, *levis*, p. 28, pl. 141, fig. 1–11, *aculeatus*, p. 28, pl. 141, figg. 12–14, *longipes*, p. 140, figg. 3–9, *falcifer*, p. 29, pl. 140, fig. 10, *pinguis*, p. 29, pl. 140, figg. 8 & 9, Permian, Bohemia; FRITSCH, Fauna der Gaskohle iv (1), **n. spp.**

Plusioporus salvadorii, p. 12, *cameranii*, p. 13; SILVESTRI, Boll. Mus. Torino xvii, No. 432.

P. gigliotosi, Matto Grosso, p. 13; SILVESTRI, t. c. **n. sp.**

Polydesmidæ, classification, p. 48, key to Brazilian spp., p. 55; BRÖLEMANN, Revist. Mus. Paulista v: *P.*, p. 78; SAUSSURE & ZEHNTNER, Myriapodes Madagascar.

Polydesminæ (Polydesmiens), p. 80; SAUSSURE & ZEHNTNER, t. c.

Polydesmus dispar, No. 1 and plate, *pulcher*, No. 2 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xciv: *P. complanatus*, form *angusta*, in alimentary canal of man, p. 252; BLANCHARD, Arch. parasit. vi: *P. helveticus*, p. 74, pl. i, fig. 10; *subinteger*, p. 75, pl. i, fig. 14, *coriaceus*, p. 75, pl. i, figg. 15 & 16, *subulifer*, p. 76, pl. i, fig. 13, *germanicus*, p. 77, pl. i, fig. 11; FAES, Rev. Suisse Zool. x: *P.* (*Orthomorpha*) *coarctatus*, p. 82, pl. xiv, figg. 21 & 21*a*, *gracilis*, p. 84, pls. i, figg. 3–3*b*, vi, figg. 1 & 1*a*, (*Tubercularium*) *odontopeznm*, p. 89, *hova*, p. 91, pl. v, figg. 23–23*e*, *sakalava*, p. 93, pl. xiv, figg. 20–20*b*; SAUSSURE & ZEHNTNER, Myriapodes Madagascar.

P. fissilobus, p. 186, pl. ix, fig. 6, *albanensis* **n. subsp.**, p. 187, pl. ix, fig. 4, subsp. *asthenestatus*, p. 187, pl. ix, fig. 5; VERHOEFF, Arch. Naturg. lxviii (1).

P. (*Epanerchodus*) *tambanus*, p. 103, pl. iii, figg. 26–29, *mammillatus*, p. 104, pl. iii, figg. 32 & 33, *orientalis*, p. 105, pl. iii, figg. 30 & 31, all from Central Japan; ATTEMS, Mt. Mus. Hamburg xviii: *P. mistrei*, in caves, S. E. France, p. 448, text-figg. i–iv; BRÖLEMANN, Ann. Soc. ent. France lxxi: *P. bedeli*, Spain, p. 13, fig.; BRÖLEMANN, Bull. Soc. ent. France 1902: *P. americanus*, Texas, p. 611, pl. xi, fig. 37, *japonicus*, Japan, p. 614, pl. xi, figg. 38 & 39; CARL, Rev. Suisse Zool. x: *P. dufouri*, Valais; FAES, Zool. Anz. xxv, p. 257, and Rev. Suisse Zool. x, p. 78, pl. i, fig. 12: *P.* (*Pterodesmus*) [= *Tubercularium*] *hova*, Nossibé, p. 436; *sakalava**, Nossibé, p. 437, pl. xxxix, figg. 8–10; SAUSSURE & ZEHNTNER, Abh. Senckenb. Ges. xxvi: *P.* (*Phymatodesmus*) *sakalava**, Madagascar, p. 95, pl. v, figg. 22; SAUSSURE & ZEHNTNER, Myriapodes Madagascar: **n. spp.**

Polyzonium, p. 284, *malagassum*, Madagascar, p. 285, pl. vi, figg. 2–2*d*; SAUSSURE & ZEHNTNER, t. c. **n. sp.**

Poratia, notes, p. 673, *heterotuberculata*, Java, p. 667, pl. xii, fig. 99; CARL, Rev. Suisse Zool. x, **n. sp.**

Prionosoma murorum (Silvestri MS.), Portici, No. 7 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xciii, **n. sp.**

†*Proglomeridæ* **n. fam.** (*Oniscomorpha*), p. 35; FRITSCH, Fauna der Gaskohle iv (2).

†*Projulidæ* **n. fam.**, p. 25; FRITSCH, op. cit. (1).

Pseudocraspedosoma nemorense, No. 10 and plate; BERLESE, Acari, Myriopoda et Scorpiones, Fasc. xciii.

---

* This specific name is employed twice in different subgenera within the same genus.

Pseudoleptodesmus **n. subg.** of *Leptodesmus* (q.v.), p. 88; BRÖLEMANN, Revist. Mus. Paulista v.

Pseudonannolene longicornis var. *sebastianus* **n. var.**, p. 126, pl. vi, figg. 128–133; BRÖLEMANN, t. c.: *P. typica*, p. 18, *segmentata*, p. 19, *borellii*, p. 22, *pusilla*, p. 23, *bovei*, p. 24, descr.; SILVESTRI, Boll. Mus. Torino xvii, No. 432.

P., p. 120, *tricolor*, p. 122, pl. vi, figg. 134–141, var. *gracilis* **var. nov.**, p. 125, *paulista*, p. 129, pl. vi, figg. 142–147, *callipyge*, p. 131, pl. vii, figg. 154–159, Brazil, *scalaris*, p. 133, pls. vi & vii, figg. 148–153, *patagonica*, p. 135, pl. vi, figg. 160–165, Argentina; BRÖLEMANN, Revist. Mus. Paulista v: *P. centralis*, p. 19, *brevis*, p. 20, *abbreviata*, p. 20, *rocana*, p. 21, *auguralis*, p. 21, *meridionalis*, p. 22, *parvula*, p. 24, from Matto Grosso and Paraguay; SILVESTRI, Boll. Mus. Torino xvii, No. 432 : **n. spp.**

Pseudopolydesmus, note, p. 613; CARL, Rev. Suisse Zool. x.

Pseudoprionopeltis **n. g.** (*Polydesmidæ*), p. 595, *cinereus*, New Zealand, p. 597, pl. x, figg. 23–26, *martini*, Melbourne, p. 599, pl. xii, figg. 86–95; CARL, t. c. **n. spp.**

Pterodesmus **n. subg.** of *Polydesmus* (q.v.); SAUSSURE & ZEHNTNER, Abh. Senckenb. Ges. xxvi, p. 436: = *Tubercularium* Attems; SAUSSURE & ZEHNTNER, Myriapodes Madagascar, p. 88.

Pygodon **n. g.** (tribe *Spirobolii*, family *Julidæ* [but afterwards apparently regarded as a subg. of *Spirobolus*, q.v.]), p. 446, *dorso-vittatum*, Nossibé, p. 446, pl. xxxix, figg. 28–32; SAUSSURE & ZEHNTNER, Abh. Senckenb. Ges. xxvi, **n. sp.**

Rachidomorpha brasiliæ, p. 95, pl. v, figg. 105–110, (?) *bicolor*, p. 98, pl. v, figg. 111–112, Brazil; BRÖLEMANN, Revist. Mus. Paulista v, **n. spp.**

Rhinocricus nattereri, p. 191, pls. ix & x, figg. 238–242, var. *varians* **n. var.**, p. 193, pl. x, figg. 243 & 244; BRÖLEMANN, t. c.

R. pugio, p. 194, pl. x, figg. 245–251, var. *ochrurus* **n. var.**, p. 197, *concinnus*, p. 198, pl. x, figg. 252–254, *moestus*, p. 200, pl. x, figg. 255–261, *sericiventris*, p. 202, pl. x, figg. 262–266, *limbatus*, p. 205, pl. x, figg. 267–271, Brazil; BRÖLEMANN, t. c.: *R.*, p. 118, *collaris*, p. 119, pl. xi, figg. 45–45*c*; SAUSSURE & ZEHNTNER, Myriapodes Madagascar : **n. spp.**

Sandalodesmus **n. g.**, *bertonii*, Paraguay, p. 4; SILVESTRI, Boll. Mus. Torino xvii, No. 432, **n. sp.**

Scaphiostreptus **n. subg.** of *Spirostreptus* (q.v.), p. 150; BRÖLEMANN, Revist. Mus. Paulista v.

Siphonophora longirostris, p. 508, pl. xxx, figg. 1–3 & 5; SINCLAIR, P. Zool. Soc. London 1901, ii.

†*Sphærherpestidæ* **n. fam.** (*Oniscomorpha*), p. 38; FRITSCH, Fauna der Gaskohle iv (2).

Sphæriodesmus, g. notes, p. 674, *mexicanus*, p. 675, pl. xii, figg. 102–104, *saussurei*, p. 677, pl. xii, figg. 100 & 101; CARL, Rev. Suisse Zool. x.

S. medius, Guatemala, p. 675, pl. xii, figg. 105 & 106, *neglectus*, Mexico, p. 676, pl. xii, figg. 107 & 108; CARL, t. c. **n. spp.**

Sphæropœus modigliani, p. 527, *extinctus*, p. 527, pl. xxxii, fig. 77; SINCLAIR, P. Zool. Soc. London 1901, ii.

S. evansi [locality ?], p. 526, pls. xxxi, fig. 57, xxxii, figg. 79, 80, 83 & 91; SINCLAIR, t. c. **n. sp.**

Sphærotherinæ (Sphærothériens), p. 2, copulatory appendages, p. 4, copulation, p. 8, stridulating organs, p. 11, key to some genera, p. 19; SAUSSURE & ZEHNTNER, Myriapodes Madagascar.

Sphærotherium, p. 22, key to spp., p. 24, *glabrum*, p. 34, pl. iv, fig. 3, *lamprinum*, p. 39, pl. v, figg. 17–17*b*, *actæon*, p. 40, pls. i, figg. 1–1*b*, v, fig. 12, xv, fig. 11, *hippocastanum*, p. 46, pl. v, fig. 15, *elegans*, p. 48, *immane*, p. 48, pl. v, fig. 13, *latum*, p. 49, pl. v, fig. 14, *voeltzkowianum*,

p. 52, pls. v, fig. 21, xiv, figg. 8 & 8*a*, xv, figg. 3 & 3*a*, *stigmaticum*, p. 67, pl. v, fig. 18, *neptunus*, p. 67, *crassum*, p. 68, *reticulatum*, p. 68, *testaceum*, p. 69; SAUSSURE & ZEHNTNER, t. c.

S. voeltzkowianum, Nossibé, p. 435, pls. xxxix, figg. 6 & 7, xl, fig. 36; SAUSSURE & ZEHNTNER, Abh. Senckenb. Ges. xxvi: *S. campanulatum*, p. 28, pl. iv, figg. 6–6*b*, *anale*, p. 30, pl. iv, fig. 4, *pygidiale*, p. 32, pls. v, figg. 8–8*d*, xiv, figg. 22–22*c*, *globulus*, p. 34, *piligerum*, p. 36, pls. v, figg. 19 & 19*a*, xv, figg. 4–4*b*, *coquerelianum*, p. 42, pls. i, figg. 1*c*, 2–2*c*, v, fig. 11, xv, fig. 1, *fraternum* (non *S. fraternum* Butler, 1872), p. 50, pl. v, fig. 10, *platylabum*, p. 54, pls. v, fig. 9, xv, fig. 5, *digitale*, p. 55, pl. v, fig. 16, *anomalum*, p. 56, pl. xv, figg. 7–7*e*, *alluaudi*, p. 58, pl. xv, figg. 8–8*d*, *imbecillum*, p. 60, pl. v, fig. 20, *priapus*, p. 61, pl. iv, figg. 5–5*d*, *blandum*, p. 63, pl. xv, figg. 9–9*b*, 10–10*c*, *stridulator*, p. 66, pl. xv, figg. 6–6*c*, *libidinosum*, p. 69, pls. iv, figg. 2–2*i*, xv, fig. 2, all from Madagascar; SAUSSURE & ZEHNTNER, Myriapodes Madagascar: **n. spp.**

Spirobolii (tribe of *Julidæ*), def. and key to some gg., p. 441; SAUSSURE & ZEHNTNER, Abh. Senckenb. Ges. xxvi.

Spiroboliné (Spiroboliens), p. 109, key to some genera and subgenera, p. 113; SAUSSURE & ZEHNTNER, Myriapodes Madagascar.

Spirobolus, p. 115, key to spp., p. 115, *S.* (*Trigoniulus*) *urophorus*, p. 126, pl. viii, figg. 24–24*b*, *goesi*, p. 130, pl. xiii, figg. 3 & 3*a*, *bivirgatus*, p. 133, pl. i, figg. 4–4*d*, *erythrocephalus*, p. 140, *S.* (*Spirostrophus*) *naresi*, p. 151, pls. ii, figg. 6 & 6*e*, x, figg. 34 & 34*b*, xiii, fig. 2, *S.* (*Spiromimus*) *univirgatus*, p. 160, pls. xi, figg. 47–47*c*, xiii, figg. 4–4*g*, *voeltzkowi*, p. 164, pl. xiii, figg. 5–5*g*, *S.* (*Pygodon*) *dorsovittatum*, p. 167, pl. xiii, figg. 7–7*l*; SAUSSURE & ZEHNTNER, Myriapodes Madagascar.

S. dorso-punctatus, Nossibé, p. 441, pl. xxxix, figg. 12 & 13; SAUSSURE & ZEHNTNER, Abh. Senckenb. Ges. xxvi: *S.* (*Spiromanes*) *seychellarum*, Seychelle Is., p. 122, pl. x, figg. 36–36*p*, *praslinus*, Seychelle Is., p. 124, pl. x, figg. 37 & 37*a*, *S.* (*Trigoniulus*) *sikoræ*, Madagascar, p. 136, pl. x, figg. 35 & 35*a*, *sakalava*, Madagascar, p. 138, pls. xi, figg. 46 & 468, xiii, figg. 1–1*b*, *grandidieri*, Madagascar, p. 141, pls. ii, figg. 5 & 5*f*, ix, figg. 33 & 33*p*, *corallipes*, Madagascar, p. 143, pl. xv, figg. 13, 13*a* & 13*t*, *hova*, Madagascar, p. 146, pl. xi, figg. 44 & 44*i*, *S.* (*Spirostrophus*) *rubripes*, Madagascar, p. 154, pls. xi, figg. 48–48*c*, xiii, figg. 6–6*c*; SAUSSURE & ZEHNTNER, Myriapodes Madagascar: **n. spp.**

Spiromanes **n. subg.** of *Spirobolus* (q.v.), p. 122; SAUSSURE & ZEHNTER, t. c.

Spiromimus **n. g.** (tribe *Spirobolii*, fam. *Julidæ* [but afterwards apparently regarded as subg. of *Spirobolus*, q.v.]), p. 443, *univirgatus*, Nossibé, p. 444, pls. xxxix, figg. 16–19, xl, figg. 56–58, *voeltzkowi*, Nossibé and Sakatia, p. 445, pl. xxxix, figg. 20–26; SAUSSURE & ZEHNTNER, Abh. Senckenb. Ges. xxvi, **n. spp.**

Sphæromimus **n. g.** (*Glomeridæ*, *Sphærotherinæ*), p. 74, *musicus*, p. 75, pl. iv, figg. 1–1*e*, Madagascar; SAUSSURE & ZEHNTNER, Myriapodes Madagascar, **n. sp.**

Spirostreptidæ, p. 137; BRÖLEMANN, Revist. Mus. Paulista v.

Spirostreptii (tribe of *Julidæ*), p. 447; SAUSSURE & ZEHNTNER, Abh. Senckenb. Ges. xxvi.

Spirostreptinæ (Spirostreptiens), p. 171, key to some genera, p. 175; SAUSSURE & ZEHNTNER, Myriapodes Madagascar.

Spirostreptus, p. 140, (*Scaphiostreptus*) *fuscipes*, p. 150, pl. viii, figg. 199–203, (*Gymnostreptus*) *centralis*, p. 157, pl. viii, figg. 186–190, (*Cladostreptus*) *patruelis*, p. 167; BRÖLEMANN, Revist. Mus. Paulista v: *S.*, p. 183, key to subgg. and spp., p. 185, *madagascariensis*, p. 194, pl. vi, figg. 5 & 5*a*, *seychellarum*, p. 206, pl. viii, figg. 21–21*c*, *fangaroka*,

p. 208, pl. xiv, figg. 10 & 10*a*, *coriaceus*, p. 215, pl. xiv, figg. 11–11*b*, *xanthopus*, p. 217, *fulgens*, p. 222, pls. x, figg. 40 & 40*a*, xv, fig. 14, *convolutus*, p. 246, pls. ii, figg. 9–9*e*, vi, figg. 3–3*q*, *sepia*, p. 258, pls. iv, fig. 7, vii, figg. 11–11*l*, *betsilea*, p. 261, pl. x, figg. 43–43*l*, *sakalava*, p. 263, pl. ix, figg. 28–28*b*, *vermiculus*, p. 265, pl. ix, figg. 26–26*l*, *antimena*, p. 277, pl. xiv, figg. 9–9*b*; SAUSSURE & ZEHNTNER, Myriapodes Madagascar: *S. vittatus*, p. 525, pl. xxx, figg. 27 & 28; SINCLAIR, P. Zool. Soc. London 1901, ii.

S. (*Alloporus*) *princeps*, p. 143, pl. vii, figg. 166–169, *setiger*, p. 146, pl. vii, figg. 170–178, (*Gymnostreptus*) *perfidus*, p. 153, pl. viii, figg. 183–185, *iheringi*, p. 160, pl. viii, figg. 191–194, *subsericeus*, p. 163, pl. viii, figg. 195–198, var. *nitidior* **n. var.**, p. 165, (*Cladostreptus*) *sebastianus*, p. 166, pl. viii, figg. 209–211, *perlucens*, p. 168, pl. ix, figg. 212–215, var. *levior* **n. var.**, p. 171, *interruptus*, p. 171, pl. viii, figg. 205–208, *semicinctus*, p. 173, pl. ix, figg. 217–220, *filum*, p. 175, pl. ix, figg. 221 & 222, *dorsostriatus*, p. 177, pl. viii, fig. 204, *angustifrons*, p. 178, *flavofasciatus*, p. 180, pl. vii, figg. 179–182, Brazil; BRÖLEMANN, Revist. Mus. Paulista v: *S.*, key to some spp., p. 448, *fulgens*, Madagascar, p. 449, pl. xl, fig 37, *coriaceus*, Nossibé, p. 450, pl. xxxix, fig. 34, *xanthopus*, Madagascar, p. 450, *convolutus*, Madagascar, p. 451, pl. xl, figg. 38–42, *fangaroka*, Nossibé, p. 452, pl. xxxix, fig. 35, *antimena*, Nossibé and Sakatia, p. 453, pl. xxxix, fig. 33, *hova*, Madagascar and Nossibé, p. 454, pl. xl, figg. 43–46, *betsilea*, Madagascar, p. 455, pl. xl, figg. 47–49, *sakalava*, Madagascar, p. 456, pl. xl, figg. 50–52, *vermiculus*, Madagascar, p. 452, pl. xl, figg. 53–55; SAUSSURE & ZEHNTNER, Abh. Senckenb. Ges. xxvi: *S. bivalvis*, Madagascar, p. 192, pl. vii, figg. 17, 17*a* & 17*l*, *sulcicollis*, Madagascar, p. 196, pls. ii, figg. 8 & 8*a*, vii, figg. 18–18*l*, *scabricollis*, Madagascar, p. 199, pl. viii, figg. 23–23*b*, *sculptus*, Madagascar, p. 201, pl. vii, figg. 10–10*l*, *spinipes*, Madagascar, p. 205, pl. ix, figg. 30 & 30*a*, *nigritus*, Madagascar, p. 210, pl. vi, figg. 6 6*p*, *phthisicus*, Madagascar, p. 213, pl. xv, figg. 16 & 16*a*, *micromelas*, Madagascar, p. 218, pl. ix, figg. 29 & 29*a*, *macilentus*, Mauritius, p. 220, pl. vi, figg. 4–4*p*, *metazonalis*, Madagascar, p. 224, pl. xv, figg. 17 & 17*a*, *globiclunis*, Madagascar, p. 227, pl. vii, figg. 13–13*l*, *dauphini*, Madagascar, p. 228, pl. xv, figg. 15 & 15*a*, *prozonalis*, Madagascar, p. 231, *grandidieri*, Madagascar, p. 232, pl. x, figg. 41–41*l*, *pictus*, Madagascar, p. 234, pl. viii, figg. 20–20*l*, *versicolor*, Madagascar, p. 236, pls. vii, figg. 15–15*l*, 16 & 16*a*, viii, figg. 19–19*c*, *leprosus*, Madagascar, p. 239, pl. vii, figg. 14–14*l*, *colossus*, Madagascar, p. 240, pls. vii, figg. 9–9*l*, x, fig. 39, *ambulator*, Madagascar and Mauritius, p. 243, pls. vii, figg. 8–8*l*, ix, fig. 31, *madecassus*, Madagascar and Seychelle Is., p. 252, pls. iii, figg. 12–120, vi, fig. 12*l*, *cœlebs*, Madagascar, p. 255, pls. ii, figg. 7 & 7*a*, ix, figg. 27 & 27*a*, *labialis*, Nossibé, p. 268, pl. x, fig. 42, *rudamæ*, Madagascar, p. 269, pl. ix, figg. 32 & 32*a*, *tricolor*, Madagascar, p. 272, *betaminena*, Madagascar, p. 274, pl. x, figg. 38*a*–38*l*, *exaratus*, Madagascar, p. 279, pl. xv, fig. 18; SAUSSURE & ZEHNTNER, Myriapodes Madagascar: *S. rubripes*, Kelantan, p. 523, pl. xxx, figg. 29 & 30, *dorso-lineatus* [Loc. ?], p. 523, pl. xxx, fig. 26; SINCLAIR, P. Zool. Soc. London 1901, ii : **n. spp.**

Spirostrophus **n. subg.** of *Spirobolus* (q.v.), p. 150; SAUSSURE & ZEHNTNER, Myriapodes Madagascar.

Stenauchenia **n. g.** (*Polydesmidæ*) *braunsi*, Port Elizabeth, p. 96; ATTEMS, Mt. Mus. Hamburg xviii, **n. sp.**

Strongylosoma subalbum, p. 566, pl. x, fig. 12, *pseudomorphum*, p. 569, pl. x, fig. 11, *patrioticum* var. *unicolor* **n. var.**, Sumatra, p. 575; CARL, Rev. Suisse Zool. x: *S. nodulosum* var., p. 518, pl. xxxii, fig. 89, *fuscocollaris*, p. 519, pls. xxx, fig. 23, xxxii, fig. 81; SINCLAIR, P. Zool. Soc. London 1901, ii.

S. erhardti, Bissao, Portuguese Guinea, p. 86, pl. i, figg. 1 & 2, *tambanum*, Central Japan, p. 86, pl. i, figg. 3 & 4, *punctatum*, Port Elizabeth, p. 87; ATTEMS, Mt. Mus. Hamburg xviii: *S. apex-galeæ*, p. 101, pl. vi, figg. 115–124, *nitidum*, p. 105, pl. vi, figg. 125–127; BRÖLEMANN, Revist. Mus. Paulista v: *S. intermedium*, Rio Grande do Sul, p. 564, pl. x, figg. 8–10, *nigrovirgatum*, Melbourne, p. 567, pl. x, figg. 1 & 2, *albicans*, Sumatra, p. 570, pl. x, figg. 3 & 4, *naviculare*, Sumatra, p. 573, pl. x, figg. 5–7; CARL, Rev. Suisse Zool. x: *S. sansibaricum*, Zanzibar, p. 437, pl. xxxix, fig. 11; SAUSSURE & ZEHNTNER, Abh. Senckenb. Ges. xxvi: *S. bipunctatum*, Malay Peninsula, p. 519, pls. xxx, fig. 16, xxxi, figg. 43 & 61, xxxii, figg. 90 & 95, *skeatii*, Patalung, p. 520, pls. xxxi, fig. 39, xxxii, figg. 96, 97 & 100; SINCLAIR, P. Zool. Soc. London 1901, ii: *S.* (*Tetrarthrosoma*) *cyprium*, Cyprus, p. 197, pl. ix, fig. 7; VERHOEFF, Arch. Naturg. lxviii (1): **n. spp.**

Strongylosominæ (Stronglosomites), p. 80; SAUSSURE & ZEHNTNER, Myriapodes Madagascar.

Sulciferinæ (Sulciférites), p. 87; SAUSSURE & ZEHNTNER, t. c.

Sulciferus (*Prionopeltis*) *humberti*, Ceylon, p. 590, *bicolor*, New Zealand, p. 594; CARL, Rev. Suisse Zool. x, **n. spp.**

Tectoporus **n. g.**, p. 576, *gracilipes*, Java, p. 577, pl. x, figg. 13–16; CARL, t. c. **n. sp.**

Thyropygus weberi var., p. 523; SINCLAIR, P. Zool. Soc. London 1901, ii.

T., p. 178, *vagabundus*, Madagascar and Sumatra, p. 179, pls. vii, figg. 7 & 7*a*, viii, fig. 22; SAUSSURE & ZEHNTNER, Myriapodes Madagascar, **n. sp.**

Trimerophorella **n. g.** (subfam. *Neoatractosominæ*, tribe *Trimerophorini*), p. 175, *nivicomes*, Tyrol, p. 176, pl. ix, figg. 1–3; VERHOEFF, Arch. Naturg. lxviii (1), **n. sp.**

Tubercularium [see also *Pterodesmus*], p. 88; SAUSSURE & ZEHNTNER, Myriapodes Madagascar.

Typhloblaniulus mayeti, France, p. 98, figg. lvi–lix; BRÖLEMANN, Feuille Natural. xxxii, **n. sp.**

Uroblaniulus **n. g.** (*Julidæ*), p. 113, *megalodus*, Vermont, U.S., p. 114, figg. 1–5; ATTEMS, Mt. Mus. Hamburg xviii, **n. sp.**

Urodesmus, notes, p. 673; CARL, Rev. Suisse Zool. x.

Urostreptus borellii, descr., p. 14; SILVESTRI, Boll. Mus. Torino xvii, No. 432.

†*Xylobius costulatus*, p. 31, pl. 144, figg. 4 & 5; FRITSCH, Fauna der Gaskohle iv (1).

†*X. Pštrossi*, p. 31, pl. 144, figg. 6–8, *sellatus*, p. 32, pl. 140, fig. 11, *tabulatus*, p. 32, pl. 144, figg. 9–12, Permian, Bohemia; FRITSCH, Fauna der Gaskohle iv (1), **n. spp.**

INCERTÆ SEDIS.

†*Hemiphoberia* **n. g.**, p. 40, *alternans*, p. 41, pl. 145, figg. 6–8, Permian, Bohemia; FRITSCH, Fauna der Gaskohle iv (2), **n. sp.**

†*Heterovorhoeffia* **n. g.**, p. 42, *crassa*, p. 42, pl. 145, figg. 3–5, Permian, Bohemia; FRITSCH, t. c. **n. sp.**

†*Purkynia* **n. g.**, p. 41, *lata*, p. 41, pl. 144, figg. 1–3, text-fig. 346, Permian, Bohemia; FRITSCH, t. c. **n. sp.**

†*Sandtneria* **n. g.**, p. 42, *gemmata*, p. 42, pl. 138, figg. 9 & 10, Permian, Bohemia; FRITSCH, t. c. **n. sp.**

PROTOTRACHEATA. (ONYCHOPHORA.)

I. TITLES.

1. Bouvier, E. L. Observations nouvelles sur l'évolution et l'origine des Péripates. C.R. Ac. Sci. cxxxiv, pp. 55–58.
Abstracts: Zool. Jahresber. 1902, Arthrop. p. 36; J. R. Micr. Soc. 1902, p. 306.

2. ——. Sur le développement des Péripatidés de l'Afrique australe. C.R. Ac. Sci. cxxxv, pp. 1033–1036.

3. ——. Sur l'organisation du *Peripatoides orientalis* Fletcher (*P. leuckarti* de la plupart des auteurs). C.R. Soc. Biol. liv, pp. 1033 & 1034.

4. ——. Mœurs des Péripates. Bull. Soc. ent. France 1902, p. 110.

5. ——. Sur les organes sexuels des *Peripatus*. T. c. pp. 160 & 161.

6. ——. Un Péripate de Costa Rica. T. c. pp. 239 & 240.

7. ——. *Peripatus biolleyi*, Onychophore nouveau de Costa Rica. T. c. pp. 258 & 259.

8. ——. Sur l'organisation, le développement et les affinités du *Peripatopsis blainvillei* Gay-Gervais. (Fauna Chilensis, L. Plate, ii, 3tes Heft.) Zool. Jahrb. Supplement v, Band ii, 3tes Heft, pp. 675–730, pls. xx–xxii, 3 figg. in text.
Abstract, Zool. Jahresber. 1902, Arthrop. p. 36.

9. ——. Le *Peripatus ecuadorensis*. Bull. Soc. Philom. (9) iv, pp. 53–62, 4 figg.

10. Dendy, Arthur. On the oviparous species of *Onychophora*. Quart. J. Micr. Sci (n. s.) xlv, pp. 363–415, pls. xix–xxii.
Abstracts: J. R. Micr. Soc. 1902, p. 306; Zool. Jahresber. 1902, Arthrop. p. 35.

11. Giesbrecht, W. & Mayer, P. Arthropoda. Zool. Jahresber. 1902, 72 pp.
Prototracheata, pp. 35 & 36.

12. Lankester, E. Ray. Arthropoda. Encycl. Brit. xxv, pp. 689–701, 11 figg.

13. Lucas, Robert. Bericht über.....*Protracheata* (for 1898). Arch. Naturg. lxv (2), pp. 1001–1003.

Mayer, P. [See Giesbrecht & Mayer (11).]

14. Schneider, Karl Camillo. Lehrbuch der vergleichenden Histologie der Tiere, pp. xiv+988, 691 figg. in text, Jena, 1902.
Prototracheata, pp. 443–457.

15. Sedgwick, A. *Peripatus*. Encycl. Brit. xxxi, pp. 608–613, 12 figg.

16. Willey, Arthur. Contribution to the Natural History of the Pearly Nautilus. i. Personal narrative: in Zool. Results based on material collected in New Britain, New Guinea, Loyalty Islands and elsewhere. Part vi. Cambridge, 1902.
Peripatus, pp. 703–706.

II. SUBJECT-INDEX.

Anatomy of *Peripatopsis*, external characters, colouration, internal anatomy esp. reproductive system, development, affinities; BOUVIER (8): Anatomy of *Peripatoides orientalis*; BOUVIER (3): Sexual organs of *Peripatus*; BOUVIER (5).

Anatomy, development and phylogeny of *Ooperipatus*; DENDY (10).

Development of *Peripatopsis sedgwicki* and *P. moseleyi*; BOUVIER (2).

Notes on development of *Prototracheata*, "blastodermic vesicle" of *Paraperipatus* compared with *Hemimerus* (*Insecta*); WILLEY (16).

Histology of *Prototracheata*; SCHNEIDER (14).

Cannibalism of *Peripatus orientalis*; BOUVIER (4).

Relationships of *Prototracheata*; LANKESTER (12).

Phylogeny of *Peripatus*, on evidence of position of renal aperture; BOUVIER (1).

Review of literature for 1898; LUCAS (13): for 1902; GIESBRECHT & MAYER (11).

Summary of recent work; SEDGWICK (15).

III. DISTRIBUTION.

Costa Rica: *Peripatus*, n. var.; BOUVIER (6): *Peripatus*, n. sp.; BOUVIER (7).

Ecuador, *Peripatus* n. sp.; BOUVIER (9).

Corral, Chili, *Peripatopsis blainvillei*; BOUVIER (8).

Australia and New Zealand, *Ooperipatus*; DENDY (10).

IV. SYSTEMATIC INDEX.

Classification of *Onychophora*, tabular statement of characters of genera, p. 718; BOUVIER, Zool. Jahrb. Suppl. v, Bd. ii.

Ooperipatus, diagnosis, p. 368, external characters, p. 369, internal anatomy, p. 372, eggs and development, p. 375, distribution and œcology, p. 386, phylogeny, p. 387: *O. oviparus*, p. 393, pls. xix, fig. 1, xx, xxi, *viridimaculatus*, p. 399, pls. xix, fig. 2, xxii, figg. 27–33, *insignis*, p. 403, pls. xix, fig. 3, xxii, figg. 34 & 35; DENDY, Quart. J. Micr. Sci. (n. s.) xlv.

Paraperipatus novæ-britanniæ, notes on development &c.; WILLEY, Zool. Results, Pt. VI, pp. 703–706.

Peripatoides orientalis, anatomy; BOUVIER, C.R. Soc. Biol. liv, pp. 1033–1034.

Peripatopsis blainvillei, anatomy &c.; BOUVIER, Zool. Jahrb. Suppl. v, Bd. ii, p. 675: *P. sedgwicki* and *P. moseleyi*, development; BOUVIER, C.R. Ac. Sci. cxxxv, pp. 1033–1036.

Peripatus orientalis, cannibalism p. 110, *P. nicaraguensis*, var. *isthmicola* **n. var.**, Costa Rica, p. 239, BOUVIER, Bull. Soc. ent. France, 1902: *P. capensis*, histology; SCHNEIDER, Lehrb. vergl. Histologie, p. 443.

Peripatus ecuadorensis, Bulim, N. W. Ecuador; BOUVIER, C.R. Ac. Sci. cxxxiv, p. 56 and Bull. Soc. Philom. (9) iv, p. 53, figg. 1–4: *P. biolleyi*, Costa Rica, p. 258; BOUVIER, Bull. Soc. ent. France 1902: **n. spp.**

XIII. INSECTA.

By D. Sharp.

CONTENTS.

	Page
Introduction	3
I. Titles	5
II. Biology: Subject-Index.	
Anatomy and Physiology	80
Habits, Instinct, Senses	83
Development	85
General Subjects:—	
Variation & Teratology	86
Hybrids	87
Colour	87
Protection	87
Resemblance	87
Phylogeny, Organogeny, Evolution, Heredity	88
Galls	88
Insects & Flowers & Plants	88
Collections, Preservation, Museums, Nomenclature	88
Bibliography	89
Biography	89
Obituary Notices	89
Economic Entomology	90
Faunistic:—	
General	93
1. Arctic & Antarctic	93
2. Insular, incl. N. Zealand	93
Biology—*continued.*	
3. Palæarctic region (a. collective)	94
b. Europe (collective)	94
c. British Islands	95
d. North Europe, Siberia	98
e. Centr. & East. Europe	98
f. France	99
g. South. Europe and Mediterranean	100
h. Caucasus & West & Central Asia	101
4. Africa	101
5. Madagascar, etc.	102
6. Tropical & East. Asia	102
7. Asiatic Archipelago	103
8. Australia & Tasmania	104
9. North America	104
10. Central America	106
11. Antilles	106
12. South America	106
Palæo-entomology	107
III. Systematic Index.	108

(a) Coleoptera (incl. Strepsiptera).

	Page
General	108
Cicindelidæ	108
Carabidæ	109
Haliplidæ (vacant)	
Dytiscidæ	112
Gyrinidæ	112
Hydrophilidæ	112
Staphylinidæ	112
Pselaphidæ	118
Paussidæ	118
Scydmænidæ	118
Silphidæ	118
Histeridæ	119
Phalacridæ	120
Nitidulidæ, Monotomidæ	120
Trogositidæ	121
Colydiidæ	121
Cucujidæ	122
Cryptophagidæ	122
Lathridiidæ	122
Mycetophagidæ	123
Dermestidæ and Thorictidæ	123
Byrrhidæ	124
Parnidæ	125
Georyssidæ	125
Lucanidæ	125
Passalidæ	126
Scarabæidæ	126
Buprestidæ	133
Throscidæ and Eucnemidæ	135
Elateridæ	135
Rhipiceridæ (vacant)	
Dascillidæ	140
Malacodermidæ	140
Cleridæ	142
Lymexylonidæ and Cupesidæ	145
Ptinidæ	146
Bostrichidæ	147
Cioidæ and Sphindidæ	147
Tenebrionidæ	147
Cistelidæ	148
Pythidae (vacant)	
Melandryidæ (vacant)	
Lagriidæ (vacant)	
Anthicidæ, Pedilidæ	149
Rhipiphoridæ and Mordellidæ	150
Cantharidæ	150
Œdemeridæ	151
Curculionidæ	151
Scolytidæ	158
Brenthidæ	159
Anthribidæ	159
Bruchidæ	159
Cerambycidæ	160
Chrysomelidæ	164
Erotylidæ	169
Endomychidæ	169
Coccinellidæ	170
Corylophidæ	171

(b) Hymenoptera.

	Page
General	172
Aculeata—	
Apidæ	172
Masaridæ, Vespidæ, Eumenidæ	178
Fossoria	179
Formicidæ	184
Chrysidæ	188
Hymenoptera parasitica (or Terebrantia)	190
Ichneumonidæ	190
Braconidæ, Megalyridæ	195
Evaniidæ, Trigonalidæ, Stephanidæ	198
Chalcididæ	199
Proctotrypidæ	199
Cynipidæ	200
Sessiliventres—	
Cephidæ, (vacant)	
Siricidæ	201
Tenthredinidæ	201

(c) Lepidoptera.

General	203
Rhopalocera—	
General	203
Papilionidæ	203
Pieridæ	204
Danaidæ (& Ithomiidæ)	205
Acræidæ, Heliconiidæ	206
Nymphalidæ	206
Rhopalocera—	
Brassolidæ, Morphidæ	207
Satyridæ	208
Erycinidæ	208
Lycænidæ	209
Hesperiidæ	211
Heterocera—	
Sphingidæ	213
Ægeriidæ	213
Heterocera—	
Bombyces, etc.	213
Noctuidæ, etc.	220
Geometridæ, Epiplemidæ	232
Pyralidæ, Thyridæ	241
Pterophoridæ	244
Tortricidæ	245
Tineidæ	245

(d) Diptera.

General	251
Cecidomyiidæ, Termitomastidæ	251
Mycetophilidæ	252
Chironomidæ	253
Culicidæ	253
Psychodidæ, Simuliidæ	256
Bibionidæ	256
Rhyphidæ, Dixidæ, Tipulidæ	256
Stratiomyidæ	256
Scenopinidæ	257
Tabanidæ	257
Leptidæ	257
Therevidæ	257
Asilidæ, Mydaidæ	257
Bombyliidæ	258
Acroceridæ	258
Empidæ	258
Dolichopidæ	259
Platypezidæ and Pipunculidæ	260
Syrphidæ	260
Conopidæ	260
Phoridæ	260
Œstridæ	260
Muscidæ calyptratæ	261
Muscidæ acalyptratæ	263
Pupipara	265
Aphaniptera	266

(e) Hemiptera or Rhynchota.

General	267
Hemiptera-Heteroptera	267
Pentatomidæ	267
Coreidæ	270
Lygæidæ	271
Pyrrhocoridæ	271
Tingidæ	272
Berytidæ, Phymatidæ, Aradidæ	273
Hem.-Heteroptera—	
Hydrometridæ	273
Reduviidæ etc.	274
Anthocoridæ etc.	275
Capsidæ	275
Saldidæ	279
Hydrocorisæ	279
Hem.-Homoptera—	
Cicadidæ	279
Fulgoridæ	280
Hem.-Homoptera—	
Membracidæ	283
Cercopidæ	284
Jassidæ	285
Psyllidæ	287
Aphidæ	288
Alcurodidæ	288
Coccidæ	289
Anoplura	292

(f) Neuroptera s. l. (incl. Thysanoptera).

Trichoptera	293
Planipennia	294
Psocidæ	295
Mallophaga	295
Termitidæ	297
Embiidæ	298
Perlidæ	298
Ephemeridæ	298
Odonata	299
Thysanoptera	301

(g) Aptera.

Thysanura	302
Collembola	302

(h) Orthoptera.

Forficulidæ	304
Hemimeridæ	305
Blattidæ	305
Mantidæ	306
Phasmidæ	306
Gryllidæ	307
Locustidæ	307
Acridiidæ	308

INTRODUCTION.

THE number of titles in this Record is 1512, comparing with 1525 last year.

The first part of Mr SHERBORN'S (1264) Index of names of genera and species has appeared. Though the work at present extends only from A.D. 1778 to 1800 it is nevertheless of considerable importance, and includes a valuable bibliographic list. If the work can be completed it will be of very great value.

In a brief note (841) Herr LUZE raises some questions of great practical importance about types, and makes some, to a certain extent reasonable—suggestions about them.

DALLA TORRE'S Catalogue of *Hymenoptera* is completed, and two Vols. of a general Catalogue of Diptera have appeared, KERTÉSZ (678).

Last year gave us Staudinger & Rebel's catalogue of palæarctic *Lepidoptera*, and this year we have received DYAR'S (367) extremely useful North American list.

MELICHAR (892) has completed his monograph of *Flatides*, of which he recognises 85 genera. M. D'ORBIGNY in his memoir on *Onthophagus* (979) describes something near 200 new species from Africa. This is the largest number of new species of one genus I have had to record in 18 years, and this in a genus that includes already about 1000 known species. As the genus is one of the most widely distributed the number of species in it must prove to be very great. In Diptera some very curious aberrant forms of *Phoridæ*—or allied thereto—have been described, BRUES (169), WASMANN (1449, 1450).

Senor TAVARES (1356) has made known a remarkable jumping gall, and has also to a certain extent explained the mechanics of its movement.

COMSTOCK (278), assisted by KOCHI, makes a contribution to the anatomy and morphology of the capsule of the head: and KELLOGG (668) gives a valuable paper on the homologies and development of the mouth-parts, taking into consideration the metamorphotic period of the development. It is probable however that the settlement of the questions he discusses is not so near at hand as he supposes; for it is evident that a great deal depends on the view taken as to the nature of the secondary differentiations that occur at the pupal period. The philosophical difficulties as to "homology" in the case of these secondary differentiations are very great.

DEWITZ (324) has some interesting experiments and suggestions as to Apterism; and his memoirs on the physiology (325—329) of metamorphosis and coloration deserve attention.

Of considerable importance is ENDERLEIN'S paper on some abnormal wings of *Lepidoptera* (399). He carries the relation of nervures and tracheæ in the wings a stage farther. The memoir includes some suggestions as to the phylogeny and relations of the Orders of Insects, and also remarks on the action of internal tendencies and external agencies.

Miss ANTHONY'S paper (29A) suggests that the view taken by Gonin as to the mode in which the internal wing becomes external is correct. The Recorder (1255) has discussed the bearing of wing-development on the phylogeny of Insects. This subject much requires discussion; until it has been elucidated the ideas in vogue as to the relations of the Orders of Insects are in danger of subversion.

Lepidopterists will read with pleasure the elaborate memoir of the Countess VON LINDEN on the development of pattern (815).

Works on metamorphosis continue to be numerous and important. TOWER (1380) and VERSON (1411) make communications as to the method of ecdysis. VANEY (1402) has examined the metamorphosis of *Diptera* in a variety of species. He confirms the opinion that phagocytosis, though of much importance in the higher forms, is really a secondary phenomenon. The protection of the imaginal buds by an external secretion is discredited, as he has seen the buds actually penetrated by the agents that destroy the larval tissues. This memoir also contains much other interesting matter. ANGLAS' succinct account of the histological phenomena of metamorphosis will be found very useful (26). BERLESE'S papers (93—95) throw additional light on this fascinating subject.

WASMANN'S (1449) account of *Termitoxenia* relates a very extraordinary case—without parallel among Insects—of functional hermaphroditism conjoined with a totally abnormal ontogeny. It is however at present to a considerable extent conjectural.

VOSSELER'S account (1429—1431) of the Sahara *Orthoptera* and their modifications will interest all, it marks a distinct advance in the department of Natural History it deals with. The habits of *Oxysoma oberthuri* described by ESCHERICH (407) should receive attention as they reveal a new relation between ants and their guests. WHEELER'S papers on this subject are very interesting (1490, 1491). GIARDINA has a valuable ethological paper on *Mantidæ* (334). The stridulation of *Acherontia atropos* has been the subject of experiment by COBELLI (246) who finds that it is not due to expulsion of air. BERLESE'S note on the copula of the house-fly (96) ought to attract the attention of those who are occupied with the mechanisms of male and female genitalia.

The paper by MARSHALL & POULTON (868) includes, under the heading bionomics, a great variety of interesting Natural History observations.

LEVANDER has a good paper (806) on the Natural History of *Anopheles claviger* in Finland.

Miss EMBLETON gives a paper (392) on an important economic topic, which by a curious coincidence was shortly followed by a similar one from Professor BERLESE (92). PORTSCHINSKY (1085) also treats of the same subject in connection with the control of *Ocneria dispar*.

I take this opportunity of pointing out that it would be a great advantage if papers were sent more freely to the Record. Many Societies only publish their Volume—or only deliver it to libraries—months, or even years after separate copies of the papers have been distributed. This, and various other facts make it almost impossible for a Recorder to be fully up to date by the aid of the Libraries alone. In the Anales del Museo Nacional de Buenos Aires the Editor adopts the highly commendable system of stating the date "of putting into circulation" of the separate copies. One of the memoirs in Vol. VII was "put into circulation" 19th August 1899, and another 11th June 1902, and the Vol. was received in this country at the end of 1902, so that 3½ years elapsed before the paper circulated in 1899 reached the Recorder. The Medd. Soc. Faun. Fenn. for 1898—1902 only reached this country towards the close of 1902, though the volume opens with the Proceedings of the Society for October 3rd 1896. This year I have been able to see for the first time the Proceedings of the Iowa Academy, though they extend from 1887 to the present time, and include several papers that have not been previously recorded, though now 12 or 15 years old. These facts are mentioned to show that the Record can only be kept up to date with the assistance of authors and societies.

I. TITLES.*

1. Absolon, K. Ueber die *Apterygoten* Insekten der Höhlen Europas mit besonderer Berücksichtigung der Höhlenfauna Mährens. Verh. Congr. Zool. v, pp. 804, 805.

2. Adelung, N. Beitrag zur Kenntnis der paläarctischen *Stenopelmatiden* (*Orthoptera*, *Locustodea*). Annuaire Mus. St. Petersb. vii, pp. 55–75.
Summary in Zool. Centrlbl. 1902, p. 568.

3. Adlerz, G. Iakttagelser öfver *Hoplomerus* reniformis Wesm. Ent. Tidskr. xxiii, pp. 241–252. [*Hymenoptera.*]

4. ——. Periodische Massenvermehrung als Evolutionsfaktor. Biol. Centrbl. xxii, pp. 108–119.

5. ——. Myrmecologiska Studier iv. *Formica suecica*, n. sp., eine neue schwedische Ameise. Ofv. Ak. Forh. 1902, pp. 263–265. [*Hymenoptera.*]

6. Aggazzotti, A. Sulla terminazione nervosa motrice nei moscoli striati degli insetti. Atti Acc. Torino xxxvii, pp. 724–732, 1 plate.

7. Agnus, A. Description d'un *Neuroptère* fossile nouveau. Bull. Soc. ent. France 1902, p. 259, pl. i.

8. Aigner-Abafi, L. v. Geschichte eines interessanten Schmetterlings (*Nemeophila metelkana* Led.). Termes. Fuzetek xxv, pp. 417–435, pl. xviii. [*Lepidoptera.*]

9. ——. A *Nemeophila metelkana* története. Rov. Lapok ix, pp. 156–161, 181–185. [*Lepidoptera.*]

10. ——. Über Mimikry. Allg. Zeitschr. Ent. vii, pp. 368–372, 405–409.

11. Alfken, J. D. Die *Nomada*-Arten Nordwest-Deutschlands als Schmarotzer. Zeitschr. Hym. Dipt. ii, pp. 5–10 & 109. [*Hymenoptera.*]

12. ——. Die nordwestdeutschen *Prosopis*-Arten. T. c. pp. 65–91 [*Hymenoptera.*]

13. Alluaud, C. Observations sur divers *Cicindélides* de Madagascar et descriptions d'espèces nouvelles. Ann. Soc. ent. France 1902, pp. 637–642. [*Coleoptera.*]

14. ——. Description de trois *Storthodontus* nouveaux de Madagascar. Bull. Soc. ent. France 1902, pp. 123–125. [*Coleoptera.*]

15. ——. Note sur la conformation de la suture des élytres chez les *Coléoptères.* T. c. pp. 176–178.

16. ——. Les *Georyssidæ* de Madagascar. T. c. pp. 270, 271. [*Coleoptera.*]

17. ——. Note sur les *Rhipiphorides* de Madagascar, avec la diagnose d'une espèce nouvelle de Guinée. T. c. pp. 322–324. [*Coleoptera.*]

18. ——. Description d'un *Coléoptère* nouveau du genre *Scarabæus* (*Ateuchus*) du sud de Madagascar. Bull. Mus. Paris viii, p. 250.

---

* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

19. [ALLUAUD, C.] Liste des Insectes Coléoptères de la region Malgache. 4to, viii + 509 pp. [Vol. xxi of GRANDIDIER, Histoire de Madagascar.]

ALZONA, C. [See VIRÉ & ALZONA (1423).]

20. AMANS, P. Géométrie descriptive et comparée des ailes rigides. C.R. Ass. franc. 1901, pt. II, pp. 666–677.

21. ANDRÉ, E. Description de deux nouvelles Fourmis du Pérou. Bull. Soc. ent. France 1902, pp. 14–17. [*Hymenoptera.*]

22. ——. Matériaux pour servir à la connaissance des *Mutillides* d'Afrique. (Conclusion.) Zeitschr. Hym. Dipt. ii, pp. 17–48. [*Hymenoptera.*]

23. ——. Quatrième contribution à la connaissance des *Mutillides* de l'Australie. Mem. Soc. zool. France x, pp. 240–248. [*Hymenoptera.*]

24. ——. Species des *Hyménoptères* d' Europe et d'Algerie. VIII. Mutillides, pp. 305– , plates –xv.
Completes this volume. For vol. vii[bis], see KIEFFER, J. J. (683).

25. ——. *Mutillidæ* in Wytsman gen. ins. i, 77 pp. [*Hymenoptera.*]

26. ANGLAS, J. Les phénomênes des metamorphoses internes. Scientia series, biol. No. 17, 84 pp., Paris 1902.

27. ——. Nouvelles observations sur les métamorphoses internes. Arch. anat. micr. v, pp. 78–121, pl. iv.

28. ANNANDALE, NELSON. Notes on the habits of Malayan *Phasmidæ* and of a flower-like beetle larva. P. Phys. Soc. Edinb. xiv, pp. 439–444.

29. [ANON.] Annual reports of the department of agriculture for the fiscal year ended June 30, 1902. Report of the Secretary of Agriculture. Departmental reports. Washington, 1902, cxxiv + 402 pp.
These reports are of considerable interest to Naturalists. Insects specially, pp. lxxx–cx, cf. also MARLATT (862).

29A. ANTHONY, Miss MAUDE H. The metamorphosis of *Sisyra.* Amer. Natural. xxvi, pp. 615—631.

30. APFELBECK, V. Bericht über eine entomologische Forschungsreise nach der Turkei und Griechenland im Jahre 1900. Wiss. Mitt. Bosnien viii, pp. 447–469. [*Coleoptera.*]

31. ——. Sieben neue Arten der Gattung *Bembidium* Latr. von der Balkanhalbinsel. Munchen. Kol. Zeitschr. i, pp. 66–69. [*Coleoptera.*]

32. ——. Zur Kenntniss der palæarctischen *Carabiden.* Synonymische und Zoogeographische Beiträge. T. c. pp. 95–101. [*Coleoptera.*]

33. *ARNOLD, N. Catalogus Insectorum provinciæ Mohileviensis. St. Petersburg, 1901, 150 pp.
In Russian; summary, Zool. Centrlbl. 1902, p. 739.

34. ARROW, G. J. On Rutelid and Melolonthid beetles from Mashonaland and East Africa. Ann. Nat. Hist. (7) ix, pp. 89–101. [*Coleoptera.*]

35. ——. Notes and descriptions of some *Dynastidæ* from tropical America, chiefly supplementary to the 'Biologia Centrali-Americana.' Op. cit. x, pp. 137–147. [*Coleoptera.*]

——. [See also JOHNSTON (660).]

36. ASHMEAD, W. H. Classification of the fossorial, predaceous and parasitic wasps, or the superfamily *Vespoidea.* Paper No. 4; Canad. Ent. xxxiv, pp. 79–88. No. 5; t. c. pp. 131–137. No. 6; t. c. pp. 163–166. No. 7; t. c. pp. 203–210. No. 8; t. c. pp. 219–231. No. 9; t. c. pp. 268–273. No. 10; t. c. pp. 287–291. [*Hymenoptera.*]

37. [Ashmead, W. H.] Classification of the pointed-tailed wasps, or the superfamily *Proctotrypidæ*. I. J. N. York Ent. Soc. x, pp. 240–247. [*Hymenoptera.*]

38. ——. Papers from the Harriman Alaska expedition. XXVIII. *Hymenoptera.* P. Washington Ac. iv, pp. 117–274, pls. ix–xi.

39. ——. A new genus of *Diapriids* from Texas. Biol. Bull. iii, p. 15. [*Hymenoptera.*]

40. ——. The *Hymenopterous* parasites of *Phenacoccus cavalliæ* Ckll. Canad. Ent. xxxiv, pp. 301, 302.

41. ——. A new Bumble bee from Colorado. Ent. News Philad. xiii, p. 50. [*Hymenoptera.*]

42. ——. A new *Bruchophagus* from Mexico. Psyche ix, p. 324. [*Hymenoptera.*]

43. ——. A new *Catolaccus* on *Sitotroga cerealis* Oliv. T. c. p. 345. [*Hymenoptera.*]

Atkins, E. [See Cockerell & Atkins (272, 273).]

44. Auel, H. Beitrag zur Entwickelungsgeschichte von *Pieris brassicæ* L. Allg. Zeitschr. Ent. vii, pp. 113, 139, 184. [*Lepidoptera.*]

45. Aurivillius, C. On the Ethiopian genera of the family *Striphnopterygidæ*. Bih. Svenska Ak. xxvii, No. 7, 33 pp., 5 pls. [*Lepidoptera.*]

46. ——. Neue oder wenig bekannte *Coleoptera Longicornia.* 7. Ent. Tidskr. xxiii, pp. 207–224.

47. ——. Beiträge zur Kenntniss der Insektenfauna von Kamerun. No. 11. *Lepidoptera Heterocera.* I. T. c. pp. 273–288, pls. iv, v, vi.

——. [See also Distant (332).]

Austen, E. E. [See Marshall (868).]

48. Axelson, W. M. Vorläufige Mittheilung über einige neue *Collembolen*-Formen aus Finnland. Medd. Soc. Faun. Fenn. xxvi, pp. 105–123.

49. ——. Diagnosen neuer *Collembolen* aus Finland und angrenzenden Teilen des nordwestlichen Russlands. Op. cit. xxviii, pp. 101–111.

50. Bachmetjew, P. Kalorimetrische Messungen an Schmetterlingspuppen. Zeitschr. wiss. Zool. lxxi, pp. 550–624.
Summaries by M. v. Linden, Zool. Centrlbl. 1902, pp. 786–788; and J. R. Micr. Soc. 1903, p. 33.

51. ——. Ein neu-entdecktes Schutzmittel bei Schmetterlingspuppen gegen Kalte. Soc. ent. xvi, p. 161. [*Lepidoptera.*]

52. ——. Die Schmetterlinge Bulgariens. Horæ Soc. ent. Ross. xxxv, pp. 356–466. [*Lepidoptera.*]

53. Baer, G.-A. Observations sur quelques *Calosomes* du Pérou. Bull. Soc. ent. France 1902, pp. 83, 84. [*Coleoptera.*]

54. Ball, E. D. A review of the *Cercopidæ* of North America, north of Mexico. P. Iowa Ac. vi, 1899, pp. 204–226. [*Hemiptera-Homoptera.*]

55. ——. Notes on the *Acocephalina* (*Homoptera-Jassidæ*). Op. cit. vii, 1900, pp. 64–72.

56. ——. A review of the *Tettigonidæ* of North America north of Mexico. Op. cit. viii, pp. 35–75, pls. i–v. [*Hemiptera-Homoptera.*]

57. [Ball, E. D.] West coast and other *Jassidæ* (*Homoptera*). Canad. Ent. xxxiv, pp. 12–22.

58. ——. The genus *Cochlorhinus* Uhler, and its allies (*Jassidæ*). T. c. pp. 53–58, pl. ii. [*Hemiptera-Homoptera.*]

59. ——. Some new North American *Fulgoridæ*. T. c. pp. 147–157. [*Hemiptera-Homoptera.*]

60. ——. New genera and species of North American *Fulgoridæ*. T. c. pp. 259–266. [*Hemiptera-Homoptera.*]

61. ——. Some new *Bythoscopidæ* from British Columbia and the Southwest. T. c. pp. 303–313. [*Hem.-Homoptera.*]

——. [See also Osborn & Ball (984).]

62. Banks, N. Notes and descriptions of *Perlidæ*. Canad. Ent. xxxiv, p. 123.

63. ——. New *Smynthuridæ* from the district of Columbia. P. ent. Soc. Washington v, pp. 144, 145. [*Collembola.*]

64. ——. Sleeping habits of certain *Hymenoptera*. J. N. York. ent. Soc. x, pp. 209–214.

65. ——. A new species of *Brachynemurus*. Ent. News Philad. xiii, p. 86. [*Neuroptera.*]

66. ——. Principal insects liable to be distributed on Nursery stock. Bull. U. S. Dep. Agric. Ent. No. 34, 46 pp.

67. Bargagli, P. Adolfo Targioni-Tozzetti. Bull. Soc. ent. Ital. xxxiv, pp. 199–233.

68. Barrett, C. G. *Coleophora milvipennis* Zeller, new to Britain. Ent. Mag. xxxviii, pp. 79, 80. [*Lepidoptera.*]

69. Barrett, O. W. The changa, or mole cricket. Bull. No. 2, Porto Rico exp. Stat., 19 pp. [*Orthoptera.*]

70. Bartel, Max. *Lepidopteren* des südlichen Urals. Gesammelt von Herrn Julius Tief. Deutsche ent. Zeitschr. Iris xv, pp. 183–230.
Includes a description by Rebel of *Nola*, n. sp.

71. *—— & Herz, A. Handbuch der Gross-Schmetterlinge des Berliner Gebietes. Berlin, 1902, 8vo, 92 pp. [*Lepidoptera.*]
Cf. Allg. Zeitschr. Ent. vii, p. 413, and Berlin. ent. Zeitschr. 1902, p. 297.

72. Bauer, V. Ein Schmetterling umgekehrt in der Puppe. Allg. Zeitschr. Ent. vii, pp. 110, 111. [*Lepidoptera.*]

73. Beard, J. The determination of sex in animal development. Zool. Jahrb. Anat. xvi, pp. 703–764, pl. xlv.

74. Beare, T. H. Retrospect of a Coleopterist for 1901. Ent. Rec. xiv, pp. 7–10.

75. Becker, T. Zur Nomenclatur von *Pipunculus pratorum* Fall. Wien. ent. Zeit. xxi, pp. 13–19. [*Diptera.*]
Cf. Kertész, t. c. p. 20.

76. ——. Die Meigen'schen Typen der Sogen. *Muscidæ acalypteræ* (*Muscaria holometopa*) in Paris und Wien. Zeitschr. Hym. Dipt. ii, pp. 209–256, 289–321, 337–349.

77. ——. Die Meigen'schen Typen der Gattung *Chilosia* Meig. in Paris. T. c. pp. 350–355. [*Diptera.*]

78. Bedel, L. Diagnose d'un *Rhizotrogus* inédit, du Nord de l'Afrique. Bull. Soc. ent. France 1902, p. 212. [*Coleoptera.*]

79. ——. Catalogue raisonné des *Coléoptères* du Nord de l'Afrique, [continuation], pp. 209–220.
Published in connection with Abeille xxx.

80. Bellevoye, A. Supplément au Catalogue des *Orthoptères* des environs de Reims. Bull. Soc. Reims x, pp. 20–40.

81. Belon. Description d'un *Longicorne* inédit de Bolivie. Bull. Soc. ent. France 1902, pp. 333, 334. [*Coleoptera.*]

82. ——. Description d'un Longicorne nouveau du groupe des *Hespérophanides.* Rev. Ent. franc. xxi, pp. 1–4. [*Coleoptera.*]

83. ——. Descriptions de trois *Longicornes* brésiliens du genre *Ectenessa* Bates. Ann. Soc. ent. Belgique xlvi, pp. 13–16. [*Coleoptera.*]

84. ——. Description d'un genre nouveau de *Longicornes* africains. T. c. pp. 410, 411. [*Coleoptera.*]

85. ——. Description de plusieurs *Longicornes* de Bolivie appartenant au genre *Adetus* Le C. T. c. pp. 464–472. [*Coleoptera.*]

86. ——. *Lathridiidæ*, in Wytsman gen. ins. i, 40 pp., 1 pl. [*Coleoptera.*]

87. Bengtsson, S. Biologiska undersökningar öfver nunnan (*Lymantria monacha* Lin.), dess parasiter och sjukdomar. Ent. Tidskr. xxiii, pp. 125–194, pls. ii, iii. [*Lepidoptera.*]

88. Berg, C. Rectificaciones y Anotaciones a la "sinopsis de los *Hemipteros* de Chile" de Edwyn C. Reed. An. Mus. Buenos Aires vii, pp. 81–91.

[Berg, C. Obituary. See Gallardo (513).]

89. Bergh, R. S. Beiträge zur vergleichenden Histologie. III. Über die Gefässwandung bei Arthropoden. Anat. Hefte Arb. xix, pp.
Summary by author, Zool. Centrlbl. 1902, p. 461.

90. Bergroth, E. Uber eine auf Eulen schmarotzende *Hippoboscide.* Medd. Soc. Faun. Fenn. xxvii, pp. 146–150. [*Diptera.*]

91. ——. On the thorax of the *Gerridæ.* Ent. Mag. xxxviii, pp. 258–260. [*Hemiptera-Heteropt.*]

92. Berlese, A. Importanza nella economia agraria degli insetti endofagi distruttori degli insetti nocivi. Boll. Scuola Agric. No. 4, Ser. ii, 27 pp.
Summary, Allg. Zeitschr. ent. viii, p. 99.

93. ——. Osservazioni su fenomeni che avvengono durante la ninfosi degli insetti metabolici. Parte 1ª. Tessuto adiposo. Memoria seconda (*Lepidotteri, Imenotteri, Neuroteri, Coleotteri*). Riv. Patol. Veg. ix, pp. 177–344, pls. vii–xiv. Parte ii. Tessuto muscolare. Op. cit. x, pp. 1–120 [conclusion].

94. ——. Sulle concrezioni cristalline contenute negli organi in dissoluzione e nelle sostanze albuminoi di in via di digestione nelle ninfe degli insetti metabolici. Lettera al Dr Paolo Enriques. Anat. Anz. xxi, pp. 33–48.

95. ——. Sulla ninfosi delle mosche. Riposta al Dr Paolo Enriques. T. c. pp. 681–685.

96. [Berlese, A.] L'accopiamento della Mosca domestica. Riv. Patol. Veg. ix, pp. 345–356. [*Diptera.*]
Summary, J. R. Micr. Soc. 1902, p. 301.

97. Bernhauer, M. Elfte Folge neuer *Staphyliniden* der paläarktischen Fauna, nebst Bemerkungen. Ver. Ges. Wien lii, pp. 695–705. [*Coleoptera.*]

98. ——. Beitrag zur Staphylinidenfauna des palæarctischen Gebietes. Munchen. Kol. Zeitschr. i, pp. 54–62. [*Coleoptera.*]

99. ——. Zur *Staphyliniden*-Fauna von Ceylon. Deutsche ent. Zeitschr. 1902, pp. 17–45. [*Coleoptera.*]
For remarks on this paper cf. Fauvel, Rev. Ent. franc. xxi, pp. 40–43.

100. Bethe, A. Die Heimkehrfährigkeit der Ameisen und Bienen zum Teil nach neuen Versuchen. Eine Erwiderung auf die Angriffe von v. Buttel-Reepen und von Forel. Biol. Centrbl. xxii, pp. 193–215, & 234–238.

——. Cf. Wasmann (1448).

101. Bethune, C. J. S. Bibliography of Canadian entomology for the year 1900. Tr. R. Soc. Canada 1901, Sect. iv, pp. 135–139.

102. Betten, C. The larva of the Caddis fly, *Molanna cinerea* Hagen. J. N. York Ent. Soc. x, pp. 147–154. [*Trichoptera.*]

103. Beutenmüller, W. Description of a new *Sesia*. J. N. York Ent. Soc. x, p. 126. [*Lepidoptera.*]

104. Bézier, T. Catalogue raisonné des *Lépidoptères* observés en Brétagne jusqu'en 1882 par W. J. Griffith (suite et fin), pp. 145–176.
Published in connection with Bull. Soc. Ouest France xi.

105. Bezzi, M. Sulla presenza del genere *Chionea* Dalman in Italia, e la riduzione delle ali nei *Ditteri*. Rend. Ist. Lombardo xxxiii, pp. 511–526.

106. Biedermann, W. Ueber die Structur des Chitins bei Insekten und Crustaceen. Anat. Anz. xxi, pp. 485–490.

107. Billinghurst, F. L. Some notes on the dragon-flies of the Alexandra district. Victorian Natural. xix, pp. 24–28. [*Odonata.*]

108. Bingham, C. T. On the *Hymenoptera* collected by Mr W. L. Distant in the Transvaal, South Africa, with descriptions of supposed new species. Ann. Nat. Hist. (7) ix, pp. 340–353, and x, pp. 207–223.

——. [See also Marshall (868).]

109. Bird, H. Boring Noctuid larvæ. J. N. York Ent. Soc. x, pp. 214–216 [*Lepidoptera.*]

110. ——. New histories and species in *Hydroecia*. Canad. Ent. xxxiv, pp. 107–118, pl. iii. [*Lepidoptera.*]

111. Blackburn, T. Further notes on Australian *Coleoptera*, with descriptions of new genera and species. xxx. Tr. R. Soc. S. Austral. xxvi, pp. 16–30.

112. ——. Further notes on Australian *Coleoptera*. xxxi. T. c. pp. 288–321.

113. Blaisdell, F. E. The frons in *Bembidium*, with descriptions of new species. P. Ac. Philad. liv, pp. 70–79, pl. iii. [*Coleoptera.*]

114. Blanchard, R. Notes sur les moustiques de la Réunion. C.R. Soc. Biol. liv, pp. 643, 644. [*Diptera.*]

115. ——. Nouvelle note sur les moustiques. T. c. pp. 793–795. [*Diptera.*]

116. ——. Sur la piqûre de quelques *Hémiptères.* Arch. parasit. v, pp. 139–148.

117. Boileau, H, Note sur quelques *Lucanides* du Musée de Bruxelles. Mem. Soc. ent. Belgique ix, pp. 33–46, pls. i, ii. [*Coleoptera.*]

118. ——. Note sur quelques *Lucanides* nouveaux ou peu connus. T. c. pp. 47–62. [*Coleoptera.*]

119. ——. Descriptions sommaires de *Dorcides* nouveaux. Bull. Soc. ent. France 1902, pp. 287, 288, 302–304, 320, 321. [*Coleoptera.*]

120. ——. Description de *Coléoptères* nouveaux. Naturaliste xxiv, pp. 203–205.

121. ——. *Scaritides* nouveaux de Madagascar. Bull. Soc. ent. France 1902, pp. 125–127. [*Coleoptera.*]

122. Bolivar, I. *Ortópteros* nuevos de España. Bol. Soc. espan. ii, pp. 86–88.

123. ——. Apuntes para el estudio de los *Pérlidos* de España. T. c. pp. 204–207.

124. ——. Nuevo *Helioscirtus* de Rio de Oro. T. c. p. 291. [*Orthoptera.*]

125. ——. Les *Orthoptères* de St Joseph's College à Trichinopoly (Sud de l'Inde). 3e partie. Ann. Soc. ent. France 1901, pp. 580–635, pl. ix.

126. ——. Description d'un *Orthoptère* nouveau de l'Atlas marocain. Bull. Soc. ent. France 1902, p. 222.

127. ——. Contributions à l'étude des *Phaneroptinæ* de la Nouvelle Guinée, appartenant au Muséum national de Budapest. Termes. Fuzetek xxv, pp. 181–196. [*Orthoptera.*]

128. Bordas, L. Variations morphologiques et anatomiques présentés par le gésier chez quelques *Coléoptères.* C.R. Ac. Sci. cxxxv, pp. 982–984.

129. ——. Structure du réceptacle urinaire et du canal excréteur (urêtre) des tubes de Malpighi chez les *Gryllidæ.* C.R. Soc. Biol. liv, pp. 639, 640.

130. ——. Structure des tubes de Malpighi, du receptacle urinaire et du canal excréteur (urêtre) des *Gryllidæ.* Bull. Soc. ent. France 1902, pp. 272, 273. [*Orthoptera.*]

131. ——. Sur l'appareil digestif de quelques *Lépidoptères.* C.R. Soc. Biol. liv, pp. 769–771.

132. ——. Le tube digestif de la nymphe d'*Acherontia atropos* L. T. c. pp. 1495, 1496. [*Lepidoptera.*]

133. ——. Glandes mandibulaires et glandes labiales de *Cossus ligniperda* Fabr. T. c. pp. 1313–1315. [*Lepidoptera.*]

134. Bordi, A. Contribuzione alla sistematica dei *Culicidi* con speciale riguardo alla diffusione della malaria umana. Rend. Acc. Lincei xi, pp. 318–324. [*Diptera.*]
Summary, J. R. Micr. Soc. 1903, p. 37.

135. Borelli, A. *Forficole* raccolte dal Dott. Filippo Silvestri nella Repubblica Argentina e regioni vicine. Boll. Mus. Torino 1902, No. 418, 7 pp. [*Orthoptera.*]

136. Born, P. Meine Exkursion von 1902. Soc. ent. xvii, pp. 131 etc. etc. [*Coleoptera.*]

137. Börner, C. Über die Gliederung der Laufbeine der *Atelocerata* Heymons. SB. Ges. Berlin 1902, pp. 205–229, 2 pls.

138. ——. Über das Antennalorgan III. der *Collembolem* und die systematische Stellung der Gattungen *Tetracanthella* Schött. und *Actaletes* Giard. Zool. Anz. xxv, pp. 92–116.
Summary J. R. Micr. Soc. 1902, p. 302.

139. ——. Das Genus *Tullbergia* Lubbock. (Vorläufige Mittheilung). Zool. Anz. xxvi, pp. 123–131. [*Collembola.*]

140. ——. Wieder ein neues *Anurophorinen*-Genus. Zool. Anz. xxv, pp. 605–607. [*Collembola.*]

141. Boucomont, A. Descriptions sommaires de quelques *Bolbocerini.* Bull. Soc. ent. France 1902, pp. 184, 185. [*Coleoptera.*]

142. ——. Description de quelques *Bolbocerini* nouveaux. Ann. Soc. ent. France 1902, pp. 580–587, pl. v. [*Coleoptera.*]

143. ——. *Geotrupidæ* in Wytsman gen. ins. i, 20 pp., 1 pl. [*Coleoptera.*]

144. Bourgeois, J. Diagnoses de *Lycides* nouveaux ou peu connus. 8e partie. Ann. Soc. ent. France 1903, pp. 737–750. [*Coleoptera.*]

145. ——. Notes sur quelques *Podistrina* du Nord de l'Afrique et description de deux espèces nouvelles. Bull. Soc. ent. France 1902, pp. 60–64. [*Coleoptera.*]

146. ——. Description d'une nouvelle *Podistrina.* T. c. p. 182. [*Coleoptera.*]

147. ——. *Malacodermes* récoltés au Japon par M. J. Harmand (1900). Bull. Mus. Paris viii, pp. 89–92. [*Coleoptera.*]

148. ——. Deux nouvelles espèces de *Plateros* de l'Himalaya. T. c. pp. 92, 93. [*Coleoptera.*]

149. ——. Trois nouvelles espèces de *Malacodermes* de l'Himalaya. T. c. pp. 426, 427. [*Coleoptera.*]

150. *——. Catalogue des *Coléoptères* de la Chaine des Vosges et des régions limitrophes. III. *Pselaphidæ—Lucanidæ.* Colmar, 1902, 100 pp.

——. [See also Marshall (868).]

151. Bradley, J. C. A new species of *Dyseidopus* Kriechbaumer (*Pimplinæ*). Ent. News Philad. xiii, p. 307. [*Hymenoptera.*]

152. *Brauner, A. Remarques sur les *Libellules* du gouvernement de Kherson et de la partie septentrionale de la Crimée. Denkschr. neoruss. Ges. xxiv, 1902, pp. 73–102.
Summary in Zool. Centrlbl. 1902, p. 741.

153. Brauns, H. Beiträge zur Kenntnis südafrikanischer *Masariden.* Zeitschr. Hym. Dipt. ii, pp. 181–185, 275–283, 373. [*Hymenoptera.*]

154. ——. Die *Apiden*gattung *Fidelia* Friese. T. c. pp. 374–376. [*Hymenoptera.*]

155. [Brauns, H.] *Eucondylops* n. g. *Apidarum*. T. c. pp. 377–380. [*Hymenoptera.*]

156. Breddin, G. Die *Hemipteren* von Celebes. Ein Beitrag zur Faunistik der Insel. Abh. Senckenb. Ges. xxiv, 212 pp., 1 pl.
Also separately; dated 1901. Recorded from separate.

157. ——. Zwei neue Arten der *Reduviiden*-Gattung *Tapeinus* Lap. (*Sminthus* Stål). Wien. ent. Zeit. xxi, pp. 23, 24. [*Hem.-Heteroptera.*]

158. ——. Beiträge zur Kenntniss der malayischen und indischen *Pentatomiden*. T. c. pp. 94–101. [*Hem.-Heteroptera.*]

159. ——. Die *Hemipteren* und *Siphunculaten* des arktischen Gebietes [in] Romer & Schaudinn, Fauna arctica ii, pp. 529–560.

160. ——. Neue malayische *Homopteren* aus der Familie *Cercopidæ*. Soc. ent. xvii, pp. 51, 52, 58, 59.

161. ——. Einige *Homopteren* aus der Verwandtschaft von *Hypsauchenia* Germ. T. c. p. 91. [*Hem.-Homoptera.*]

162. ——. Neue neotropische Wanzen und Zirpen [continuation]. T. c. pp. 2 etc.

163. Breit, J. Ein neuer Höhlenkäfer aus Bosnien. Soc. ent. xvii, p. 89. [*Coleoptera.*]

164. Brenske, E. Die *Serica*-Arten der Erde (Schluss). Berlin. ent. Zeitschr. 1902, pp. 1–82, pl. i. [*Coleoptera.*]

165. ——. Eine neue *Polyphylla* aus Persien. Stettin. Ent. Zeit. 1902, p. 375. [*Coleoptera.*]

166. Brèthes, J. Metamorphose de l'*Uroplata* (*Heterispa*) *costipennis* (Boh.), *Hispidæ*. An. Mus. Buenos Aires viii, pp. 13–17. [*Coleoptera.*]

167. Brindley, H. H. Regeneration in *Samia ailanthus*. P. Cambridge Phil. Soc. xi, pp. 458–462. [*Lepidoptera.*]

168. Britton, W. E. Second report of the State entomologist of Connecticut for the year 1902. New Haven, pp. 99–175, pls. i–xv.

Broun, T. [See Hutton (632).]

169. Brues, C. T. New and little-known guests of the Texan legionary ants. Amer. Natural. xxxvi, pp. 365–378.

170. ——. Two new Texan Ant and Termite guests. Ent. News Philad. xiii, pp. 184–188, pl. ix. [*Coleoptera.*]

171. ——. Notes on the larvæ of some Texan *Diptera*. Psyche ix, pp. 351–355.

——. [See also Melander & Brues (890).]

172. Brunelli, G. Sul significato della metamorfosi negli insetti. Riv. ital. Sci. Nat. xxii, pp. 100–106.

173. Bruner, L. The first report of the merchants' locust investigation commission of Buenos Aires. Buenos Aires, 1898, 8vo, x+98 pp., illustrations and 1 pl. [*Orthoptera.*]

174. ——. The second report..... Lincoln, 1900, 8vo, 80 pp., illustrations. [*Orthoptera.*]
I am indebted to Mr W. F. Kirby for bringing these two reports to my notice. The second is particularly important as including several new genera and species.

175. [Bruner, L.] Locusts or grasshoppers. Bull. Agric. exp. Stat. Nebraska, No. 70, pp. 43–54. [*Orthoptera.*]

——. [See also Godman (545).]

176. Bruyant, C. *Buprestide* fossile des Lignites de Menat, *Lampra gautieri.* Rev. Sci. Bourbonnais xv, pp. 63–65.

177. Buckton, G. B. Monographiæ entomologicæ. ii. A monograph of the *Membracidæ.* Parts iii, iv. London, 1902, pp. 93–180, pls. xix–xxxviii. [*Hemiptera-Homoptera.*]

178. Bueno, J. R. de la Torre. Notes on the *Notonectidæ* of the vicinity of New York. J. N. York. Ent. Soc. x, pp. 230–236. [*Hemiptera-Heteroptera.*]

179. Bugnion, E. Recherches histologiques sur le tube digestif du *Xylocopa violacea.* Arch. Sci. Nat. 1902, pp. 531–534. [*Hymenoptera.*]

Bullen, H. [See Le Souef & Bullen (804, 805).]

180. Burr, M. A monograph of the genus *Acrida* Stål (= *Truxalis* Fabr.) with notes of some allied genera, and descriptions of new species. Tr. ent. Soc. London 1902, pp. 149–187. [*Orthoptera.*]

181. ——. The earwigs of Ceylon. J. Bombay Soc. xiv, pp. 59–78, 316–336, pls. a, b. [*Orthoptera.*]

182. ——. On the *Forficularia* of the Hungarian National Museum of Budapest. Termes. Fuzetek xxv, pp. 477–488, pl. xx.

183. Busck, A. A review of the American moths of the genus *Depressaria* Haworth, with descriptions of new species. P. U. S. Mus. xxiv, No. 1268, May 12th, 1902, pp. 731–749. [*Lepidoptera.*]

184. ——. Notes on North American *Tineina.* J. N. York Ent. Soc. x, pp. 89–100, pl. xii. [*Lepidoptera.*]

——. [See also Dyar (367).]

185. Butler, A. G. On two collections of *Lepidoptera* made by Sir Harry Johnston, K.C.B., in the Uganda Protectorate during the year 1900. P. Zool. Soc. London 1902, i, pp. 44–51, pl. i.

186. ——. On a small collection of butterflies made by C. Stuart Betton in British East Africa. Ann. Nat. Hist. (7) ix, pp. 31–34.

187. Buysson, H. du. Faune gallo-rhénane. *Élatérides*, pp. 265–336. [*Coleoptera.*]
Published in connection with Rev. Ent. franc. xxi.

188. ——. Remarques sur quelques *Élatérides* du genre *Cardiophorus* et descriptions d'espèces nouvelles. Ann. Soc. ent. France 1902, pp. 422–439. [*Coleoptera.*]

189. Buysson, R. du. Descriptions de trois Guêpes nouvelles. Bull. Soc. ent. France 1902, pp. 140, 141. [*Hymenoptera.*]

190. ——. Description d'une *Polybie* nouvelle d'Afrique. T. c. p. 253. [*Hymenoptera.*]

191. ——. Nidification de quelques *Megachiles.* Ann. Soc. ent. France lxxi, pp. 751–755. [*Hymenoptera.*]

192. ——. Sur la ponte du *Mylabris variabilis* Pall. Bull. Soc. ent. France 1902, pp. 284–286. [*Coleoptera.*]

193. Calabrese-Milani, Anna. Contributo alla cecidiologia della Flora Avellinese. Boll. Soc. Napoli xvi, pp. 28–82, pls. i–iv.
Includes a section on the origin, growth and structure of galls.

194. Calvert, P. P. A contribution to knowledge of the *Odonata* of Paraguay. An. Mus. Buenos Aires vii, pp. 25–35.

195. ——. On the systematic position of *Thaumatoneura inopinata* McLachlan (Order *Odonata*), with some remarks on the classification of the suborder *Zygoptera*. Ent. Mag. xxxviii, pp. 29–32.

196. ——. Illustrations of *Odonata*: *Argia*. By Hermann A. Hagen. With a list and bibliography of the species. Bull. Mus. Harvard xxxix, No. 4, pp. 103–120, pls. 1, 2.

——. [See also Godman (545).]

197. Camerano, L. Michele Edmondo Barone di Selys Longchamps. Atti Acc. Torino xxxvi, pp. 327–334.

198. Cameron, P. Descriptions of new genera and species of *Hymenoptera* from the Oriental zoological region (*Ichneumonidæ*, *Fossores* and *Anthophila*. Ann. Nat. Hist. (7) ix, pp. 145–155, 204–215, 245–255.

199. ——. Descriptions of new species of fossorial *Hymenoptera* from the Khasia Hills, Assam. Op. cit. x, pp. 54–69, 77–89.

200. ——. *Hymenoptera*. [in] Gardiner Fauna and geography of the Maldive and Laccadive Archipelagoes i, pp. 51–63.

201. ——. Description of two new genera and thirteen new species of *Ichneumonidæ* from India. Entomologist 1902, pp. 18–22.

202. ——. Description of a new species of gall-making *Cynipidæ* from the N. W. Himalayas. T. c. p. 38. [*Hymenoptera*.]

203. ——. On some new genera and species of *Hymenoptera*, (*Ichneumonidæ*, *Fossores* and *Apidæ*). T. c. pp. 108–111, 179–183, 206–208, 237–241, 263, 264, 312–315.

204. ——. On the *Hymenoptera* collected by Mr Robert Shelford at Sarawak, and on the *Hymenoptera* of the Sarawak Museum. J. Straits Asiat. Soc. No. 37, pp. 29–131.

205. ——. Description of new species of Aculeate *Hymenoptera* from Borneo. T. c. pp. 132–140.

206. ——. Descriptions of new genera and species of *Hymenoptera* collected by Major C. S. Nurse at Deesa, Simla and Ferozepore. Part. i. J. Bombay Soc. xiv, pp. 267–293, 1 pl., Part ii, t. c. pp. 419–449.

207. ——. Descriptions of new genera and species of American *Hymenoptera*. Tr. Amer. ent. Soc. xxxv, pp. 369–377.

208. ——. Descriptions of new genera and species of *Hymenoptera* from India. Zeitschr. Hym. Dipt. ii, pp. 391–398.

209. Cannaviello, L. Contribución al estudio de los *microlepidópteros* de la Italia meridional. Breves observaciones, sistemáticas y morfológicas sobre el genero *Hydrocampa* Latr. Bol. Soc. espan. ii, pp. 164–173.

210. Cannaviello, H. About some *Rhopalocera* collected near Erythrea colony. Miscell ent. x, pp. 2–8.

211. Carpenter, G. H. *Collembola* [in] voyage of the "Southern Cross," pp. 221–223, pl. xlvii.

212. [Carpenter, G. H.] On the insect fauna of some Irish Caves. Rep. Brit. Ass. 1902, pp. 657, 658.

213. ——. Injurious insects observed in Ireland during the year 1901. Econ. Proc. Dublin Soc. i, pp. 132–160.

214. ——. The diamond-back moth. J. Dep. Agric. Ireland ii, pp. 275–279. [*Lepidoptera.*]

215. Carriker, M. A. Descriptions of new *Mallophaga* from Nebraska. J. N. York Ent. Soc. x, pp. 216–229, pls. xx–xxii.

216. Caudell, A. N. Some insects from the summit of Pike's Peak, found on snow. P. ent. Soc. Washington v, pp. 74–85.

217. ——. Some new or unrecorded *Orthoptera* from Arizona. T. c. pp. 162–166.

218. ——. A new *Phasmid* from Mexico. Ent. News Philad. xiii, p. 274.

219. ——. Notes on *Orthoptera* from Oklahoma and Indian territory, with descriptions of three new species. Tr. Amer. ent. Soc. xxxv, pp. 83–91.

220. ——. The *Decticinean* genus *Eremopedes*. Canad. Ent. xxxiv, pp. 98–101. [*Orthoptera.*]

221. ——. A new species of *Melanoplus* from Arizona. T. c. p. 169. [*Orthoptera.*]

222. Cecconi, G. Note di Entomologia forestale. Bull. Soc. ent. Ital. xxxiv, pp. 126–133.

Chambers, W. W. [See Lutz & Chambers (838).]

223. Champion, G. C. An entomological excursion to central Spain. Tr. ent. Soc. London 1902, pp. 115–129. [*Coleoptera, Hemiptera.*]

——. [See also Godman (545).]

Chapman, B. L. [See Kellogg & Chapman (670, 671).]

224. Chapman, T. A. On *Hypotianæ*, a new subfamily of *Pyralidæ*. Tr. ent. Soc. London 1902, pp. 49–55. [*Lepidoptera.*]

225. ——. On asymmetry in the males of *Hemarine* and other *Sphinges*. T. c. pp. 679–693, pls. xxiv, xxv. [*Lepidoptera.*]

226. ——. On *Heterogynis paradoxa* Rmbr., an instance of variation by segregation. T. c. pp. 717–729, pl. xxviii. [*Lepidoptera.*]

227. ——. On *Crinopteryx familiella* de Peyerimhoff. Ent. Mag. xxxviii, pp. 93–102, pl. ii. [*Lepidoptera.*]

228. ——. The classification of *Gracilaria* and allied genera. Entomologist 1902, pp. 81–88, 138–142, 159–164.

229. ——. Notes on the habits and life-history of *Orgyia splendida*. Ent. Rec. xiv, pp. 41–45, pl. i. [*Lepidoptera.*]

230. ——. A few weeks' entomologising in Spain. T. c. pp. 70–73, etc.

231. ——. On inflation in insects. P. South London Soc. 1902, pp. 22–29.

232. Charnley, J. R. A handbook of British butterflies. London, 1902, 31 pp.

233. ——. The large Copper (*Chrysophanus dispar*). Field Nat. Quart. i, 8 pp. [*Lepidoptera.*]

234. CHITTENDEN, F. H. Some insects injurious to vegetable crops. Bull. U. S. Dep. Agric. Ent. No. 33, n. s., 117 pp.

235. CHOBAUT, A. Excursions entomologiques à Faraman (Camargue). Mem. Ac. Vaucluse (2) ii, pp. 431–444. [*Coleoptera.*]

236. ——. Description d'un *Carabique* cavernicole nouveau du Midi de la France. Bull. Soc. ent. France 1902, p. 88. [*Coleoptera.*]

237. ——. Description d'un *Rhipiphoride* nouveau du nord de l'Afrique. T. c. p. 89. [*Coleoptera.*]

238. CHOLODKOVSKY, N. Ueber den biologischen Cyclus von *Chermes viridanus* Chol. (*Hemiptera-Homoptera, Aphidæ*). Rev. Russe ent. ii, pp. 139–147.

239. ——. Über den Hermaphroditismus bei *Chermes*-Arten. Zool. Anz. xxv, pp. 521, 522. [*Aphidæ.*]

240. *——. II. Beitrag zur Biologie der Blattläuse mit compliziertem Entwicklungscyclus. Mt. St. Petersb. Forstinst. 1900, pp. 125–142. Apparently not previously recorded. According to Zool. Centrlbl. 1903, p. 134, it contains some important suggestions.

241. CHRÉTIEN, P. Note sur trois espèces de *Momphinæ* (*Laverna* olim) de la faune française. Bull. Soc. ent. France 1902, pp. 152–154. [*Lepidoptera.*]
Cf. DARBOUX & HOWARD, t. c. pp. 191–193.

242. ——. La *Stagmatophora divitella* Cst. n'est pas cécidogène. T. c. pp. 261–264. [*Lepidoptera.*]

243. ——. La *Conchylis austrinana.* Nouvelle *Conchylis* cécidogène. Naturaliste xxiv, pp. 257, 258. [*Lepidoptera.*]

CHRISTOPHERS, S. R. [See STEPHENS & CHRISTOPHERS (1329).]

244. *CLÉMENT, A.-L. Cours d'entomologie agricole professé au Luxembourg en 1900 et 1901. Cf. Bull. Soc. ent. France 1902, p. 20.

245. COBELLI, R. Il senso del gusto nel *Lasius emarginatus* Ol. Verh. Ges. Wien lii, pp. 254–257. [*Hymenoptera.*]

246. ——. Le stridulazioni dell' *Acherontia atropos* L. T. c. pp. 572–574. [*Lepidoptera.*]

247. COCKERELL, T. D. A. Flowers and Insects in New Mexico. Amer. Natural. xxxvi, pp. 809–817.

248. ——. North American Bees of the genus *Andrena.* Ann. Nat. Hist. (7) ix, pp. 101–106. [*Hymenoptera.*]

249. ——. *Hymenoptera* of Southern California. I. Bull. S. Calif. Ac. Sci. i, p. 70.

250. ——. *Hymenoptera* of Southern California. II. T. c. pp. 137–140.

251. ——. The bee-genus *Xenoglossa* in California. Ent. News Philad. xiii, p. 103. [*Hymenoptera.*]

252. ——. *Colletes crucis.* T. c. p. 304. [*Hymenoptera.*]

253. ——. New bees of the genus *Andrena* from Wisconsin. Canad. Ent. xxxiv, pp. 45–49. [*Hymenoptera.*]

254. ——. A new bee of the genus *Bombomelecta.* T. c. p. 267. [*Hymenoptera.*]

255. [Cockerell, T. D. A.] A new sawfly of the genus *Xyela*. T. c. p. 194. [*Hymenoptera.*]

256. ——. Some gall insects. T. c. pp. 183, 184. [*Hymenoptera, Diptera.*]

257. ——. A new plant-louse from Southern California. Bull. S. Calif. Ac. i, p. 40. [*Aphidæ.*]

258. ——. The classification of the *Aleyrodidæ*. P. Ac. Philad. liv, pp. 279–283, pl. xv.

259. ——. New genera and species of *Coccidæ*, with notes on known species. Ann. Nat. Hist. (7) ix, pp. 20–26.

260. ——. A contribution to the knowledge of the *Coccidæ*. T. c. pp. 450–456.

261. ——. Some *Coccidæ* from Mexico. Op. cit. x, pp. 465–472.

262. ——. A new genus of South African *Coccidæ*. Entomologist 1902, p. 15.

263. ——. South African *Coccidæ*. II. T. c. pp. 111–114.

264. ——. A contribution to the classification of the *Coccidæ*. T. c. pp. 232, 233, 257–260.

265. ——. Note sur le genre *Hemichionaspis* et description d'une espèce nouvelle. Bull. Soc. ent. France 1902, pp. 81, 82. [*Coccidæ.*]

266. ——. A new scale-insect on *Agave*. Bol. Com. parasit. Agric. Mexico i, pp. 339–343. [*Coccidæ.*]

267. ——. A new scale-insect on *Agave*. Mem. Soc. Ant. Alzate xvii, 143. [*Coccidæ.*]

268. ——. New *Coccidæ* from the Argentine Republic and Paraguay. Canad. Ent. xxxiv, pp. 88–93.

269. ——. A new gall-making *Coccid*. T. c. p. 75.

270. ——. Two new mealy-bugs from New Mexico. T. c. pp. 315, 316. [*Coccidæ.*]

271. ——. A new *Aspidiotus* from *Pinus sylvestris*. Ohio Natural. ii, p. 287. [*Coccidæ.*]

272. —— & Atkins, E. Contributions from the New Mexico biological station. XII. On some genera of bees. Ann. Nat. Hist. (7) ix, pp. 230–234. [*Hymenoptera.*]

273. —— & ——. Contributions from the New Mexico biological station. XIII. On the bees of the family *Nomadidæ* of Ashmead. Op. cit. x, pp. 40–46. [*Hymenoptera.*]

274. Coleman, G. A. The redwood mealy bug (*Dactylopius sequoiæ* sp. nov.). P. Calif. Ac. (3) ii, pp. 409–420, pl. xxvii. [*Coccidæ.*] Recorded last year from a reprint by the Hopkins Lab.

275. Colledge, W. R. Notes on a species of sandfly. P. Soc. Queensland xvii, pp. 17–24, pls. i–iv. [*Diptera.*]

276. Collin, J. E. Note on *Acletoxenus syrphoides*. Ent. Mag. xxxviii, pp. 1–3 and 282, pl. i. [*Diptera.*]

277. ——. Four new species of *Diptera* (Fam. *Borboridæ*) found in Britain. T. c. pp. 55–60.

278. Comstock, J. H. & Kochi, C. The skeleton of the head of insects. Amer. Natural. 1902, pp. 13–45.

279. *[Comstock, J. H.] & Kellogg, V. L. The elements of insect anatomy. New edition. Ithaca, 1901, 145 pp.
Review in Amer. Natural. xxxvi, p. 500, by J. G. N.

Conte, A. [See Levrat & Conte (811).]

280. Cook, O. F. The earwig's forceps and the phylogeny of Insects. P. ent. Soc. Washington v, pp. 84–92.

281. Cook, Melville Thurston. Galls and Insects producing them. Ohio Natural. ii, pp. 263–278, illustrations.

282. Coquillett, D. W. New *Diptera* from North America. P. U. S. Mus. xxv, No. 1280, pp. 83–126.

283. ——. New Orthorrhaphous *Diptera* from Mexico and Texas. J. N. York ent. Soc. x, pp. 136–141.

284. ——. New forms of *Culicidæ* from N. America. T. c. pp. 191–193. [*Diptera.*]

285. ——. New Acalyptrate *Diptera* from North America. T. c. pp. 177–191.

286. ——. New Cyclorrhaphous *Diptera* from Mexico and New Mexico. Canad. Ent. xxxiv, pp. 185–202.

287. ——. Three new species of *Culix*. T. c. pp. 292, 293. [*Diptera.*]

287a. ——. Three new species of Nematocerous *Diptera*. Ent. News Philad. 1902, pp. 84, 85.

288. Cordemoy, J. de. Sur trois zoocécidies de la région méditerranéenne. Bull. Soc. ent. France 1902, pp. 119–121, 159. [*Coleoptera.*]
Cf. Gerber (524).

289. Corti, A. Le galle della Valtellina. Secondo contributo alla conoscenza della cecidiologia Valtellinese. Atti Soc Ital. xli, pp. 177–283.

290. Coulon, L. La chasse aux papillons dans la région d'Elbeuf. Bull. Soc. Elbeuf xx, pp. 61–76. [*Lepidoptera.*]

Craig, John. [See Slingerland & Craig (1292).]

291. Crawford, J. C. Notes and descriptions of bees. Canad. Ent. xxxiv, pp. 234–240. [*Hymenoptera.*]

292. ——. The bee genus *Dialictus*. T. c. p. 318. [*Hymenoptera.*]

293. Cresson, E. T. Descriptions of some *Mutilla* from Brazil. Tr. Amer. ent. Soc. xxviii, pp. 1–91. [*Hymenoptera.*]

294. Cropper, John. The geographical distribution of *Anopheles* and malarial fever in Upper Palestine. J. Hygiene ii, pp. 47–57, 1 map.

295. Csiki, E. *Endomychiden* und *Erotyliden* aus Ceylon gesammelt von Dr Walther Horn. Termes. Fuzetek xxv, pp. 26, 27. [*Coleoptera.*]

296. ——. Uebersicht der Arten der *Endomychiden*-Gattung *Encymon* Gerst. T. c. pp. 28–38. [*Coleoptera.*]

297. ——. *Endomychidæ* novæ. T. c. p. 352. [*Coleoptera.*]

298. ——. Ad cognitionem generis *Corynomalus* Gerst. (*Coleoptera, Endomychidæ*). T. c. pp. 582–592.

299. Czerny, P. L. Bemerkungen zu den Arten der Gattungen *Anthomyza* Fll. und *Ischnomyia* Lw. Wien. ent. Zeit. xxi, pp. 249–256. [*Diptera.*]

300. Dalla Torre, C. G. de. Catalogus *Hymenopterorum*. Vol. iii, pars 2, pp. viii & 545–1141. Completes the work.

301. Dalla Torre, W. & Kieffer, J. J. *Cynipidæ* [in] Wytsman Genera insectorum i, 84 pp., 3 pls. [*Hymenoptera.*]

302. Daniel, J. Das *Aphodius*-Subgen. *Agolius* Muls. München. Kol. Zeitschr. i, pp. 73–95. [*Coleoptera.*]

303. Daniel, K. Revision der mit *Bembidium fasciolatum* Dft. und *tibiale* Dft. verwandten Arten aus dem mittel-europäischen Faunengebiete. München. Kol. Zeitschr. i, pp. 5–37. [*Coleoptera.*]

304. ——. Drei neue *Trechus*-Arten aus Bosnien und der Herzegowina. T. c. pp. 62–65. [*Coleoptera.*]

305. —— & Daniel, J. Nova, von Hauptmann v. Bodemeyer in Kleinasien gesammelt. T. c. pp. 101–113. [*Coleoptera.*]

306. Darboux, G. Sur quelques *Coléoptero*-cécidies du Languedoc. Bull. Soc. ent. France 1902, p. 178.

307. —— & Mingaud, G. Sur la biologie de *Laria obtecta* Say. T. c. pp. 72–76. [*Coleoptera.*]

308. —— & ——. Les deux formes larvaires de *Laria obtecta* (Say). Bull. Soc. Nimes xxix, pp. 25–29. [*Coleoptera.*]

309. Dean, Bashford. A case of mimicry outmimicked? Concerning *Kallima* butterflies in Museums. Science xvi, pp. 832, 833.

310. Deegener, B. Das Duftorgan von *Hepialus hectus* L. Zeitschr. wiss. Zool. lxxi, pp. 276–295, pl. xv. [*Lepidoptera.*]
Summary by M. v. Linden, Zool. Centrlbl. 1902, p. 788, also Summary, J. R. Micr. Soc. 1902, p. 302.

311. ——. Anmerkung zum Bau der Regenerationscrypten des Mitteldarmes von *Hydrophilus.* Zool. Anz. xxv, pp. 273–275.

Del Guercio. [See Guercio, G. Del (571, 572).]

312. Demaison, C. Description de trois *Coléoptères* phytophages nouveaux d'Europe et d'Égypte. Bull. Soc. ent. France 1902, pp. 24, 25.

313. Demaison, L. Observations sur les mœurs de la *Nomophila noctuella* S.V. Bull. Soc. ent. France 1902, pp. 307–309. [*Lepidoptera.*]

314. Demokidoff, K. Zur Kenntnis des Baues des Insectenhodens. Zool. Anz. xxv, pp. 575–578.

315. Desbrochers des Loges, J. *Curculionides* nouveaux d'Europe et confins. Frelon x, pp. 105–111. [*Coleoptera.*]

316. ——. Révision des *Curculionides* appartenant au genres *Eudipnus* et *Conocoetus* et genres voisins et au groupe des *Scythropidæ*, suivie de rectifications synonymiques, observations diverses. T. c. pp. 113–158. [*Coleoptera.*]

317. ——. Diagnoses d'espèces inédites du genre *Apion.* T. c. pp. 159, 160. [*Coleoptera.*]

318. ——. Contributions à la faune entomologique du Sahara algérien. Op. cit. xi, pp. 57–61. [*Coleoptera.*]

319. Desneux, J. Termites du Sahara algérien recueillis par M. le professeur Lameere. Ann. Soc. ent. Belgique xlvi, pp. 436–440. [*Termitidæ.*]

320. Destefani Perez, T. Cecidiozoi e Zoocecidii della Sicilia. Giorn. Soc. Palermo xxiii, pp. 204–240.
Pp. 204–213 are general; the other pp. relate to *Acaro*cecidia.

321. [Destefani Perez, T.] Osservazioni biologiche sopra un *Braconide* aquatico, *Giardinaia urinator*, e descrizione didue altri *Imenotteri* nuovi. Zool. Jahrb. Syst. xv, pp. 625–634, pl. xxxiv.

322. *——. I Zoocecidii sulle piante del genere *Pistacia*. N. Ann. Agric. Sicil. 1902, 37 pp.

323. *——. Contribuzione all' Entomocecidiologia della Flora Sicula. Nuovo Giorn. bot. Ital. n. s. viii, pp. 441–556. [*Hymenoptera*, *Homoptera*.]

Cf. Allg. Zeitschr. Ent. whence it appears that several new species are described.

324. Dewitz, J. Der apterismus bei Insekten, seine künstliche Erzeugung und seine physiologische Erklärung. Arch. Physiol. [Engelmann] 1902, pp. 61–67.

325. ——. Untersuchungen über die Verwandlung der Insektenlarven. Arch. Physiol. [Engelmann], pp. 327–340.

326. ——. Weitere Mittheilungen zu meinen "Untersuchungen über die Verwandlung der Insektenlarven." T. c. pp. 425–442.

327. ——. La suppression de la métamorphose chez des larves d'insectes. C.R. Soc. Biol. liv, pp. 747, 748.

328. ——. Recherches expérimentales sur la métamorphose des insectes. T. c. pp. 44, 45.

329. ——. Sur l'action des enzymes (oxydases) dans la métamorphose des insectes. T. c. pp. 45–47.

330. Dietze, K. Von der spanischen zur italienischen Mittelmeer-grenze. Sammeltage in Südfrankreich; nebst Bericht über die vorgefundenen *Eupithecien*. Deutsche ent. Zeitschr. Iris xv, pp. 231–268. [*Lepidoptera*.]

331. Distant, W. L. The fauna of British India, including Ceylon and Burma. Published under the authority of the Secretary of State for India in Council. Edited by W. T. Blanford. *Rhynchota*, Vol. i. *Heteroptera*. London, 1902, 8vo, xxxviii + 438 pp., 249 illustrations.

332. ——. Insecta transvaaliensia. Parts ii, iii. London, 1902. pp. 25–80, pls. iii–vi. [*Orthoptera*, *Lepidoptera*.]

Some of the descriptions are by W. F. Kirby, and there is one by Chr. Aurivillius.

333. ——. On the insects of the Order *Rhynchota* collected by Sir Harry Johnston, K.C.B., in the Uganda Protectorate. P. Zool. Soc. London 1902, i, pp. 41–44.

334. ——. Rhynchotal notes. xii. *Heteroptera*: Fam. *Pyrrhocoridæ*. Ann. Nat. Hist. (7) ix, pp. 34–45.

335. ——. Rhynchotal notes. xiii. *Heteroptera*: Families, *Tingididæ*, *Phymatidæ*, *Aradidæ*. T. c. pp. 353–362.

336. ——. Rhynchotal notes. xiv. *Heteroptera*: Families *Hydrometridæ*, *Henicocephalidæ* and *Reduviidæ* (part). Op. cit. x, pp. 173–194.

337. ——. Rhynchotal notes. xv. *Heteroptera*: Fam. *Reduviidæ* (continued), *Piratinæ* and *Ectrichodinæ*. T. c. pp. 282–295.

338. ——. Descriptions of new species of *Heterocera* from the Transvaal. Entomologist 1902, pp. 212, 213.

339. [Distant, W. L.] Rhynchotal miscellanea. Ann. S. Afric. Mus. ii, pp. 237–254, pl. xv.

——. [See also Marshall (868).]

340. Dixey, F. A. Notes on some cases of seasonal dimorphism in butterflies, with an account of experiments by Mr G. A. K. Marshall, F.Z.S. Tr. ent. Soc. London 1902, pp. 189–218, pl. iv. [*Lepidoptera.*]

341. Dodd, F. P. Scent organs of *Hepialidæ*. Entomologist 1902, p. 73. [*Lepidoptera.*]

342. ——. Notes on the Queensland green tree ants (*Oecophylla smaragdina* Fab. ?). Victorian Natural. xviii, pp. 136–140 and 140–142. [*Hymenoptera.*]

343. Dognin, P. Hétérocères nouveaux de l'Amérique du Sud. Ann. Soc. ent. Belgique xlvi, pp. 226–233.

344. ——. Hétérocères nouveaux de l'Amérique du Sud. T. c. pp. 335–350.

345. ——. Hétérocères nouveaux de l'Amérique du Sud. T. c. pp. 473–480.

346. ——. Description d'un hétérocère nouveau de l'Amerique du Sud. Naturaliste xxiv, p. 121. [*Lepidoptera.*]

347. Dominique, J. Catalogue des *Hémiptères* (*Heteroptères*, *Homoptères*, *Psyllides*) de la Loire inférieure. Bull. Soc. Ouest France (2) ii, pp. 161–225.

348. Donisthorpe, H. St J. K. The life history of *Clythra quadripunctata* L. Tr. ent. Soc. London 1902, pp. 11–24, pl. iii. [*Coleoptera.*]

349. ——. Notes on the British myrmecophilous fauna (excluding Coleoptera). Ent. Rec. xiv, pp. 14–18, 37–40 & 67–70.

350. ——. Some speculations on Ants' nest beetles. Tr. Leicester Soc. vi, pp. 224–226.

351. Druce, Herbert. Descriptions of some new species of *Lepidoptera*. Ann. Nat. Hist (7) ix, pp. 321–334.

352. Druce, Hamilton, H. On some new and little-known butterflies of the family *Lycænidæ* from the African, Australian and Oriental regions. P. Zool. Soc. London 1902, ii, pp. 113–121, pls. xi, xii. [*Lepidoptera.*]

Duboscq, O. [See Léger & Duboscq (790).]

353. Ducke, A. Die stachellosen Bienen (*Melipona* Ill.) von Pará, nach dem Materiale der Sammlung des Museu Goeldi. Zool. Jahrb. Syst. xvii, pp. 285–328, pl. ii. [*Hymenoptera.*]

354. ——. As especies paraenses do genero *Euglossa* Latr. Bol. Mus. Para. iii, pp. 561–577. [*Hymenoptera.*]

355. ——. Algumas especies novas de Abelhas parasiticas. T. c. pp. 577–579. [*Hymenoptera.*]

356. ——. Neue Arten des Genus *Bothynostethus* Kohl. Verh. Ges. Wien lii, pp. 575–580. [*Hymenoptera.*]

357. ——. Beobachtungen über Blütenbesuch, Erscheinungszeit etc. der bei Pará vorkommenden Bienen. Allg. Zeitschr. Ent. vii, pp. 321–325, 360–367, 400–404, 417–421. [*Hymenoptera.*]
Two parts; 1, list of flowers; 2, notes on the bees, 1 n. sp.

358. [DUCKE, A.] Eine neue Südamerikanische *Cleptes*-Art. Zeitschr. Hym. Dipt. ii, p. 91. [*Hymenoptera.*]

359. ——. Neue Südamerikanische *Chrysididen.* T. c. pp. 97–101, pl. i. [*Hymenoptera.*]

360. ——. Ein neues Subgenus von *Halictus* Latr. T. c. p. 102. [*Hymenoptera.*]

361. ——. Ein wenig bekanntes *Chrysiden*genus *Amisega* Cam. T. c. pp. 141–144. [*Hymenoptera.*]

362. ——. Neue Goldwespen von Pará. T. c. pp. 204–207. [*Hymenoptera.*]

363. DUDGEON, G. C. A catalogue of the *Heterocera* of Sikhim and Bhutan. With notes by H. J. ELWES, and additions by Sir GEORGE HAMPSON. Part XI. J. Bombay Soc. xiv, pp. 6–19, 346–355, 547–553.

364. DUFOUR, H. Sensibilité des Fourmis à l'action de la lumière ultraviolette et à celle des rayons Röntgen. Arch. Sci. Nat. 1902, pp. 558, 559. [*Hymenoptera.*]

——. [See also FOREL & DUFOUR (471).]

365. DURHAM, H. E. Report of the yellow fever expedition to Parà. Thompson Yates Lab. Rep. iv, pp. 485–563.

366. DURY, C. A revised list of the *Coleoptera* observed near Cincinnati, Ohio. With notes on localities, bibliographical references and description of new species. J. Cincinnati Soc. xx, pp. 107–196.

367. DYAR, H. G. A list of North American *Lepidoptera* and key to the literature of this Order of Insects. Assisted by C. H. FERNALD, the late Rev. G. D. HULST, and AUGUST BUSCK. Bull. U. S. Mus., No. 52, pp. xix + 723.

368. ——. A new form of *Clisiocampa* from Colorado. P. ent. Soc. Washington v, p. 38. [*Lepidoptera.*]

369. ——. A *lepidopterous* larva on a leaf-hopper (*Epipyrops barberiana* n. sp.). T. c. pp. 43–45.

370. ——. Notes on mosquitoes on Long Island, New York. T. c. pp. 45–52. [*Diptera.*]

371. ——. Illustrations of the early stages of some *Diptera.* T. c. pp. 56–60, pl. i.

372. ——. The collection of *Lepidoptera* in the National Museum. T. c. pp. 61–71.

373. ——. Notes on mosquitoes in New Hampshire. T. c. pp. 140–148. [*Diptera.*]

374. ——. Description of a new *Noctuid.* Canad. Ent. xxxiv, p. 105. [*Lepidoptera.*]

375. ——. New species of *Semioscopis.* T. c. pp. 319, 320. [*Lepidoptera.*]

376. ——. Descriptions of the larvæ of some moths from Colorado. P. U. S. Mus. xxv, No. 1290, pp. 369–412. [*Lepidoptera.*]

377. ——. A generic subdivision of the genus *Plusia.* J. N. York. ent. Soc. x, pp. 79–82. [*Lepidoptera.*]

378. ——. Illustrations of the larvæ of North American *Culicidæ.* II. T. c. pp. 194–201. [*Diptera.*]

379. [Dyar, H. G.] A review of the genus *Ethmia*, with descriptions of new species. T. c. pp. 202–208. [*Lepidoptera.*]

380. ——. A new *Yponomeuta.* T. c. p. 208. [*Lepidoptera.*]

381. Dyé, Léon. Notes et observations sur les *Culicides.* Arch. parasit. vi, pp. 359–376. [*Diptera.*]

382. Dziurzynski, C. Neue *Zygænen*-Aberrationen. Deutsche ent. Zeitschr. Iris xv, pp. 335–338. [*Lepidoptera.*]

383. Eckstein, K. Ueber die Beurteilung von Nutzen und Schaden der insektenfressenden Vögel. Congr. Zool. v, pp. 512–520.

384. Eckstein, A. Zur Biologie des Kiefernspanners. Allg. Forst. Jagdzeit. January 1901, 4 pp. [*Lepidoptera.*]
Summary, Allg. Zeitschr. Ent. vii, p. 27.

385. Edwards, J. *Stictocoris flaveola* Bohm., an additional species of British *Cicadina.* Ent. Mag. xxxviii, p. 5. [*Hemiptera-Hom.*]

386. ——. On a Cicadine new to Britain. T. c. p. 215. [*Hemiptera-Hom.*]

Edwards, S. [See Kirkaldy & Edwards (712).]

387. Ehrhorn, E. M. A new *Coccid* from California at a very high altitude. Canad. Ent. xxxiv, p. 193.

388. Ehrmann, G. A. A new *Papilio* from the Orient. Ent. News Philad. xiii, p. 291. [*Lepidoptera.*]

389. Eichelbaum, F. Über Varietäten einheimischer *Staphyliniden.* Allg. Zeitschr. Ent. vii, pp. 150–153. [*Coleoptera.*]

390. ——. Über die Maxillarladen der *Coleopteren*-Larven. T. c. pp. 225–229, 276–280.

391. *Eliot, Ida M. & Soule, Caroline G. Caterpillars and their moths. New York, 302 pp., 80 pls.
Review, Canad. Ent. xxxiv, pp. 331, 332.

Elwes, J. H. [See Dudgeon (363).]

392. Embleton, Alice L. On the economic importance of the parasites of *Coccidæ.* Tr. ent. Soc. London 1902, pp. 219–229.

393. Emery, C. An analytical Key to the genera of the family *Formicidæ*, for the identification of the workers. Amer. Natural. xxxvi, pp. 707–725. [*Hymenoptera.*]
Translation by Wheeler of some works that are not yet published.

394. ——. *Formicidarum* species novæ vel minus cognitæ in collectione Musæi nationalis hungarici, quas in Nova Guinea collegit L. Biró. Publicatio tertia. Termes. Fuzetek xxv, pp. 152–160. [*Hymenoptera.*]

395. ——. Nuovi studi sul genere *Eciton.* Mem. Acc. Bologna (5) viii, pp. 173–188, 1 plate. [*Hymenoptera.*]

396. ——. Intorno alle larve di alcune formiche. T. c. pp. 3–10, pls. 1, 2. [*Hymenoptera.*]

397. ——. Description d'une nouvelle espèce de Fourmi du Brésil. Bull. Soc. ent. France 1902, p. 181. [*Hymenoptera.*]

398. Enderlein, G. Ueber normale Asymmetrie der Flügel bei *Naucoris cimicodes* L. Zool. Jahrb. Syst. xv, pp. 561, 562. [*Hemipt.-Heter.*]
Summary, J. R. Micr. Soc. 1903, p. 174.

399. [Enderlein, G.] Eine einseitige Hemmungsbildung bei *Telea polyphemus* von ontogenetischen Standpunkt. Ein Beitrag zur Kenntniss der Entwicklung der Schmetterlinge. Zool. Jahrb. Anat. xvi, pp. 571–614, pls. xl–xlii. [*Lepidoptera.*]

400. Engelhart, C. Tillaeg til fortegnelserne over de i Danmark levende *Coleoptera.* Ent. Meddel. i, pp. 113–228.

401. Enriques, P. Sulla ninfosi nelle mosche. Anat. Anz. xxi, pp. 364–367.
Cf. Berlese (95).

402. Ericson, —. *Orchestes flagellum* Erics. ein Käfer von Spitzbergen. Verh. Ges. Wien lii, pp. 15, 16.

403. Escalera, M. M. de la. Notas sobre los *Dorcadion* de España. Bol. Soc. espan. ii, pp. 270–272. [*Coleoptera.*]

404. ——. Especies nuevas del género *Dorcadion.* T. c. pp. 278–290. [*Coleoptera.*]

405. Escherich, K. Zur Entwicklung des Nervensystems der *Musciden*, mit besonderer Berücksichtigung des sog. Mittelstranges. Zeitschr. wiss. Zool. lxxi, pp. 525–549, pl. xxx.

406. ——. Ueber den sogen. "Mittelstrang" der Insekten. Biol. Centrbl. xxii, pp. 179–181.

407. ——. Biologische Studien über algerische Myrmekophilen, zugleich mit allgemeinen Bemerkungen über die Entwicklung und Bedeutung der Symphilie. T. c. pp. 638–662.

408. ——. Zur Biologie der nordafrikanischen *Myrmecocystus*-Arten (*Formiciden*). Allg. Zeitschr. Ent. vii, pp. 353–360, 390–394. [*Hymenoptera.*]

409. Everts, E. *Coleoptera* neerlandica. De schildvleugelige Insecten van Nederland enhet aangrenzend Gebied. 's Gravenhage 1898–1903, 2 vols. 8vo : vol. i, viii+676 pp. : vol. ii, iv+796 pp., 5 pls.
Also Supplement (published in 1903). Lichaamsbouw, Ontwikkeling en verblijf, alsmede een Korte Mededeeling over het verzamelen en prepareeren, 1903, 138 pp., 6 pls.

410. Fabre, J. H. Les *Halictes.* Rev. quest. Sci. (3) ii, pp. 5–28. [*Hymenoptera.*]

411. Fairmaire, L. Matériaux pour la faune *Coléoptérique* de la région malgache. 12e Note. Ann. Soc. ent. France 1902, pp. 325–388.

412. ——. Matériaux pour la faune *Coléoptérique* malgache. 13e Note. Ann. Soc. ent. Belgique xlvi, pp. 236–271.

413. ——. Matériaux pour la faune *Coléoptérique* de la région malgache. 14e Note. Ann. Soc. ent. France 1902, pp. 532–568.

414. ——. Description d'un *Capnodis* nouveau de l'Asie centrale. Bull. Soc. ent. France 1902, p. 39. [*Coleoptera.*]

415. ——. *Buprestides* nouveaux recueillis par M. Ch. Alluaud dans le sud de Madagascar. T. c. pp. 77–81. [*Coleoptera.*]

416. ——. *Coléoptères* nouveaux de San-Thomé et de Benguela. T. c. pp. 134–136.

417. ——. Diagnoses de *Coléoptères* hétéromères recueillis par M. G.-A. Baer au Pérou. T. c. pp. 148–150.

418. [Fairmaire, L.] Descriptions de deux nouvelles espèces de *Coléoptères* malgaches. T. c. p. 224. [*Coleoptera.*]

419. ——. Descriptions de quelques *Longicornes* de Mouy-Tsé. T. c. pp. 243–245. [*Coleoptera.*]

420. ——. Descriptions de *Coléoptères* de Mouy-Tsé. T. c. pp. 266–269.

421. ——. Descriptions de *Coléoptères* recueillis en Chine par M. de Latouche. T. c. pp. 316–318.

422. ——. Description des *Clérides* recueillis par M. le Dr Decorse dans le Sud-est de Madagascar. Bull. Mus. Paris viii, pp. 306–317. [*Coleoptera.*]

423. ——. Description de *Coléoptères* de Madagascar. Naturaliste xxiv, pp. 286, 287.

424. Fall, H. C. List of the *Coleoptera* of Southern California with notes on habits and distribution and descriptions of new species. P. Calif. Ac. viii, 282 pp.

425. Fauconnet, L. & Viturat, —. Catalogue analytique et raisonné des Coléoptères de Saone-et-Loire et des départements limitrophes. Bull. Soc. Autun xiv, pp. 193–337. Suite. [*Coleoptera, Staphylinidæ.*]

426. Fauvel, A. *Staphylinides* exotiques nouveaux. Rev. Ent. franc. xxi, pp. 8–37. [*Coleoptera.*]

427. ——. Catalogue des *Staphylinides* de la Barbarie de la Basse-Égypte, et des îles Açores, Madères, Salvages et Canaries. 5e. édition. T. c. pp. 45–187. [*Coleoptera.*]

428. Fawcett, J. Malcolm. On the transformations of *Papilio dardanus* Brown, and *Philampelus megæra*; and on two new species of S. African *Heterocera.* P. Zool. Soc. London 1902, ii, pp. 305–307, pl. xxvi. [*Lepidoptera.*]

429. Felt, E. P. Two new species of *Ophion.* Psyche ix, pp. 307, 308. [*Hymenoptera.*]

430. *——. Insects injurious to elm trees. Rep. N. York Mus. 1902, pp. 351–379, 3 pls.
Summary, Zool. Centrlbl. 1902, p. 470.

Fernald, C. H. [See Dyar (367).]

431. Fernald, Mrs C. H. On the type of the genus *Coccus* L. Canad. Ent. xxxiv, pp. 232, 233.

432. Ferton, Ch. Notes détachées sur l'instinct des *Hyménoptères* mellifères et ravisseurs. 2me série. Avec la description d'une espèce nouvelle. Ann. Soc. ent. France 1902, pp. 499–531, pl. iv.

433. ——. Les *Hyménoptères* de la Corse (*Apiaires, Sphégides, Pompilides* et *Vespides*). C.R. Ass. Franc. 1901, pt. 2, pp. 677–680.

434. ——. Sur les mœurs du *Stizus fasciatus* Fabr. T. c. pp. 680–684. [*Hymenoptera.*]

435. Ficalbi, E. Comunicazioni della commissione per lo studio della malaria. Atti Ist. Veneto lxi, pp. 125–136.

436. Fielde, Adele M. Notes on an ant. P. Ac. Philad. liv, pp. 599–625.
Summary, J. R. Micr. Soc. 1903, p. 35.

437. Finot, A. Sur le genre *Euthymia* de la tribu des *Acridiidæ.* Ann. Soc. ent. France 1902, pp. 620–636. [*Orthoptera.*]

438. [Finot, A.] Liste des *Orthoptères* capturés dans le Sahara algérien par M. le professeur Lameere. Ann. Soc. ent. Belgique xlvi, pp. 432–435.

439. ——. Description d'un *Stenobothrus* nouveau de l'île de Céphalonie. Bull. Soc. ent. France 1902, pp. 53–56. [*Orthoptera.*]

440. Fischer, E. Natürliche und künstliche Umformung der Lebewesen. Ber. St. Gall. Ges. 1901–1902, pp. 316–327.
Experiments on *Lepidoptera*; inheritance of acquired characters.

441. ——. Weitere Untersuchungen über die Vererbung erworbener Eigenschaften. Allg. Zeitschr. Ent. vii, pp. 129–134, 201–205, 241–246, 266–272, 301–306, 452–456, 476–483, 506–514, 521–525.

442. Fisher, W. E. Garrett. *Phylloxera.* Enc. Brit. xxxi, pp. 710, 711. [*Aphidæ.*]

443. Fletcher, J. Entomological Record, 1901 [for Canada; not systematic]. Rep. ent. Soc. Ontario xxxii, pp. 99–109.

444. Fleutiaux, E. Note sur les *Dilobitarsus africains* (*Elateridæ*). Ann. Soc. ent. Belgique xlvi, pp. 297–302. [*Coleoptera.*]

445. ——. Essai d'une classification des *Melasinæ* (*Eucneminæ* des auteurs). Ann. Soc. ent. France 1901, pp. 636–664. [*Coleoptera.*]

446. ——. Contributions à la faune Indo-Chinoise. 18me Mémoire. Deuxième addition aux *Cicindelidæ* et *Elateridæ.* Op. cit. 1902, pp. 569–580. [*Coleoptera.*]

447. ——. Description de quelques *Élatérides* nouveaux de ma collection (1er mémoire). Bull. Soc. ent. France 1902, pp. 112–116. [*Coleoptera.*]

448. ——. Descriptions de quelques *Élatérides* nouveaux de ma collection. 2e mémoire. T. c. pp. 137, 138. [*Coleoptera.*]

449. ——. Descriptions de quatre espèces nouvelles du genre *Agrypnus.* T. c. pp. 162–164. [*Coleoptera.*]

450. ——. *Eucnémides* et *Élatérides* des îles Mascareignes. T. c. pp. 193, 194. [*Coleoptera.*]

451. ——. Description de deux *Adelocera* nouvelles. T. c. pp. 213, 214. [*Coleoptera.*]

452. ——. Descriptions de deux espèces nouvelles d'*Elateridæ* du genre *Piezophyllus* Cand. (nec Hope?). T. c. pp. 225, 226. [*Coleoptera.*]

453. ——. Descriptions de deux espèces nouvelles du genre *Pogonostoma.* T. c. pp. 301, 302. [*Coleoptera.*]

454. ——. Deuxième liste des *Cicindelidæ*, *Elateridæ* et *Melasidæ* (*Eucnemidæ*) recueillis au Japon par M. J. Harmand. Bull. Mus. Paris viii, pp. 18–24. [*Coleoptera.*]

455. Folsom, J. W. Papers from the Harriman Alaska expedition. xxvii. *Apterygota.* P. Washington Ac. iv, pp. 87–116, pls. iv–viii.

456. ——. The identity of the snow-flea (*Achorutes nivicola* Fitch). Psyche ix, pp. 315–321, pl. iii. [*Collembola.*]

457. ——. *Collembola* of the grave. T. c. pp. 363–367, pl. iv.

458. Forbes, S. A. Twenty-first report of the State entomologist on the noxious and beneficial insects of the State of Illinois. Chicago, 1900, 184 + xxviii pp.
Consists of reprints of Bull. Illinois exp. Stations lvi & lx.

459. [Forbes, S. A.] Twenty-second report..... Champaign, 1903, 150+xx pp.
Besides reprints this includes two original articles of entomological interest.

460. Forel, A. Die psychischen Fahigkeiten der Ameisen und einiger anderer Insekten. Verh. Congr. Zool. v, pp. 141–169.
A separate work of 57 pp. appears also to have been published with the above title. Cf. Review in Berlin. ent. Zeitschr. xlvi, p. 556.

461. ——. Beispiele phylogenetischer Wirkungen und Rückwirkungen bei den Instinkten und dem Körperbau der Ameisen als Belege für die Evolutionslehre und die psychophysiologische Identitätslehre. J. Psychol. Neurol. i, pp. 99–110.

462. ——. Die Eigentümlichkeiten des Geruchsinnes bei den Insekten. Verh. Congr. Zool. v, pp. 806–815.

463. ——. *Myrmicinæ* nouveaux de l'Inde et de Ceylan. Rev. Suisse Zool. x, pp. 165–249. [*Hymenoptera.*]

464. ——. Les *Formicides* de l'empire des Indes et de Ceylan. Part ix, 5e sous famille: *Myrmicinæ.* J. Bombay Soc. xiv, pp. 520–546. [*Hymenoptera.*]

465. ——. Fourmis nouvelles d'Australie. Rev. Suisse Zool. x, pp. 405–548.

466. ——. Les fourmis du Sahara algérien récoltées par M. le Professeur A. Lameere et le Dr A. Diehl. Ann. Soc. ent. Belgique xlvi, pp. 147–148. [*Hymenoptera.*]

467. ——. Quatre notices myrmécologiques. T. c. pp. 170–181. [*Hymenoptera.*]
i. Les *Camponotus* de mon voyage en Colombei et aux Antilles. ii. Fourmis de l'île de Coco. iii. Une *Trapeziopelta* de l'île de Key. iv. Origine d'une fourmilière de *Camponotus ligniperdus* Latr.

468. ——. Variétés myrmécologique. T. c. pp. 284–296. [*Hymenoptera.*]
i. Quelques *Formicides* nouveau de l'Inde. ii. Suite de l'histoire de mon "*Camponotus ligniperdus*" ♀.

469. ——. Fourmis d'Algérie récoltées par M. le Dr K. Escherich. T. c. pp. 462, 463. [*Hymenoptera.*]

470. ——. Descriptions of some ants from the Rocky mountains of Canada (Alberta and British Columbia). Collected by Edward Whymper. Tr. ent. Soc. London 1902, pp. 699–700. [*Hymenoptera.*]

471. —— & Dufour, H. Ueber die Empfindlichkeit der Ameisen für Ultra-violett und Röntgen'sche Strahlen. Zool. Jahrb. Syst. xvii, pp. 335–338. [*Hymenoptera.*]

472. Forel, F. A. Le Léman Monographie limnologique, iii. ière livraison. Lausanne. Insectes, pp. 79–87.
Review by Zschokke, Zool. Centrlbl. 1902, pp. 338–347.

473. Fountaine, Margaret E. Butterfly hunting in Greece in the year 1900. Ent. Rec. xiv, pp. 29, 35 and 64–67. [*Lepidoptera.*]

474. Fowler, Carrol. Some insects of the year 1899–1900. Rep. Agric. exp. Stat. California 1898–1901, pp. 73–84.

475. ——. The long-tongued bees (*Apidæ*) of California. T. c. pp. 316–330. [*Hymenoptera.*]

476. Fowler, W. W. President's Address. P. ent. Soc. London 1902, pp. lvii–lxxiv.

477. [Fowler, W. W.] *Gynandrophthalma affinis* Hellw., a genus and species of *Coleoptera* new to Britain. Ent. Mag. xxxviii, p. 281.

478. Fox, W. J. Contributions to a knowledge of the *Hymenoptera* of Brazil. No. 8, *Eumenidæ* continued, genus *Odynerus*. P. Ac. Philad. liv, pp. 44–69.

479. ——. *Lithurgopsis*, a new genus of Bees. Ent. News Philad. xiii, pp. 137–140. [*Hymenoptera.*]

480. Friese, H. Die arktischen *Hymenopteren*, mit Ausschluss der Tenthrediniden [in] Romer and Schaudinn. Fauna Arctica ii, pp. 439–498, pl. iii.
Summary, Zool. Centrlbl. 1902, p. 863.

481. ——. Neue Bienen-Arten aus Griechenland. Zeitschr. Hym. Dipt. ii, pp. 105–108. [*Hymenoptera.*]

482. ——. Zwei neue Bienengattungen. T. c. pp. 185–187. [*Hymenoptera.*]

483. ——. Beitiag zur *Apiden*fauna der grossen Antillen. T. c. pp. 196–201. [*Hymenoptera.*]

484. ——. Zwei neue *Rhophites*-Arten. T. c. pp. 380, 381. [*Hymenoptera.*]

485. ——. Neue *Meliponiden*. T. c. pp. 382, 383. [*Hymenoptera.*]

486. ——. Beiträge zur Kenntniss der Insektenfauna von Kamerun. No. 9, *Apidæ* aus Kamerun, West-Afrika, welche Prof. Y. Sjöstedt auf seiner Reise 1890–92 beobachtete. Ent. Tidskr. xxiii, pp. 225–231. [*Hymenoptera.*]

487. ——. Über den Waben-Bau der indischen *Apis*-Arten. Allg. Zeitschr. Ent. vii, pp. 198–200. [*Hymenoptera.*]

488. Frings, C. Bericht über Temperatur-Experimente im Jahre 1901. Soc. ent. xvii, pp. 9–11, etc. [*Lepidoptera.*]

489. ——. Ein Schlusswort zur Verfolgung der Schmetterlinge durch Vögel. T. c. pp. 99, etc. [*Lepidoptera.*]
Cf. Grubauer, t. c. p. 123, & Frings, p. 130.

490. Froggatt, W. W. Notes on Australian *Neuroptera* and their life-histories. P. Linn Soc. N. S. Wales xxvii, pp. 358–369.

491. ——. A natural enemy of the sugar cane beetle in Queensland. Agric. Gaz. N. S. W. xiii, pp. 63–68, 1 pl. [*Hymenoptera.*]

492. ——. Notes on Australian *Hemiptera*. Part ii. T. c. pp. 318–324. Part iii, t. c. p. 434, 1 pl.

493. ——. The collection and preservation of insects. T. c. pp. 419–434, 650–660. (Elementary.)

494. ——. Insects of the wattle trees. T. c. pp. 701–720, pls. i–iii.

495. ——. Australian Ladybird beetles. T. c. pp. 895–911, 1 pl. [*Coleoptera.*]

496. ——. The limitations of parasites in the destruction of scale insects. T. c. pp. 1087–1093.

497. ——. Some garden pests. T. c. pp. 1167–1173, 2 pls.

498. Fruhstorfer, H. Verzeichnis der in Tonkin, Annam und Siam gesammelten *Papilioniden* und Besprechung verwandter Formen. Berlin. ent. Zeitschr. 1902, pp. 167–234. [*Lepidoptera.*]

499. [Fruhstorfer, H.] Neue *Papilio*-Formen aus dem Indo-Malayischen Gebiet. Deutsche ent. Zeitschr. Iris xv, pp. 161–168. [*Lepidoptera.*]

500. ——. Neue *Lepidopteren* aus dem Indo-Malayischen Gebiet. T. c. pp. 169–178.

501. ——. Verzeichniss der in Tonkin, Annam und Siam gesammelten *Pieriden* und Besprechung verwandter Formen. T. c. pp. 269–305. [*Lepidoptera.*]

502. ——. Neue *Papilio*formen und andere *Lepidopteren* aus Ost-Asien und dem malayischen Archipel. T. c. pp. 306–315. [*Lepidoptera.*]

503. ——. Aufzählung der bekannten *Cethosia*-Arten. Stettin. ent. Zeit. 1902, pp. 330–349. [*Lepidoptera.*]

504. ——. Beitrag zur Kenntniss der *Lepidopteren* der Viti-Inseln. T. c. pp. 350–358.

505. ——. *Delias nausicaa* nov. spec. T. c. p. 358. [*Lepidoptera.*]

506. Fuchs, A. Neue *Geometriden* und Kleinfalter des europäischen Faunengebiets. Stettin. ent. Zeit. 1902, pp. 317–330. [*Lepidoptera.*]

507. ——. Alte und neue Gross-Schmetterlinge der europäischen Fauna. Jahrb. nassau. Ver. lv, pp. 67–80. [*Lepidoptera.*]

508. ——. Beiträge zur Kenntniss der *Lepidopteren*-Fauna von Sumatra. Erste Besprechung. Neue *Geometriden.* T. c. pp. 81–91.

509. Fuente, J. M. de la. Datos para la fauna de la provincia de Ciudad-Real. Bol. Soc. espan. ii, pp. 105–107. [*Coleoptera.*]

510. Fuller, C. Second report of the government entomologist. 1901. Pietermaritzburg, 1902, 72 pp.
Review, Ent. Mag. xxxviii, p. 271.

511. Fyles, T. W. The importance of entomological studies to the community at large. [Presidential address.] Rep. ent. Soc. Ontario xxxii, pp. 13–21.

512. Gadeau de Kerville, H. L'accouplement des *Hémiptères.* Bull. Soc. ent. France 1902, pp. 67–71.

Gahan, C. J. [See Shelford (1263) and Johnston (660).]

513. Gallardo, A. Carlos Berg. Reseña biográfica. An. Mus. Buenos Aires vii, pp. ix–xl.
Includes bibliographic list.

514. Galvagni, E. Beiträge zur Kenntniss der Fauna einiger dalmatinischer Inseln. Verh. Ges. Wien lii, pp. 362–388.

515. Ganglbauer, L. Zwei neue *Bathyscien* aus Dalmatien. Verh. Ges. Wien lii, pp. 45–49. [*Coleoptera.*]

516. ——. Eine neue Art der *Pselaphiden*-Gattung *Pygoxyon* aus Süddalmatien. T. c. pp. 49–51. [*Coleoptera.*]

517. ——. Die generische Zerlegung der *Byrrhiden*-Gattung *Pedilophorus.* T. c. pp. 92–94. [*Coleoptera.*]

518. ——. Die europäischen Arten der Gattungen *Byrrhus*, *Curimus*, und *Syncalypta.* Munchen. Kol. Zeitschr. i, pp. 37–52. [*Coleoptera.*]

——. [See also Krauss (736).]

519. Garcia Mercet, R. Nota sobre algunos *Crisididos* de Siria. Bol. Soc. espan. ii, pp. 221–223. [*Hymenoptera.*]

520. GASPERRINI, R. Notizie sulla Fauna imenotterologa Dalmata. IV. *Hymenoptera symphyta.* Spalato, 1901, 8vo.

521. GEEST, W. Eine Aberration von *Rhodocera rhamni* und Entwicklung der *Pieriden*-Farbung. Allg. Zeitschr. Ent. vii, pp. 529–534. [*Lepidoptera.*]

522. GEISENHEYNER, L. Über einige neue und seltenare Zoocecidien aus dem Nahe-Gebiete. Allg. Zeitschr. Ent. vii, pp. 193–198, 246–251, 272–276, 306–312.
69 galls discussed according to their plants.

523. GERBER, C. Habitat de l'*Apion cyanescens* Gyll. aux environs de Marseille. Bull. Soc. ent. France 1902, pp. 208, 209. [*Coleoptera.*]

524. ——. Sur une *Hemiptéro*cécidie et une *Coléoptéro*cécidie des environs de Marseille. C.R. Soc. Biol. liv, pp. 476, 477.
Refers to CORDEMOY (288).

525. *GERMAN, K. ..... Bull. agric. Exp. Stat. Kentucky, Nos. 91, 93, 96.
Particulars as to food of toads. Cf. REH, Allg. Zeitschr. Ent. vii, p. 284.

526. GESTRO, R. Frammenti entomologici. Bull. Soc. ent. Ital. xxxiv, pp. 33–49. [*Coleoptera.*]

527. ——. Materiali per lo studio delle *Hispidæ.* XVII. T. c. pp. 50–60. [*Coleoptera.*]

528. ——. Materiali..... XVIII. T. c. pp. 134–151. [*Coleoptera.*]

529. GIARD, A. Sur la spermatogenèse des *Diptères* du genre *Sciara.* C.R. Ac. Sci. cxxxiv, pp. 1124–1127.

530. ——. Sur l'éthologie des larves de *Sciara medullaris* Gd. T. c. pp. 1179–1185. [*Diptera.*]
Summary of this and preceding, J. R. Micr. Soc. 1902, p. 551.

531. ——. Sur un Psyllocécidie du *Rhamnus alaternus* L. faussement attribuée à une Cochenille. Bull. Soc. ent. France 1902, pp. 121, 122. [*Hemiptera-Homoptera.*]

532. ——. Note sur la larve de l'*Atherix ibis* Fabr. T. c. pp. 220–222. [*Diptera.*]

533. ——. Sur la présence d'*Icerya palmeri* Riley et Howard dans les Vignes du Chili et sur la femelle adulte de cette Cochenille. T. c. pp. 314, 315. [*Coccidæ.*]

334. GIARDINA, A. Sulla biologia delle *Mantidi.* Giorn. Soc. Palermo xxii, pp. 286–326, pls. i, ii. [*Orthoptera.*]

535. ——. Funzionamento dell' armatura genitale femminile e considerazioni intorno alle ooteche degli *Acridii.* Op. cit. xxiii, pp. 54–61. [*Orthoptera.*]

536. ——. Sui primi stadii dell' oogenesi, e principalmente sulle fasi di sinapsi. Anat. Anz. xxi, pp. 293–308.

537. *——. Origine dell' oocite e delle cellule nutrici nell *Dytiscus.* Primo contributo allo studio dell' oogenesi. Int. J. Anat. xviii, pp. 417–484.
Summary by FICK, Zool. Centrlbl. 1902, p. 790.

538. GILES, G. M. A handbook of the gnats or mosquitoes giving the anatomy and life history of the *Culicidæ*, together with descriptions of all species noticed up to the present date. Second edition, rewritten and enlarged. London, 8vo, 1902, viii + 530 pp., 17 pls.

539. GILLETTE, C. P. *Cynipides* and Cynipidous galls on oaks common to Iowa. P. Iowa Ac. i, 1890, pp. 53–56. [*Hymenoptera.*]

540. GILLMER, M. Fünf Zwitter. Allg. Zeitschr. Ent. vii, pp. 208–212. [*Lepidoptera.*]

GILSON, G. [See MIALL & GILSON (916).]

541. GIRARDIN, —. Note sur un insecte nuisible aux Chrysanthèmes. Bull. Soc. Yonne lvi, pp. 43–46, pl. [*Coleoptera.*]

542. GIRSCHNER, E. Ueber Art-Diagnosen und einige Nomenclatur-Regeln. Wien. ent. Zeit. xxi, pp. 118–123.

543. GLASUNOW, D. Revisio specierum bicolorium generis *Nebriæ* Latr. (*Coleoptera, Carabidæ*) in Asia media habitantium. Horæ Soc. ent. Ross. xxxv, pp. 467–492, pl. ii.

544. ——. Une nouvelle *Nebria* alpine du Turkestan (*Coleoptera, Carabidæ*). Rev. Russe Ent. ii, p. 106.

545. GODMAN, F. D. Biologia Centrali-Americana. Parts CLXX–CLXXV.

The entomological contents of the six parts are as follows:

Coleoptera, II, pt. 1, pp. 625–686, pl. xix, *Cryptophagidæ—Byrrhidæ* by D. SHARP, and IV, pt. 4, pp. 1–144, pls. i–viii, *Curculionidæ* by G. C. CHAMPION.
Neuroptera, pp. 73–128, *Odonata* by P. P. CALVERT.
Orthoptera, pp. 25–32, *Acridiidæ* by L. BRUNER.

546. *GOELDI, E. A. Grossartige Schmetterlingszüger am Amazonenstrom. Die Schweiz iv, Heft xix. [*Lepidoptera.*]
Summary, Allg. Zeitschr. Ent. vii, p. 346.

GOLDSCHMIDT. [See MONTGOMERY, T. H. (923).]

547. *GOETHE, R. Bericht der Königl. Lehranstalt fur Wein-, Obst und Gartenbau zu Geisenheim a Rh. für das Jahr 1900/01. Wiesbaden, 150 pp., illustr.
Summary, Allg. Zeitschr. Ent. vii, p. 347.

GORHAM, H. S. [See SHELFORD (1263).]

548. GORKA, —. Die Insekten und die Blumen. Rov. Lapok v, p. 139.

549. GOSS, H. Insecta [in] The Victoria history of the Counties of England: a history of Surrey. London, 102 pp.

GÖTZEN, C. A. VON. [See KAESEBERG (664).]

550. GRAEFFE, E. Die *Apiden*-Fauna des österreichischen Küstenlandes. Verh. Ges. Wien lii, pp. 113–135. [*Hymenoptera.*]

551. GRASSI, G. B. Das Malaria-problem vom zoologischen Standpunkte. Verh. Congr. Zool. v, pp. 99–114.

——. [See also LÜHE (837).]

552. GREEN, E. E. On some parasites of *Xylocopa tenuiscapa* Westw. Ent. Mag. xxxviii, pp. 232, 233. [*Hymenoptera.*]

553. ——. Three new genera of *Coccidæ* from Ceylon. T. c. pp. 260–263.

554. ——. Note on a singular *Coccid* from Victoria. Victorian Natural. xix, pp. 95, 96.

555. GRIFFINI, A. Sulla variazione di caratteri sessuali secondari negli *Scarabeidi*. Mem. Acc. Acireale (3) i, 23 pp.

556. GRIMSHAW, P. H. *Diptera*, supplement [in] Fauna Hawaiiensis iii, pp. 79–86.

557. GROTE, A. R. Results obtained from a search for the type of *Noctua* Linn., and conclusions as to types of Huebnerian Noctuid genera represented in the North American fauna. P. Amer. Phil. Soc. xli, pp. 4–20. [*Lepidoptera.*]

558. GROTE, A. R. A specialized cocoon of *Telea polyphemus.* T. c. pp. 401–405. [*Lepidoptera.*]

559. ——. Die Gattungsnamen der europäischen *Noctuiden.* Allg. Zeitschr. Ent. vii, pp. 395–400. [*Lepidoptera.*]

560. ——. Die Gattungsnamen der europäischen *Geometriden.* T. c. pp. 470–472. [*Lepidoptera.*]

561. ——. Two new species of *Lepidoptera.* Canad. Ent. xxxiv, p. 295.

562. GROUVELLE, A. *Clavicornes* nouveaux du Musée Royal de Bruxelles (Afrique et Australie.) Ann. Soc. ent. Belgique xlvi, pp. 184–190. [*Coleoptera.*]

563. ——. *Coléoptères* (*Silphidæ*, *Nitidulidæ*, *Rhysodidæ*, *Cucujidæ*, *Cryptophagidæ*) recueillis dans le Japon central par M. le Dr Harmand. Bull. Mus. Paris viii, pp. 15–17.

564. ——. *Colydiides* et *Dryopides* nouveaux de Madagascar. Bull. Soc. ent. France 1902, pp. 96–98. [*Coleoptera.*]

565. ——. Voyage du Dr W. Horn à Ceylon. *Coléoptères Clavicornes.* Ann. Soc. ent. France 1902, pp. 481–487.

566. ——. Supplément à la liste des *Coléoptères* de la Guadeloupe de MM. Fleutiaux et Sallé. T. c. pp. 756–769.

567. —— & LÉVEILLÉ, A. Voyage M. le Dr Ed. Bugnion au Vénézuela, en Colombie et aux Antilles. *Coléoptères Clavicornes.* Ann. Soc. ent. France 1902, pp. 461–467.

568. GRUM-GRSHIMAILO, GR. *Lepidoptera* nova vel parum cognita regionis palæarcticæ. II. Annuaire Mus. St. Petersb. vii, pp. 191–204.

569. GRÜNBERG, K. Ein neuer *Anopheles* aus Westafrika, *Anopheles ziemanni* nov. sp. Zool. Anz. xxv, pp. 550, 551. [*Diptera.*]

570. ——. Untersuchungen über die Keim- und Nährzellen in den Hoden und Ovarien der *Lepidopteren.* Op. cit. xxvi, pp. 131–142. Summary in Zool. Centrlbl. 1903, p. 156, also J. R. Micr. Soc. 1903, p. 175.

571. GUERCIO, G. DEL. Contribuzione allo studio dei *Diaspini* dell' Olivo. Bull. Soc. ent. Ital. xxxiv, pp. 179–188.

572. ——. Intorno ad una nuova alterazione dei rami del pero, e ad una minatrice dei rami dell' Olivo attaccati dalla rogna. T. c. pp. 189–198. [*Lepidoptera.*]

573. GULDE, J. Die Dorsaldrüsen der Larven der *Hemiptera-Heteroptera.* Ber. Senckenberg. Ges. 1902, pp. 85–136, pls. vii, viii.

574. HABERHAUER, J. *Porthesia rebeli* n. sp. Soc. ent. xvii, p. 82. [*Lepidoptera.*]

575. HABERMEHL, —. *Hæocryptus* n. g. *Cryptidarum.* Zeitschr. Hym. Dipt. ii, pp. 138, 139. [*Hymenoptera.*]

[HAGEN, H. A. (the late). See CALVERT, P. P. (196).]

[HAGLUND, C. J. E. Obituary. See SJÖSTEDT (1277).]

HALBERT, J. N. [See JOHNSON & HALBERT (659).]

576. HAMPSON, Sir G. F. The moths of South Africa (pt. II). Ann. S. African Mus. ii, pp. 255–446. [*Lepidoptera.*]

577. ——. The moths of India. Supplementary paper to the Volumes in the Fauna of British India. Series II, Part V. J. Bombay Soc. xiv, pp. 103–117. Part. VI. T. c. pp. 197–219. Part VII. T. c. pp. 494–519. [*Lepidoptera.*]

——. [See also DUDGEON (363).]

578. HANCOCK, J. L. The *Tettigidæ* of North America. Chicago, 1902, vii + 188 pp., 11 pls. [*Orthoptera.*]
Review by BURR, Ent. Rec. xiv, pp. 230–232.

579. HANDLIRSCH, A. *Eugereon boeckingi* Dohrn. Verh. Ges. Wien lii, pp. 718–720.

580. HANITSCH, R. On the parthenogenetic breeding of *Eurycnema herculeana* Charpentier. J. Straits Asiat. Soc., No. 38, p. 35. [*Orthoptera.*]

581. HANSSON, C. A. Spridda anteckningar om skandinaviska Rätvingar. Ent. Tidskr. xxiii, pp. 29–39. [*Orthoptera.*]

582. HARRINGTON, W. H. A Canadian *Anoplonyx*. Canad. Ent. xxxiv, pp. 93, 94. [*Hymenoptera.*]

583. ——. Fauna Ottawaensis. *Hymenoptera.* Superfamily II. *Sphegoidea.* Ottawa Natural. xv, pp. 215–224.

584. HAVILAND, G. D. Observations on *Termites*, or white ants. Rep. Smithson. Inst. 1901, pp. 667–678, pls. i–iii.
Reprint of a portion of paper that appeared in J. Linn. Soc. xxvi.

585. HEIDEMANN, O. Remarks on *Ligyrocoris constrictus* Say, and description of *Perigenes fallax*, a new species. P. ent. Soc. Washington v, pp. 155–157. [*Hemipt.-Heteropt.*]

586. HELLER, K. M. Un *Buprestide* nouveau de la Nouvelle-Guinée Allemande. Ann. Soc. ent. Belgique xlvi, p. 234. [*Coleoptera.*]

587. ——. Ueber *Terinos* und eine neue *Abisara*-Art aus Neu-Guinea. Deutsche ent. Zeitschr. Iris xv, pp. 127–132, pl. iii. [*Lepidoptera.*]

588. HEMPEL, A. *Ceratovacuna brasiliensis* Hempel : a correction. Ann. Nat. Hist. ix, p. 400. [*Aphidæ.*]

589. HENDEL, F. Revision der paläarktischen *Sciomyziden.* (*Dipteren*-Subfamilie). Abh. Ges. Wien ii, Heft. 1, 92 pp., 1 pl.

590. ——. Wird die Art durch die Form der secundaren Genitalorgane abgestempelt ? Wien. ent. Zeit. xxi, pp. 83–88. [*Diptera.*]
A controversy with VILLENEUVE, q. v. (1421).

591. ——. *Dippter*ologische Anmerkungen. T. c. pp. 143–146.

592. ——. *Strongylophthalmus*, eine neue Gattung der *Psiliden* (*Dipt.*). T. c. pp. 179–181.

593. ——. Ueber die systematische Stellung der *Dipteren*gattungen *Pseudopomyza* Strobl und *Rhicnoëssa* Lw. T. c. pp. 261–264.

594. HENRY, E. La pyrale grise (*Tortrix pinicolana*) et les mélèzes des Alpes. Feuille Natural. xxxii, pp. 125–130. [*Lepidoptera.*]

595. HERRERA, A. L. La plaga de Mosquitos en la ciudad de México. Mem. Soc. Ant. Alzate xvi, pp. 207–228. [*Diptera.*]

596. ——. El Dr Alfredo Dugès. Op. cit. xvii, Revista, pp. 5–17.

597. HERRICK, G. W. Notes on the life-history and habits of *Oncideres texana*. J. N. York Ent. Soc. x, pp. 15–19. [*Coleoptera.*]

598. HEWETT, W. Yorkshire *Macro-Lepidoptera* in 1897. Tr. Yorkshire Union Series D, vol. i, pp. 157–188.

599. HILGARD, E. W. Report of work of the Agricultural experiment station of the University of California for the years 1898–1901. Pts. I, II, 409 pp.
Cf. FOWLER, C. (474, 475).

600. HILTON, W. A. The body sense hairs of *Lepidopterous* larvæ. Amer. Natural. xxxvi, pp. 561–578.

601. HINDE, S. L. The protective resemblance to flowers borne by an African *Homopterous* insect, *Flata nigrocincta* Walk. Tr. ent. Soc. London 1902, pp. 695–698, pls. xxvi, xxvii.

602. HINDS, W. E. Contribution to a monograph of the insects of the Order *Thysanoptera* inhabiting North America. P. U. S. Mus. xxvi, No. 1310, pp. 79–242.

603. HINE, J. S. A new species of *Gomphus* and its near relatives. Ohio Natural. i, p. 60. [*Odonata.*]

604. ——. Description of new species of *Stratiomyidæ* with notes on others. T. c. pp. 112–114. [*Diptera.*]

605. ——. New or little known *Diptera*. Op. cit. ii, pp. 228–230.

606. HINTZ, E. Neue *Cleriden* aus Deutsch-Ostafrika. Deutsche ent. Zeitschr. 1902, pp. 177–192. [*Coleoptera.*]

607. ——. Beitrag zur Kenntniss der paläarktischen *Cleriden*. T. c. pp. 227–230. [*Coleoptera.*]

608. ——. Neue südafrikanische *Cleriden*. T. c. pp. 397–403. [*Coleoptera.*]

609. HOLDHAUS, C. *Coleopter*ologische Studien I. Verh. Ges. Wien lii, pp. 195–210.

610. HOLLAND, W. J. Description of an apparently new species of *Palindia*. Ent. News Philad. xiii, p. 172. [*Lepidoptera.*]

611. HOLMGREN, N. Ueber die morphologische Bedeutung des Chitins bei den Insecten. Anat. Anz. xxi, pp. 373–378.
Summary, J. R. Micr. Soc. 1903, p. 33.

612. ——. Ueber das Verhalten des Chitins und Epithels zu den unterliegenden Gewebearten bei Insecten. Anat. Anz. xx, pp. 480–488.
Summary, J. R. Micr. Soc. 1902, p. 178.

613. ——. Ueber den Bau der Hoden und die Spermatogenese von *Silpha carinata*. Anat. Anz. xxii, pp. 194–206. [*Coleoptera.*]

614. HOLMGREN, N. Ueber die Exkretions organe des *Apion flavipes* und *Dasytes* niger. T. c. pp. 225–239. [*Coleoptera.*]
Summary, J. R. Micr. Soc. 1903, p. 34.

615. HÖLTZERMANN, F. *Pyrrhia aconiti* spec. nov. aus der Umgegend von Perm in Russland (Ural). Allg. Zeitschr. Ent. vii, pp. 212–214. [*Lepidoptera.*]

616. HOPKINS, A. D. A new genus of *Scolytids* from Florida. P. ent. Soc. Washington v, pp. 34–38. [*Coleoptera.*]

617. ——. Insect enemies of the pine in the Black hills forest reserve. Bull. U. S. Dep. Agric. Ent. No. 32, n. s., 24 pp. [*Coleoptera.*]

618. [Hopkins, A. D.] On the study of forest entomology in N. America. Op. cit. No. 37, pp. 5–32.

619. Höppner, H. Weitere Beiträge zur Biologie nordwestdeutscher *Hymenopteren.* Allg. Zeitschr. Ent. vii, pp. 134, 180, 298.

620. Horn, W. Neue *Cicindeliden* gesammelt von Fruhstorfer in Tonkin 1900. Deutsche ent. Zeitschr. 1902, pp. 65–75. [*Coleoptera.*]

621. ——. Briefe eines reisenden Entomologen. I. T. c. pp. 231–239. II. T. c. pp. 369–396. [*Coleoptera.*]

622. Horváth, G. *Tingitidæ* novæ palæarcticæ. Termes. Fuzetek xxv, pp. 593–600. [*Hemipt.-Het.*]

623. ——. Descriptions of new *Hemiptera* from New South Wales. T. c. pp. 601–612.

624. Houard, C. Sur deux Zoocécidies recueillies en Corse. Bull. Soc. ent. France 1902, pp. 36, 37. [*Diptera.*]

625. ——. Zoocécidies recueillies Algérie. C.R. Ass. Franc. 1901, pt. 2, pp. 699–707.

626. Howard, L. O. Hydrocyanic acid gas against household Insects. Circular No. 46, U. S. Dep. Agric. Ent., 6 pp.

627. Hubner, J. [deceased]. Cf. Zool. Rec. xxxvii Ins. titles (620) continued.
Up to the present time (July 1903), pp. 33–128 have appeared, including several new names by W. F. Kirby.

628. Hübner, O. Neue Versuche aus dem Gebiet der Regeneration und ihre Beziehungen zu Anpassungserscheinungen. Zool. Jahrb. Syst. xv, pp. 461–498, pls. xxviii, xxix.
Summary, Zool. Centrlbl. 1902, pp. 427, 428 by Bergh.

629. Hudson, G. V. On the senses of Insects. Presidental Address. Tr. N. Zealand Inst. xxxiv, pp. 18–31.
Abstracts from Fabre and others.

630. Hüeber, T. Synopsis der deutschen Blindwanzen (*Hemiptera-Heteroptera* Fam. *Capsidæ*). VI. Theil. Jahresh. Ver. Wurttemb. 1901, pp. 112–188. VII. Theil. op. cit. 1902, pp. 86–148.
Completes vol. I.

Hulst, G. D. the late. [See Dyar (367).]

631. Hutton, F. W. On a small collection of *Diptera* from the Southern islands of New Zealand. Tr. N. Zealand Inst. xxxiv, pp. 169–175.

632. ——. The beetles of the Auckland islands, with descriptions of new species by Captain Thos. Broun. T. c. pp. 175–179. [*Coleoptera.*]

633. ——. Additions to the *Diptera* fauna of New Zealand. T. c. pp. 179–196.

634. Imhof, O. Étude comparative des antennes et des ailes chez les Insectes. Arch. Sci. Nat. 1902, pp. 556–558.

635. Jacobi, A. Über neue *Homopteren* aus Tonking. SB. Ges. naturf. Berlin 1902, pp. 20–25.

636. ——. Über *Heteropsaltria* n. g. Cicadarium stridulantium. T. c. pp. 73–76. [*Hemiptera-Hom.*]

637. ——. Beobachtungen über die *Chermes*-Art der Nordmannstanne. Allg. Forst. Jagd-Zeit. 1902, 2 pp. [*Aphidæ.*]

638. *[Jacobi, A.] Über den Einfluss der Schaumcikade (*Aphrophora salicis*) auf die Weiden. Arb. Land. Forst. Gesundheitsamt. ii, Heft. 4. Summary, Zool. Centrlbl. 1902, pp. 531, 532.

639. *Jacobson, G. Anleitung zum Sammeln, Aufbewahren und Versenden von Insekten. St. Petersb., 1902, 110 pp.
Summary in Zool. Centrlbl. 1902, p. 132.

640. Jacobson, G. G. & Bianchi, V. L. *Orthoptera* and *Odonata* of the Russian empire. St. Petersb., 1902, 4to, 432 pp., 21 pls. [incomplete]. Entirely in Russian. The plates are apparently taken from Tümpel's Geradflügler Mitteleuropas. Review by von Adelung, Zool. Centrlbl. 1902, pp. 370–373, and by Kusnezow, Canad. Ent. xxxiv, p. 130.

641. Jacoby, M. Descriptions of new species of *Coleoptera* of the family *Halticidæ* from South and Central America. P. Zool. Soc. London 1902, i, pp. 171–204, pl. xx.

642. ——. Descriptions of some new species of Phytophagous *Coleoptera* from the island of Mauritius. Entomologist 1902, pp. 203–205.

643. Jakowleff, B. E. Révision des *Sphenoptera* de la région éthiopienne (*Coleoptera*, *Buprestidæ*). Horae Soc. ent. Ross. xxxv, pp. 279–355.

644. ——. Étude sur les *Sphenoptera* paléarctiques du sous-genre *Deudora* B. Jak. (*Coleoptera*, *Buprestidæ*). T. c. pp. 561–583.

645. ——. Description d'une nouvelle *Sphenoptera* (*Coleoptera*, *Buprestidæ*) de la Sibérie. Rev. Russe Ent. ii, p. 289.

646. ——. Description d'une nouvelle espèce du genre *Ægus* MacLeay (*Coleoptera*, *Lucanidæ*) de Borneo. T. c. p. 35.

647. ——. Huit nouvelles espèces du genre *Pentodon* Hope (*Coleoptera*, *Scarabæidæ*). Horæ Soc. ent. Ross. xxxv, pp. 266–278.

648. ——. Quatre nouveaux *Pentodon* (*Coleoptera*, *Scarabæidæ*) de l'Asie Centrale. Rev. Russe Ent. ii, pp. 92–98.

649. ——. Notice sur l'appareil stridulatoire chez les espèces du genre *Pentodon* Hope (*Coleoptera*, *Scarabæidæ*). T. c. pp. 77, 78.

650. ——. Un nouveau *Dorcadion* de Crimée (*Coleoptera*, *Cerambycidæ*). T. c. pp. 148–150.

651. ——. Un nouveau représentant du genre *Engistus* Fieb. (*Hemiptera-Heteroptera*, *Lygæidæ*) dans la faune de la Russie. T. c. pp. 13–15.

652. ——. *Hémiptères-Hétéroptères* nouveaux de la faune paléarctique. ii. T. c. pp. 63–70. iii. T. c. pp. 335–340.

653. ——. Les *Peribalus* (*Hemiptera-Heteroptera*, *Pentatomidæ*) de la faune paléarctique. T. c. pp. 157–159.

654. ——. Un nouveau *Coriomeris* (*Hemiptera-Heteroptera*, *Coreidæ*) des Alpes de la Suisse. T. c. pp. 347–349.

655. ——. Nouvelles espèces du genre *Eusarcoris* Hahn de l'Asie orientale. Horæ Soc. ent. Ross. xxxv, pp. 598–602. [*Hemipt.-Heteropt.*]

655a. Janet, Ch. Anatomie du gaster de la *Myrmica rubra*. Paris, 1902, 8vo, 68 pp., 8 pls.

656. Joannis, J. D. Notes sur la faune du Haut-Tonkin. vi. *Lépidoptères* de la région de Cao-bang. Bull. Sci. France Belgique xxxv, pp. 313–364, pl. xvii.

657. JOHNSON, C. W. New North American *Diptera*. Canad. Ent. xxxiv, pp. 240–242.

658. ——. Remarks on *Tephronota ruficeps* and description of a new species. Ent. News Philad. xiii, pp. 143, 144. [*Diptera.*]

JOHNSON, H. P. [See SMITH, J. B. (1303).]

659. JOHNSON, W. F. & HALBERT, J. N. A list of the beetles of Ireland. P. Irish. Ac. (3) vi, pp. 535–827. [*Coleoptera.*]

660. JOHNSTON, Sir HARRY. The Uganda protectorate. In two vols. London, 1902. Zoology, vol. i, chap. xii (352–470).
Several new species of *Insecta* are described by C. O. WATERHOUSE, G. J. ARROW, C. G. GAHAN & W. F. KIRBY.

661. JORDAN, K. Das Mesosternit der Tagfalter. Verh. Congr. Zool. v, pp. 816–830. [*Lepidoptera.*]

662. ——. Neue *Anthribiden* von Dr W. Horn auf Ceylon gesammelt. Deutsche ent. Zeitschr. 1902, pp. 76–78. [*Coleoptera.*]

——. [See also SHELFORD (1263).]

663. JOUTEL, L. H. A new species of *Saperda*. Ent. News Philad. xiii, p. 33, pl. ii. [*Coleoptera.*]

664. KAESEBERG, K. Ueber die auf der Expedition von Goetzen 1893/94 gesammelten *Coleoptera*, pp. 396–400, 1 pl. [in] von Götzen durch Afrika, Berlin, 1895.

665. KARAWAEW, W. Supplement au compte-rendu préliminaire d'une excursion dans l'île de Java. Mem. Soc. Kiev xvii, pp. 273–316.

666. ——. Recherches Zoologiques des matériaux recueillis par l'auteur en hiver 1898–99 sur l'île de Java. T. c. pp. 317–327.

667. KEARFOTT, W. D. A revision of the North American species of the genus *Choreutis*. J. N. York Ent. Soc. x, pp. 106–126. [*Lepidoptera.*]

668. KELLOGG, V. L. The development and homologies of the mouth parts of insects. Amer. Natural. xxxvi, pp. 683–706.

669. ——. Are the *Mallophaga* degenerate *Psocids*? Psyche ix, pp. 339–343.

670. —— & CHAPMAN, B. L. *Mallophaga* from birds of the Pacific coast of North America. J. N. York Ent. Soc. x, pp. 20–28, pl. iii.

671. —— & ——. *Mallophaga* from birds of the Hawaiian islands. T. c. pp. 155–169, pls. xiii–xv.

672. —— & KUWANA, S. I. Papers from the Hopkins Stanford Galapagos expedition, 1898–1899. x. Entomological results (8). *Mallophaga* from birds. P. Washington Ac. iv, pp. 457–499, pls. xxviii–xxxi.
Summary, J. R. Micr. Soc. 1903, p. 38.

——. [See also COMSTOCK & KELLOGG (279).]

673. KEMP, S. W. *Læmostenus complanatus* Dej., in Ireland: an addition to the British fauna. Ent. Mag. xxxviii, p. 216. [*Coleoptera.*]

674. KEMPERS, K. J. W. Het Adersystem der Keverfleugels [conclusion]. Tijdschr. Ent. xlv, pp. 53–71, pl. vii. [*Coleoptera.*]

675. KEMPNY, P. Ueber *Capnia pygmæa*. Verh. Ges. Wien lii, pp. 227–229. [*Perlidæ.*]

676. KERREMANS, C. Description d'un nouveau *Buprestide* de Benguela. Bull. Soc. ent. France 1902, p. 38. [*Coleoptera.*]

677. ——. *Coleoptera Serricornia* fam. *Buprestidæ.* [In] Wytsman Genera insectorum, pp. 48 (incomplete).

678. KERTÉSZ, C. Catalogus *Dipterorum* hucusque descriptorum. Vol. I. *Sciaridæ* etc. to *Rhyphidæ*, 338 pp. Vol. II. *Cecidomyiidæ*, *Tipulidæ*, etc., 359 pp. Leipzig, 1902.
Review, Wien. ent. Zeit. xxi, p. 104.

679. ——. Uebersicht der Südamerikanischen *Ceria*-Arten. Termes. Fuzetek xxv, pp. 85–90. [*Diptera.*]

680. ——. Neue südamerikanische *Chrysopila*-Arten. T. c. pp. 145–151. [*Diptera.*]

681. ——. Neue *Neoglaphyroptera*-Arten aus Süd-Amerika. T. c. pp. 573–581. [*Diptera.*]

681A. KEW, H. W. Notes on the weevil-cocoons of the figworts. Naturalist 1902, pp. 149–155. [*Coleoptera.*]

682. KIAER, H. Die arktischen *Tenthredініden* [in] Römer & Schaudinn, Fauna arctica ii, pp. 401–438. [*Hymenoptera.*]
Summary, Zool. Centrlbl. 1902, p. 863.

683. KIEFFER, J. J. Les *Cynipides* [in] André, Species des *Hymenoptères* d'Europe et d'Algérie. vii, pp. 673–687, pl. xxvii, and vii bis, pp. 1–272, pls. i–ix.
The 82 fasc. (consisting of vii bis, pp. 209–272) is not dated, but is included in our Record.

684. ——. *Evaniidæ.* [In] Wytsman Genera insectorum i, 13 pp., 1 pl.

685. ——. Synopsis des Zoocécidies d'Europe [conclusion]. Ann. Soc. ent. France 1901, pp. 385–579.

686. ——. Suite à la synopse des *Cécidomyies* d'Europe et d'Algérie. Bull. Soc. Metz, Cahier xxi, pp. 9–43. [*Diptera.*]

687. ——. Synopse des représentants européens du groupe *Ceratopogon* avec description de quelques espèces nouvelles. T. c. pp. 143–165. [*Diptera.*]

688. ——. Description de quelques *Cecidomyies* nouvelles. T. c. pp. 167–174. [*Diptera.*]

689. ——. Neue europäische Cecidien. Allg. Zeitschr. Ent. vii, pp. 495–497. [*Hymenoptera.*]

690. ——. Zur Lebensweise von *Oxybelus uniglumis* Dahlb. und ihrer Parasiten (*Mutilliden Musciden*). T. c. pp. 81–85. [*Hymenoptera, Diptera.*]

——. [See also DALLA TORRE & KIEFFER (301).]

691. KING, G. B. A new species of the genus, *Saissetia* (*Coccidæ*). Psyche ix, pp. 296–298.

692. ——. The association of *Coccidæ.* T. c. pp. 401–404.

693. ——. Some new *Coccidæ.* Ent. News Philad. xiii, pp. 41–43.

694. ——. *Coccidæ* of British N. America. Canad. Ent. xxxiv, pp. 158–161.

695. ——. The maple cottony *Phenacoccus.* T. c. pp. 211, 212. [*Coccidæ.*]

696. [King, G. B.] Two new ants'-nest *Coccids* from Texas. T. c. pp. 285, 286.

697. Kirby, W. F. List of a small collection of *Orthopterous* insects formed by Sir Harry Johnston in British East Africa and Uganda in 1899 and 1900, with descriptions of five new species. P. Zool. Soc. London 1902, i, pp. 93–101.

698. ——. Report on a collection of African *Locustidæ* formed by Mr W. L. Distant, chiefly from the Transvaal. Tr. ent. Soc. London 1902, pp. 57–114. [*Orthoptera.*]

699. ——. Additional notes on Mr Distant's collection of African *Locustidæ.* T. c. pp. 231–241. [*Orthoptera.*]

700. ——. Descriptions of two new species of *Bactrododema* (*Phasmidæ*) in the collection of the British Museum (Natural History). Ann. Nat. Hist. ix, pp. 448, 449.

701. ——. Descriptions of five new species of *Locustidæ* from S. Africa. Op. cit. x, pp. 239–242. [*Orthoptera.*]

702. ——. Description of a new genus and species of apterous locust from Ecuador. T. c. pp. 380, 381. [*Orthoptera.*]

703. ——. Description of a new grasshopper from Natal. Entomologist 1902, p. 22. [*Orthoptera.*]

704. ——. The butterflies and moths of Europe. London, 1902, 4to, 432 pp., 55 pls. [*Lepidoptera.*]

Kirby, W. F. [See also Distant (332), Hübner (627), and Johnston (660).]

705. Kirkaldy, G. W. *Hemiptera* [in] Fauna Hawaiiensis iii, pp. 93–174, pls. iv, v.

706. ——. Memoir upon the *Rhynchotal* family *Capsidæ.* Tr. ent. Soc. London 1902, pp. 243–272, pls. v, vi.

707. ——. Miscellanea Rhynchotalia. No. 3. Entomologist 1902, pp. 136–138.

708. ——. Miscellanea Rhynchotalia. No. 4 (*Heteroptera*). T. c. pp. 164–167.

709. ——. Miscellanea Rhynchotalia. No. 5. T. c. pp. 280–284, 315, 316.

710. ——. Memoirs on oriental *Rhynchota.* J. Bombay Soc. xiv, pp. 46–58, 294–309, pls. a, b, c.

711. ——. Eine neue morgenländische *Miriden-* (*Capsiden-*) Gattung. Wien. ent. Zeit. xxi, p. 225. [*Hemiptera Heteroptera.*]

712. —— & Edwards, S. Anmerkungen über bemerkenswerte *Pyrrhocorinen.* Wien. ent. Ziet. xxi, pp. 161–172, pl. iii. [*Hemiptera-Heteroptera.*]

713. Klapálek, F. Zur Kenntniss der *Neuropteroiden* von Ungarn, Bosnien und Herzegovina. Termes. Fuzetek xxv, pp. 161–180.

714. ——. Tres *Pérlidos* de España. Bol. Soc. espan. ii, pp. 111–115.

715. ——. O morfologii Kroužků a prívěsků pohlavních u *Trichopter.* I. Část popisná. Celedi *Rhyacophilidæ*, *Philopotamidæ* a *Hydroptilidæ.* Rozpr. Ceske Ak. Praze xi, No. 35, 38 pp., 2 pls.

716. ——. *Plecopterologische* Studien. Bull. Ceska Ac. vi, pp. 68–72. [*Neuroptera.*]

717. [Klapálek, F.] Beitrag zur Kenntniss der *Neuropteroiden* von Krain und Kärnthen. T. c. pp. 72–78, 1 pl.

718. Klunzinger, C. B. Ueber parasitische Fliegenmaden an einer Kröte. Jahresh. Ver. Württemb. 1902, pp. 371–379. [*Diptera.*]

Kochi, Chujiro. [See Comstock & Kochi (278).]

719. Kohl, F. F. Die *Hymenopteren*-gruppe der *Sphecinen.* ii. Monographie der neotropischen Gattung *Podium* Fabr. Abh. Ges. Wien i, Heft 4, pp. 1–101, pls. i–viii.

720. Kokujew, N. Matériaux pour la faune *hyménoptéro*logique de la Russie. i. Rev. Russe Ent. ii, pp. 4–12.

721. ——. *Syntomomelus rossicus*, gen. et sp. nov. (*Hymenoptera, Braconidæ.*) T. c. pp. 162–165.

722. ——. Le genre *Gonophonus* Förster (*Hymenoptera, Ichneumonidæ*) et son type *Gonophonus mokrzeckii*, sp. n. T. c. pp. 278–280.

723. Kolbe, H. Über vorschnelle Entwickelung von Puppen- und Imago-Organen bei Raupen von *Lepidopteren* (*Dendrolimus pini* L.). SB. Ges. naturf. Berlin 1902, pp. 158–166.

724. *——. Gartenfeinde und Gartenfreunde. Die fur den Gartenbau schädlichen und nützlichen Lebewesen. Berlin, 1901, iii+318 pp.
Review, Amer. Natural. 1902, p. 64, also Entomologist 1902, p. 176.

725. Kolbe, H. J. *Koleopteren* der Aldabra-Inseln. Abh. Senckenb. Ges. xxvi, pp. 567–586.

726. *——. Über die Entstehung der zoogeographischen Regionen auf dem Kontinent Afrika. Naturw. Wochenschr. n. f. i, pp. 145–150.
Summary, Zool. Centrlbl. 1902, p. 311.

727. Koltze, W. Verzeichniss der in der Umgegend von Hamburg gefundenen Käfer. Verh. Ver. Hamburg Unterhalt. xi, pp. 1–194. [*Coleoptera.*]
Summary in Deutsche ent. Zeitschr. 1901, p. 374.

728. Konow, F. W. Ein neuer *Haplostegus* Knw. Zeitschr. Hym. Dipt. ii, p. 103. [*Tenthredinidæ.*]

729. ——. Ein neuer *Holcocneme.* T. c. p. 104. [*Hymenoptera.*]

730. ——. Eine neue *Eriocampa* Htg. T. c. p. 140. [*Hymenoptera.*]

731. ——. Neue Blattwespen. T. c. pp. 384–390. [*Hymenoptera.*]

732. ——. Die *Nematiden*-Gattung *Pristiphora* Latr. (*Hymenoptera, Tenthredinidæ*) soweit dieselbe bisher aus der palæarctischen Zone bekannt ist, systematisch und kritisch bearbeitet. Annuaire Mus. St. Petersb. vii, pp. 161–187.

733. Korb, Max. Eine neue *Zygæna.* Deutsche ent. Zeitschr. Iris xv, p. 326. [*Lepidoptera.*]

734. Kotinsky, J. The first North American leaf-gall *Diaspine.* P. ent. Soc. Washington v, p. 149. [*Coccidæ.*]

735. *Kranches, O. Entomologisches Jahrbuch. xi. Leipzig, 1902.

736. Krauss, H. Eine *coleoptero*logische Excursion auf den Monte Canin in den julischen Alpen. Verh. Ges. Wien lii, pp. 101–109.
The descriptions of new species are by Ganglbauer.

737. Krauss, H. A. Die Namen der ältesten *Dermapteren-* (*Orthopteren-*) Gattungen und ihre Verwendung für Familien und Unterfamilien-Benennungen auf Grund der jetzigem Nomenclaturregeln. Zool. Anz. xxv, pp. 530–543.

738. ——. Beitrag zur Kenntniss der *Orthopteren*fauna der Sahara. Verh. Ges. Wien lii, pp. 230–254.

739. Kroulikowsky, L. Contributions à la faune *lépidoptero*logique de Jaroslawl. [In Russian.] Horæ Soc. ent. Ross. xxxv, pp. 535–560. Summary, Zool. Centrlbl. 1903, p. 157.

740. ——. Petites notices *lépidoptéro*logiques. iii. Rev. Russe Ent. ii, pp. 73–76. iv. T. c. pp. 221–224. v. T. c. pp. 341–343.

741. Krüger, L. Die *Odonaten* von Sumatra. iii. Theil. b. Stettin Ent. Zeit. 1902, pp. 58–193.

742. Kuhlgatz, —, & Melichar. Von ihrer Königl. Hoheit der Prinzessin Therese von Bayern auf einer Reise in Südamerika gesammelte Insekten. Beschreibung der neuen Arten und Varietäten und ergänzende Beschreibung einiger schon beschriebener Arten. Berlin. ent. Zeitschr. 1902, pp. 253–278. [*Hemiptera.*]

743. *Kulagin, N. Die Entstehung der Geschlechter bei den Bienen. Moskau 1901, 8 pp.
In Russian ; summary, Zool. Centrlbl. 1903, p. 165.

744. Kunstler, J. Observations sur le *Calandra orizæ*. Act. Soc. Bordeaux lvii, pp. 17–27. [*Coleoptera.*]

745. —— & Chaine, J. Notice sur une Cécidomie nouvelle. C.R. Soc. Biol. liv, p. 535. [*Diptera.*]

746. —— & Gineste, C. Contribution à l'étude de l'œil composé des Arthropodes. C.R. Ass. Franc. 1901, pt. 2, pp. 646–666.
Chiefly Crustacea.

747. Kuwana, S. J. *Coccidæ* (Scale insects) of Japan. P. Calif. Ac. iii, pp. 44–86, pls. vii–xiii.

748. ——. *Coccidæ* from the Galapagos islands. J. N. York Ent. Soc. x, pp. 28–33, pls. iv, v.

749. ——. Notes on new and little known Californian *Coccidæ*. P. Calif. Ac. (3) ii, pp. 399–406, pls. xxv, xxvi.
Recorded last year from a reprint by the Hopkins Lab.

750. ——. A new *Coccid* from California. Ent. News Philad. xiii, p. 134.

——. [See also Kellogg & Kuwana (672).]

751. Laborde, J. Sur la destruction de certaines insectes nuisibles en agriculture, et notamment de la chenille fileuse du prunier. C.R. Ac. Sci. cxxxiv, pp. 1149–1151. [*Lepidoptera.*]

[Lacaze-Duthiers, Henri de. Obituary. See Pruvot, G. (1094).]

752. Laidlaw, F. F. On a collection of dragon-flies made by members of the Skeat expedition in the Malay peninsula in 1899–1900. P. Zool. Soc. London 1902, i, pp. 63–92, pls. v, vi. [*Odonata.*]

753. ——. On a collection of dragon-flies made by the members of the "Skeat expedition" in the Malay peninsula in 1899–1900. Pt. ii. Op. cit. 1902, ii, pp. 381–389. [*Odonata.*]

754. [Laidlaw, F. F.] Dragon-flies [in] Gardiner, Fauna Maldive Arch. i, pp. 219–222.

755. Laloy, L. Mœurs des *Coléoptères* coprophages spécialement de la Plata. Naturaliste xxiv, pp. 169–171.

756. *Lambillion, L. J. L. Histoire naturelle et mœurs de tous les papillons de Belgique. Vol. i. Namur, 1902, 329+cxxiv pp.
Noticed, Ent. Rec. xiv, p. 224.

757. Lameere, A. Revision des *Prionides.* Premier mémoire. *Parandrines.* Ann. Soc. ent. Belgique xlvi, pp. 59–111. [*Coleoptera.*]

758. ——. Revision des *Prionides.* Deuxième mémoire. *Anoplodermines.* T. c. pp. 191–225. [*Coleoptera.*]

759. ——. ...Troisième mémoire. *Spondylines.* T. c. pp. 303–334.

760. ——. ...Quatrième mémoire. *Sténodontines.* Mem. Soc. ent. Belgique ix, pp. 63–110. [*Coleoptera.*]

761. ——. Note sur les mœurs des fourmis du Sahara. Ann. Soc. ent. Belgique xlvi, pp. 160–169. [*Hymenoptera.*]

762. ——. Note sur les mœurs des *Archiptères* du Sahara. T. c. pp. 441–443.

763. ——. Edmond de Selys Longchamps. Mem. Soc. ent. Belgique ix, pp. 1–32, portrait.

764. ——. Note sur le genre *Tetropiopsis.* Bull. Soc. ent. France 1902, pp. 26, 27. [*Coleoptera.*]

765. ——. Observations sur l'usage des sillons tibiaux chez les *Lamiides.* T. c. pp. 265, 266. [*Coleoptera.*]

766. Lampa, S. Berättelse till. Kongl. Landtbruksstyrelsen angående verksamhaten vid Statens entomologiska anstalt under år 1901. Ent. Tidskr. xxiii, pp. 65–116.

767. ——. Våra inom hus skadligaste malfjarilar. T. c. pp. 122–124, pl. i. [*Lepidoptera.*]

768. Landacre, F. L. A study in variation on the wing of the honey bee. Ohio Natural. i, pp. 119, 120. [*Hymenoptera.*]

769. ——. Muscular and skeletal elements of *Passalus cornutus.* T. c. pp. 299–314. [*Coleoptera.*]

770. Langhoffer, A. Mandibulæ *Dolichopodidarum.* Verh. Congr. Zool. v, pp. 840–846. [*Diptera.*]

771. ——. Einige Mitteilungen über den Blumenbesuch der *Bombyliiden.* T. c. pp. 848–851. [*Diptera.*]

772. Lankester, E. Ray. *Arthropoda.* Encycl. Brit. xxv, pp. 689–701.

773. Lapouge, G. de. Phylogénie des *Carabus* [continuation]. Bull. Soc. Sci. Med. Ouest France x, pp. 325–344, xi, pp. 306–317. [*Coleoptera.*]

774. ——. Degré d'evolution du genre *Carabus* à l'époque du pléistocène moyen. Op. cit. xi, pp. 548–564. [*Coleoptera.*]

775. Lauffer, G. Vorläufige Diagnose eines neuen spanischen *Dorcadion.* Soc. ent. xvii, p. 105. [*Coleoptera.*]

776. Laveran, M. Contribution à l'étude des *Anopheles* de l'isthme de Suez. C.R. Ac. Sci. cxxxv, pp. 704–706. [*Diptera.*]

777. ——. Sur des *Culicides* de Cochinchine et de l'Annam. T. c. pp. 1332–1334. [*Diptera.*]

778. [Laveran, M.] Sur des *Culicides* du Yunnan. T. c. pp. 1334, 1335. [*Diptera.*]

779. ——. Sur les *Culicides* de Cambodge. C.R. Soc. Biol. liv, pp. 906–908. [*Diptera.*]

780. ——. Sur les *Culicides* des Nouvelles-Hébrides. T. c. pp. 908–910. [*Diptera.*]

781. ——. De quelques parasites des *Culicides.* T. c. pp. 233–235.

782. ——. Sur des *Calicides* de Diego-Suarez (Madagascar). T. c. pp. 235, 236.

783. Lea, A. M. List of the Australian and Tasmanian *Mordellidæ*, with descriptions of new species. Tr. ent. Soc. London 1902, pp. 1–9, pls. i, ii. [*Coleoptera.*]

784. ——. Descriptions of new species of Australian *Coleoptera.* Pt. vi. P. Linn. Soc. N. S. Wales xxvi, pp. 481–513.

785. ——. Revision of the Australian *Curculionidæ* belonging to the subfamily *Cryptorhynchides.* Op. cit. xxvii, pp. 408–442. [*Coleoptera.*]

786. Lebedeff, A. Über die Speicheldrüsen der Küchenschabe. Trudui Kazan. Univ. xxxiii, 1, 20 pp., 1 pl.
Recorded last year with insufficient reference. There is a résumé in French of 3 pp. appended.

787. Lécaillon, A. Sur la disposition, la structure et le fonctionnement de l'appareil reproducteur mâle des *Collemboles.* Bull. Soc. Philom. (9) iv, pp. 99–103.

788. ——. Sur le testicule d'*Anurida maritima* Lab. Bull. Soc. ent. France 1902, pp. 64–67. [*Collembola.*]

789. Léger, L. Bactérias parasites de l'intestin des larves de *Chironome.* C.R. Ac. Sci. cxxxiv, pp. 1317–1319.

790. —— & Duboscq, O. Sur la régénération épithéliale dans l'intestin moyen de quelques Arthropodes. Arch. zool. exp. Notes (3) x, pp. xxxvi–xli.

791. Leinberg, A. *Stenus cordaticollis* nov. sp. Medd. Soc. Faun. Fenn. xxvi, p. 187. [*Coleoptera.*]

792. Leist, E. Über Kannibalismus bei Borkenkäfern. Allg. Zeitschr. Ent. vii, pp. 25, 26. [*Coleoptera.*]

793. Leng, C. W. Revision of the *Cicindelidæ* of boreal America. Tr. Amer. ent. Soc. xxxv, pp. 93–186, 4 pls. [*Coleoptera.*]

794. ——. Notes on *Cicindelidæ* of Louisiana. J. N. York Ent. Soc. x, pp. 131–136. [*Coleoptera.*]

795. ——. Notes on the *Cicindelidæ* of the pine barrens of New Jersey. T. c. pp. 236–240. [*Coleoptera.*]

796. Lesne, P. Synopsis des *Bostrychides* paléarctiques [completed]. Abeille xxx, pp. 103–136. [*Coleoptera.*]

797. ——. Voyage du Dr W. Horn à Ceylan. *Bostrychidæ* et *Anobiidæ.* Ann. Soc. ent. France 1902, pp. 476–479. [*Coleoptera.*]

798. ——. Contribution à l'étude des premiers états des *Gyrinides.* Bull. Soc. ent. France 1902, pp. 85, 86. [*Coleoptera.*]

799. ——. Diagnose d'un *Rhipidius* nouveau des environs de Paris. T. c. pp. 181, 182. [*Coleoptera.*]

800. [Lesne, P.] Les *Bostrychides* indo-chinois du genre *Heterarthron.* T. c. p. 223. [*Coleoptera.*]

801. ——. Note sur deux espèces françaises de *Coléoptères* du genre *Rhipidius.* Bull. Mus. Paris viii, pp. 420–423.

802. Le Souef, S. A. Descriptions of some new *Mallophaga* from Marsupials. Victorian Natural. xix, pp. 50, 51.

803. ——. Descriptions of some new species of *Mallophaga* from Australian birds. Pt. iv. T. c. pp. 90, 91.

804. —— & Bullen, H. Description of a mallophagous parasite from the kangaroo. Victorian Natural. xviii, pp. 159.

805. —— & ——. Descriptions of some *Mallophaga* from Australian birds. T. c. pp. 155–158.

806. Levander, K. M. Mittheilungen über *Anopheles claviger* Fabr. in Finland. Acta Soc. Faun. Fenn. xxi, No. 3, 30 pp. [*Diptera.*]

807. Léveillé, A. Voyage du Dr W. Horn à Ceylan. *Temnochilidæ.* Ann. Soc. ent. France 1902, p. 480. [*Coleoptera.*]

808. ——. Diagnoses de trois *Temnochilides* nouveaux du Brésil. Bull. Soc. ent. France 1902, p. 118, 119. [*Coleoptera.*]

809. ——. Diagnoses de trois *Temnochilides* nouveaux. T. c. pp. 197, 198. [*Coleoptera.*]

——. [See also Grouvelle & Léveillé (567).]

810. Levick, J. The role of mosquitos in the spread of malaria. P. Birmingham Soc. xi, pp. 69–93.

811. Levrat, D. & Conte, A. Sur l'origine de la coloration naturelle des soies de *Lépidoptères.* C.R. Ac. Sci. cxxxv, pp. 700-702.
Summary, J. R. Micr. Soc. 1903, p. 35.

812. Lewis, G. On new species of *Histeridæ* and notices of others. Ann. Nat. Hist. x, pp. 223–239, 265–278 and 519. [*Coleoptera.*]

813. Lewis, J. H. Notes on *Coleoptera.* Tr. N. Zealand Inst. xxxiv, pp. 201–204.

814. Lichtwardt, B. Neue ungarische *Dolichopodiden.* Termes. Fuzetek xxv, pp. 197–200. [*Diptera.*]

815. Linden, La Comtesse M. von. Le dessin des ailes des *Lépidoptères* recherches snr son évolution dans l'ontogenèse et la phylogenèse des espèces son origine et sa valeur systématique. Ann. Sci. nat. xv, pp. 1–196, pls. i–xx.
Summary by the author in Zool. Centrlbl. 1902, pp. 378–382.

816. ——. Morphologische und physiologische Ursachen der Flügelzeichnung und Färbung der Insekten mit besonderer Berücksichtigung der Schmetterlinge. Verh. Congr. Zool. v, pp. 831–839. [*Lepidoptera.*]

817. ——. Die Farben der Schmetterlinge und ihre Ursachen. Leopoldina xxxviii, pp. 124–133. [*Lepidoptera.*]

818. ——. Experimentelle Untersuchungen über die Vererbung erworbener Eigenschaften. Biol. Centrbl. xxii, pp. 62–64.

819. ——. Hautsinnes-organe auf der Puppenhülle von Schmetterlingen. Verh. Deutsch. zool. Ges. 1902, pp. 126–133. [*Lepidoptera.*]
Summary, J. R. Micr. Soc. 1903, p. 175.

820. [LINDEN, La Comtesse M. VON.] Zusammenfassende Darstellung der experimentellen Ergebnisse über den Einfluss der Temperatur während der Puppenentwickelung auf die Gestaltung, Färbung und Zeichnung der Schmetterlinge. Die Vererbung erworbener Zeichnungs-charaktere. Zool. Centrlbl. 1902, pp. 581–599.

821. ——. [Summary of Piepers' views as to colour of *Lepidoptera.*] T. c. pp. 415–420.

822. ——. [Summary of Bachmetjew on temperature relations, Zool. Rec. XXXVIII, Ins. (55). T. c. pp. 465–470.

823. LINDROTH, J. I. *Cecidomyia*-larver, somäta rostsporer. Medd. Soc. Faun. Fenn. xxvi, pp. 25–29.

824. LISTER, J. J. Notes on the genus *Liparis.* P. Cambridge Soc. xii, p. 16. [*Lepidoptera.*]

825. LOCHHEAD, W. The hibernation of insects. Rep. ent. Soc. Ontario xxxii, pp. 74–78.

826. LONG, W. H. New species of *Ceratopogon.* Biol. Bull. iii, pp. 3–14. [*Diptera.*]

827. LONGSTAFF, G. B. *Lepidoptera* observed in the parish of Mortehoe, North Devon. Ent. Mag. xxxviii, pp. 19–28.

828. LÓSY, J. A méh és méhtetü együttélése. I. Rov. Lapok ix, pp. 153–156. II. T. c. pp. 175–180. [*Diptera.*]
Commensalism of *Braula.*

829. LOVELL, J. H. The colours of Northern polypetalous flowers. Amer. Natural. xxxvi, pp. 203–242.
Criticised by CHARLES ROBERTSON, t. c. pp. 599, 600. LOVELL replies, t. c. p. 832.

830. LOWER, O. B. Descriptions of new Australian *Lepidoptera.* P. Linn. Soc. N. S. Wales xxvi, pp. 639–671.

831. ——. Descriptions of new genera and species of Australian *Lepidoptera.* Tr. R. Soc. S. Austral. xxvi, pp. 212–247.

832. ——. Descriptions of new Australian *Geometrina* etc. T. c. pp. 248–254. [*Lepidoptera.*]
——. [See also MEYRICK & LOWER (914).]

833. LUCAS, R. & WANDOLLECK, B. Bericht über die wissenschaftliche Leistungen im Gebiete der Entomologie während des Jahres 1898. Zweite Hälfte, pp. 331–912. [*Hymenoptera, Lepidoptera, Diptera, Hemiptera, Neuroptera, Orthoptera, Aptera.*]
Diptera by WANDOLLECK, the rest by LUCAS. Forms part of Arch. Naturg. ii.

834. LUCAS, T. P. New species of Queensland *Lepidoptera.* P. Linn. Soc. N. S. Wales xxvii, pp. 246–251.

835. LUDLOW, C. S. Two Philippine mosquitoes. J. N. York Ent. Soc. x, pp. 127–131. [*Lepidoptera.*]

836. LUDWIG, F. Insekten- und pflanzenbiologische Beiträge. Allg. Zeitschr. Ent. vii, pp. 449–451. [*Thysanoptera.*]

837. LÜHE, M. [Summary of Grassi's recent works on Malaria.] Zool. Centrlbl. 1902, pp. 615–618.

838. LUTZ, F. E. & CHAMBERS, W. W. Report of the Association's experts upon the work of mosquito extermination during the summer of 1902. North shore improvement association. New York, 8vo, 26 pp.

839. LUZE, G. Die *Staphyliniden*-Gattung *Dictyon* Fauv. und Revision der paläarktischen Arten der Gattung *Conosoma* Kraatz. Verh. Ges. Wien lii, pp. 17–39. [*Coleoptera.*]

840. ——. Eine neue Art der *Staphyliniden*-Gattung *Bolitobius* Mannh. aus Sibirien. T. c. p. 110. [*Coleoptera.*]

841. ——. Eine Frage zur Erörterung. T. c. p. 112.
Concerning types.

842. ——. Eine neue Art der *Staphyliniden*-Gattung *Conosoma* Kraatz aus dem Caucasus. T. c. p. 168. [*Coleoptera.*]

843. ——. Revision der paläarktischen Arten der *Staphyliniden*-Gattungen *Hypocyptus* Mannh., *Typhlocyptus* Saulcy, *Coproporus* Kraatz und *Leucoparyphus* Kraatz nebst einer systematischen Uebersicht der *Tachyporinen*-Genera. T. c. pp. 171–194. [*Coleoptera.*]

844. ——. Eine neue Staphyliniden-Gattung der Tribus *Aleocharini.* T. c. p. 304. [*Coleoptera.*]

845. ——. Revision der paläarktischen Arten der *Staphyliniden*-Gattungen *Anthophagus* Gravh. und *Hygrogeus* Rey. T. c. pp. 505–530. [*Coleoptera.*]

846. ——. Die Metamorphose von *Cantharis abdominalis* Fabr. Berlin. ent. Zeitschr. 1902, pp. 239–242. [*Coleoptera.*]

847. LYMAN, H. H. What is a genus? Canad. Ent. xxxiv, pp. 187–192. [*Lepidoptera.*]

848. ——. The North American fall Webworms. Rep. ent. Soc. Ontario xxxii, pp. 57–62. [*Lepidoptera.*]

849. MABILLE, P. Description d'un genre et d'une espèce nouvelle d'*Hespéride* de l'Équateur. Bull. Soc. ent. France 1902, pp. 179, 180. [*Lepidoptera.*]

850. MAINARDI, A. *Rhizotrogus grassii* nuovo *Coleottero* italiano. Bull. Soc. ent. Ital. xxxiv, pp. 105–111.

851. MALLY, C. W. Hackberry *Psyllidæ* found at Ames, Iowa. P. Iowa Ac. i, pt. iv, 1894, pp. 131–138.

852. ——. *Psyllidæ* found at Ames. Op. cit. ii, 1895, pp. 152–171.

853. MANN, H. Note on a disputed point in the life-history of *Helopeltis theivora.* J. Asiat. Soc. Bengal lxxi, pp. 133–137. [*Hemiptera-Heter.*]

854. MANTERO, G. Enumerazione delle Mutille raccolte nell' Alto Paraguay da Guido Boggiani. Bull. Soc. ent. Ital. xxxiv, pp. 120–125. [*Hymenoptera.*]

855. MARCHAL, P. Rapport sur la Tenthrède de la rave et sur les dégâts exercés par cet insecte en 1901 aux environs de Paris. Ann. Ministère Agric. 1902, No. 2, 10 pp. [*Hymenoptera.*]

856. ——. Le parasitisme des *Inostemma.* Bull. Soc. zool. France xxvii, pp. 78–81. [*Hymenoptera.*]

857. ——. Observations sur la biologie des Hyponomeutes, et remarques à propos de la distinction des espèces nuisibles aux arbres fruitiers. Bull. Soc. Zool. agric. i, 14 pp. sep. copy. [*Lepidoptera.*]

858. MARCHAND, E. Inventaire des Tentherédonides ou Mouches à scie (*Hymenoptera-chalastogastra*) recueillies aux environs de Nantes. Suivi de notices sur quelques espèces particulièrement nuisibles. Bull. Soc. Ouest France (2) ii, pp. 233–296.

859. [Marchand, E.] Description de deux Arthropodes nouveaux provenant du Soudan français. T. c. pp. 331–343, pl. xiii. [*Coleoptera.*]

860. Marlatt, C. L. Résumé of the search for the native home of the San José scale in Japan and China. Bull. U. S. Dep. Agric. Ent. No. 37, pp. 65–78. [*Coccidæ.*]

861. ——. Predatory insects which affect the usefulness of scale-feeding *Coccinellidæ.* T. c. pp. 84–87.

862. ——. Report of the acting entomologist for 1902. Ann. Rep. Dep. Agric. U. S. 1902, pp. 189–207.
Also issued as a separatum.

863. ——. Collecting notes on mosquitoes in Oriental countries. P. ent. Soc. Washington v, pp. 111–123. [*Diptera.*]

864. ——. Notes on the periodical *Cicada* in the district of Columbia in 1902. T. c. pp. 124–126. [*Hemiptera-Homoptera.*]

865. ——. The silver fish (*Lepisma saccharina* L.) Circ. No. 49, 2nd Ser., U. S. Dep. Agric. Ent., 4 pp. [*Thysanura.*]

866. ——. The white Ant (*Termes flavipes* Koll.). Circ. No. 50, op. cit., 8 pp.

867. ——. Cockroaches. Circ. No. 51, op. cit., 15 pp. [*Orthoptera.*]

868. Marshall, Guy A. K. Five years' observations and experiments (1896–1901) on the bionomics of South African insects, chiefly directed to the investigation of mimicry and warning colours. With a discussion of the results and other subjects suggested by them by Edward B. Poulton: and an appendix containing descriptions of new species by Ernest E. Austen, William L. Distant, Colonel Charles T. Bingham, Guy A. K. Marshall, and Jules Bourgeois. Tr. ent. Soc. London 1902, pp. 287–584, pls. ix–xxiii.

869. ——. On new species of the South African *Curculionidæ* of the genus *Hipporrhinus* Schön. Ann. Nat. Hist. x, pp. 404–417, 439–457. [*Coleoptera.*]

870. ——. On the specific value of *Byblia gotzius* Hersbst. Ent. Mag. xxxviii, pp. 46–51. [*Lepidoptera.*]

871. Marshall, T. A. Description d'un *Anthribide* nouveau de la Corse. Bull. Soc. ent. France 1902, pp. 210–212. [*Coleoptera.*]

872. Martin, J. *Hemiptères Hétéroptères* nouveaux d'Asie. Bull. Mus. Paris viii, pp. 333–337.

873. Matsumura, S. Monographie der *Jassinen* Japans. Termes. Fuzetek xxv, pp. 353–404. [*Hemiptera-Homoptera.*]

874. ——. Über die Priorität des *Jassidæus lugubris* Sign. Allg. Zeitschr. Ent. vii, pp. 44–47. [*Hemiptera-Homoptera.*]

876. Maxwell-Lefroy, H. Scale insects of the West Indies. West India Bull. iii, pp. 240–270 and 295–319. [*Coccidæ.*]

877. Mayer, A. G. Effects of Natural Selection and Race-tendency upon the color-patterns of *Lepidoptera.* Bull. Mus. Brooklyn i, pp. 31–86, plates i, ii.

878. MAYR, G. *Hymenopterologische* Miscellen. Verh. Ges. Wien lii, pp. 287–303.
Ueber nordamerikanische *Cynipiden.* Eine neue *Encyrtinen*-Art. Westafrikanische *Formiciden.*

879. MCCLENDON, J. F. The life history of *Ulula hyalina* Latreille. Amer. Natural. xxxvi, pp. 421–429. [*Neuroptera.*]

880. MCCLUNG, C. E. The accessory chromosome. Sex determinant? Biol. Bull. iii, pp. 43–84.

881. ——. The spermatocyte divisions of the *Locustidæ.* Kansas Univ. Bull. i, pp. 185–231, pls. vii–x.
Summary, J. R. Micr. Soc. 1903, p. 37.

882. MCLACHLAN, R. A second African species of *Psychopsis* : *P. marshalli* McLach. Ent. Mag. xxxviii, p. 234. [*Neuroptera.*]

883. MEEHAN, —. Flowering of *Lobelia*... [reprinted]. Ann. Nat. Hist. ix, pp. 465, 466.

884. MEGUŠAR, F. Vorläufige Mittheilungen über die Resultate der Untersuchungen am weiblichen Geschlechtsorgane des *Hydrophilus piceus.* Zool. Anz. xxv, pp. 607–610.
Summary, J. R. Micr. Soc. 1902, p. 643.

885. MELANDER, A. L. A monograph of the North American *Empididæ.* Part I. Tr. Amer. ent. Soc. xxxv, pp. 195–367, pls. v–ix. [*Diptera.*]

886. ——. Two new *Embiidæ.* Biol. Bull. iii, pp. 16–26.

887. ——. A new silphid beetle from a simple insect-trap. Psyche ix, pp. 328, 329. [*Coleoptera.*]

888. ——. The nesting habits of *Anthidium.* Biol. Bull. iii, pp. 27–32. [*Hymenoptera.*]

889. ——. Notes on the *Acroceridæ.* Ent. News Philad. xiii, pp. 178–182. [*Diptera.*]

890. —— & BRUES, C. T. New species of *Gasteruption*, *Trigonalys*, *Parnopes*, and *Psammophila.* Biol. Bull. iii, pp. 33–42. [*Hymenoptera.*]

891. MELDOLA, R. Mimetic insects. P. R. Inst. Brit. xvi, pp. 693–698.

892. MELICHAR, L. Monographie der *Acanaloniiden* und *Flatiden.* [Completed.] Ann. Hofmus. Wien xvii, pp. 1–253, 9 pls.

893. ——. Einige neue *Homopteren.* Wien. ent. Zeit. xxi, pp. 75–80.

894. ——. *Homopteren* aus West-China, Persien und dem Süd-Ussuri Gebiete. Annuaire Mus. St. Petersb. vii, pp. 76–146, pl. v.

——. [See also KUHLGATZ & MELICHAR (742).]

895. MENDES D'AZEVEDO, C. *Lepidopteros* de Portugal. I. Lepidopteros da região de S. Fiel (Beira Baixa). Broteria i, pp. 151–171.

896. MENEGAUX, A. La Galéruque de l'orme. C.R. Ass. Franc. 1901 (2), pp. 550–553. [*Coleoptera.*]

897. MENGEL, L. W. Four new species of butterflies from S. America. Ent. News Philad. xiii, pp. 176–178, pl. viii. [*Lepidoptera.*]

898. MEUNIER, F. Études de quelques *Diptères* de l'ambre. Ann. Sci. nat. xvi, pp. 395–406.

899. [Meunier, F.] Description de quelques *Diptères* de l'ambre. Ann. Soc. Bruxelles xxvi, pp. 96–104, 1 pl.

900. ——. Les *Culicidæ* de l'ambre. Rev. Sci. Bourbonnais xv, pp. 199, 200. [*Diptera.*]
Mochlonyx sepultus Loew. only.

901. ——. Una nueva *Cicada* del Kimeridgense en el Montsech Provincia de Lérida (Cataluña). Mem. Ac. Barcelona iv, No. 18, pp. 9–14. [*Hemiptera-Homoptera.*]

902. ——. Aperçus des principales publications d'entomologie agricole, horticole et forestrière parues en France, en Allemagne et aux Etats-Unis pendant l'année 1900. Bruxelles, 1901, 8vo, 14 pp.
Cf. Allg. Zeitschr. Ent. vii, p. 487.

903. Meves, F. Ueber oligopyrene und apyrene Spermien und über ihre Entstehung, nach Beobachtungen an *Paludina* und *Pygæra.* Arch. mikr. Anat. lxi, pp. 1–84, pls. i–viii.

904. Meyer-Darcis, G. Beiträge zur Kenntniss der Gattung *Coptolabrus* Solier. Mt. Schweiz. ent. Ges. x, pp. 405–410, plate. [*Coleoptera.*]

905. ——. *Odontolabis fruhstorferi* Meyer-Darcis. T. c. p. 410, pl. i. [*Coleoptera.*]

906. Meyrick, E. *Lepidoptera* [in] Gardiner, Fauna Maldive i, pp. 123–126.

907. ——. Descriptions of new Australian *Lepidoptera.* Tr. ent. Soc. London 1902, pp. 25–48.

908. ——. *Lepidoptera* from the Chatham islands. T. c. pp. 273–279.

909. ——. An Australian species of *Micropterygidæ.* Ent. Mag. xxxviii, p. 60. [*Lepidoptera.*]

910. ——. A new genus of *Gelechiadæ.* T. c. p. 103. [*Lepidoptera.*]

911. ——. Three new *Lepidoptera* from Aden. T. c. pp. 175, 176.

912. ——. A new European species of *Pterophoridæ.* T. c. p. 217. [*Lepidoptera.*]

913. ——. Descriptions of new species of *Lepidoptera* (*Oecophoridæ*). Tr. R. Soc. S. Austral. xxvi, pp. 133–174.

914. —— & Lower, O. Revision of the Australian *Hesperiadæ.* T. c. pp. 38–129. [*Lepidoptera.*]

915. Miall, L. C. Injurious and useful insects, an introduction to the study of economic entomology. London, 1902, viii + 256 pp., 103 cuts.

916. —— & Gilson, Gustave. On a new cricket of aquatic habits found in Fiji by Professor Gustave Gilson. Tr. ent. Soc. London 1902, pp. 281–285, pls. vii, viii. [*Orthoptera.*]

917. Millett, G. P. White ants' castles. J. Bombay Soc. xiv, pp. 581, 582. [*Termitidæ.*]

Mingaud, G. [See Darboux & Mingaud (307, 308).]

918. Mitchell, J. D. Observations on the habits of two *Cicindelidæ.* P. ent. Soc. Washington v, pp. 108–110. [*Coleoptera.*]

919. Mocsáry, A. Species aliquot *Chrysididarum* novæ. Termes. Fuzetek xxv, pp. 339–349. [*Hymenoptera.*]

920. [Mocsáry, A.] *Chrysididæ* in Africa meridionali a Dre. Brauns collectæ. T. c. pp. 536–572. [*Hymenoptera.*]

921. *Mokrzetzki, S. A. Der Wiesenzünsler (*Phlyctænidæ sticticalis* L., *Eurycreon* [*Botys*] *sticticalis* L.), dessen Lebensweise und die Mittel zu seiner Bekämpfung. St. Petersburg, 1902, 23 pp.
In Russian ; summary, Zool. Centrlbl. 1903, p. 159.

922. *——. Schädliche Tiere und Pflanzen im Gouvernement Taurien im Jahre 1900 mit Angabe der Mittel zu ihrer Bekampfung. Simferopol, 1901, 97 pp.
In Russian ; summary by v. Adelung, Zool. Centrlbl. 1903, pp. 15–19.

923. Montgomery, T. H. A study of the chromosomes of the germ cells of Metazoa. Tr. Amer. Phil. Soc. xx, pp. 154–230, pls. iv–viii. [*Hemiptera.*]
Summary by Goldschmidt, Zool. Centrlbl. 1902, pp. 245–247.

924. Monti, R. Contributo alla conoscenza della *Dolichopoda geniculata* (O. G. Costa). Nota prima. Rend. Ist. Lombardo xxxv, pp. 470–491, pl. i. [*Orthoptera.*]

925. Moore, F. *Lepidoptera* indica. Pts. liii–lx. Vol. v, pp. 97–248, pls. 406–466. London, 1902, 1903, 4to. Completes Vol. v.

926. Morice, F. D. Two new palæarctic species of *Astatus*. Ent. Mag. xxxviii, pp. 104–106. [*Hymenoptera.*]

927. Morley, C. A new species of *Microgaster*. Ent. Mag. xxxviii, p. 4. [*Hymenoptera.*]

928. ——. On the *Ichneumonides* of the older British authors. T. c. pp. 118–123. [*Hymenoptera.*]

929. ——. On *Nyxeophilus corsicus* Marsh., an addition to our fauna, with a description of the male. T. c. pp. 173–175. [*Hymenoptera.*]

930. Morton, K. J. Notes on the females of Arctic and northern species of *Apatania*. Ent. Mag. xxxviii, pp. 150–157, pl. iii. [*Trichoptera.*]

931. ——. A new Indian Micro-*Trichopteron*. T. c. p. 283.

932. Moser, J. Einiges über die Arten der Gattung *Eccoptocnemis* Krtz. Berlin. ent. Zeitschr. 1902, pp. 144–146. [*Coleoptera.*]

933. ——. Neue *Cetoniden*-Arten. T. c. pp. 283–287. [*Coleoptera.*]

934. Muckermann, H. The structure of the nests of some North American species of *Formica*. Psyche ix, pp. 355–360. [*Hymenoptera.*]

935. Müller, J. *Lucanidæ* et *Scarabæidæ* Dalmatiæ. Verh. Ges. Wien lii, pp. 438–466. [*Coleoptera.*]

936. ——. Ueber *Bythinus czernohorskyi* Reitt., sowie über einen neuen *Bythinus* aus Dalmatien. Munchen Kol. Zeitschr. i, pp. 69–72. [*Coleoptera.*]

937. Münster, T. Die norwegischen Arten der Familie *Byrrhidæ* (*Cistelidæ* Reitter), nebst Beschreibung eines neuen Genus und zweier Arten. Verh. Ges. Wien lii, pp. 87–91. [*Coleoptera.*]

938. ——. Index *Coleopterorum* Norvegiæ. I. Fortegnelse over dei Norge hittil iakttatte arter av familierne *Clambidæ*, *Corylophidæ*, *Trichopterygidæ*, *Erotylidæ*, *Phalacridæ* og *Lathridiidæ*. Forh. Selsk. Christian. 1901, No. 1, 43 pp.

939. Murillo, L. The *Eumæus debora*. Ent. News Philad. xiii, pp. 35–38. [*Lepidoptera.*]

940. Navás, Longinos. Notas entomológicas. x. El genero *Pycnogaster* Graells en España. Bol. Soc. espan. ii, pp. 266–270. [*Orthoptera.*]

941. ——. *Diláridos* de España. Mem. Ac. Barcelona iv, No. 28, 11 pp. [*Neuroptera.*]

942. Notas *Neuropterol*ógicas. iii. El género *Chrysopa* en España. Bull. Inst. Catalana i, 7 pp.

943. ——. Notas *Neuropterol*ógicas. iv. Pérlidos de España. T. c. No. 6, 7 pp.

944. ——. Fáunula entomológica estival de Brihnega (Provincia de Guadalajara). Bol. Soc. Aragon Ci. nat. i, 12 pp. (sep. copy).

945. Needham, J. G. A probable new type of hypermetamorphosis. Psyche ix, pp. 375–378. [*Trichoptera.*]

946. ——. Three new *Gomphines.* Canad. Ent. xxxiv, pp. 275–278. [*Odonata.*]

947. ——. A remarkable occurrence of the fly *Bibio fraternus* Loew. Amer. Natural. xxxvi, pp. 181–187. [*Diptera.*]

948. *Nentwig, A. Mitteilungen über Leben und Entwickelung der *Psyche* var. *stettiniensis* und *viadrina.* Mt. Ver. Troppau vi, pp. 235–241. [*Lepidoptera.*]
Summary, Allg. Zeitschr. Ent. vii, p. 346.

949. Neumann, G. Deux nouvelles *Pédiculines.* Arch. parasit. v, pp. 600, 601 and op. cit. vi, p. 144. [*Anoplura.*]

950. Neveu-Lemaire, —. Sur la classification des *Culicides.* C.R. Soc. Biol. liv, pp. 1329–1332. [*Diptera.*]

951. ——. Classification de la famille des *Culicidæ.* Mem. Soc. zool. France xv, pp. 195–227. [*Diptera.*]

952. ——. Note additionelle sur quelques moustiques de la Guyane. T. c. pp. 613–618. [*Diptera.*]

953. ——. Description de quelques moustiques de la Guyane. Arch. parasit. vi, pp. 5–25. [*Diptera.*]

954. ——. Sur les réceptacles séminaux de quelques *Culicides.* Bull. Soc. zool. France xxvii, pp. 172–175. [*Diptera.*]

955. ——. Instructions relatives à la récolte des moustiques. T. c. pp. 233–237.

956. Newbery, E. A. A revision of the Britisb species of *Bagous* Schoen. Ent. Rec. xiv, pp. 149–156. [*Coleoptera.*]

957. Nicéville, L. de [the late]. On new and little known butterflies mostly from the oriental region. J. Bombay Soc. xiv, pp. 236–251, and 450–457, pl. ff. [*Lepidoptera.*]

958. ——. A list of butterflies of Hongkong in Southern China, and the food-plants of the larvæ. J. Asiat. Soc. Bengal lxxi, pp. 1–36. [*Rhopalocera.*]

959. Nicholl, Mrs M. de la B. Algerian butterflies in February, March and April 1902. Ent. Mag. xxxviii, pp. 274–280. [*Lepidoptera.*]

960. ——. Three weeks in Spain. Ent. Rec. xiv, pp. 10–12. [*Lepidoptera.*]

961. ——. The *Lepidoptera* of Bosnia and Montenegro. T. c. pp. 141–146.

962. Nielsen, J. C. Biologiske Studier over danske enlige Bier og deres Snyltere. Vid. Medd. 1902, pp. 75–106. [*Hymenoptera.*]
Summary in English, pp. 102–106.

963. [Nielsen, J. C.] Zur Lebensweise und Entwickelung von *Ceratocolus subterraneus* Fabr. Allg. Zeitschr. Ent. vii, pp. 178–180. [*Hymenoptera.*]

964. ——. Biologiske og faunistiske Meddelelser om Danske *Cynipider.* Ent. Meddel. i, pp. 229–232. [*Hymenoptera.*]

965. Noel, P. Encore une nouvelle maladie du chêne en Normandie. Le chêne pouillard. Naturaliste xxiv, pp. 20 & 129. [*Aphidæ.*]

966. Nurse, C. G. New species of Indian *Chrysididæ.* Entomologist 1902, pp. 304–308. [*Hymenoptera.*]

967. ——. New species of Indian *Hymenoptera.* J. Asiat. Soc. Bengal lxx, pp. 146–154.

968. ——. New species of Indian *Hymenoptera.* J. Bombay Soc. xiv, pp. 79–92, 1 pl.

969. Oberthur, C. Études d'Entomologie. Vingt-unième livraison, Fevr. 1902. Variation des *Heliconia thelxiope* et *vesta.* 26 pp. xi plates.
Cf. Stichel (1333) & Riffarth (1154).

970. ——. Observations sur un fait de mimétisme fourni respectivement par les deux sexes des *Limenitis albomaculata* et *Athyma punctata.* Bull. Soc. ent. France 1902, pp. 160, 161. [*Lepidoptera.*]

971. Oberthür, R. Les *Astathes* (*Coléoptères, Cérambycides*) et genres voisins, de la collection du Museum de Paris. Bull. Mus. Paris viii, pp. 423–425.

972. Ohaus, F. Beiträge zur Kenntniss der *Ruteliden.* Stettin. Ent. Zeit. 1902, pp. 3–57. [*Coleoptera.*]
Anomaliden der neuen Welt.

973. ——. Neue *Ruteliden.* Deutsche ent. Zeitschr. 1902, pp. 49–58. [*Coleoptera.*]

974. ——. Verzeichniss der von Herrn Dr Y. Sjöstedt in Kamerun gesammelten *Ruteliden* (*Coleoptera, lamellicornia*). Ofv. Ak. Forh. 1902, pp. 343–352.

975. Olivier, E. Catalogue des espèces de *Luciola* et genres voisins décrits jusqu'a ce jour. Rev. Sci. Bourbonnais xv, pp. 69–88. [*Coleoptera.*]

976. ——. Description d'un *Lampyride* nouveau de la Jamaïque. Bull. Soc. ent. France 1902, p. 318. [*Coleoptera.*]

977. ——. *Coléoptères Lampyrides* recueillis aux environs de Tokio (Japon) par M. le Dr Harmand. Bull. Mus. Paris viii, pp. 188–190.

978. Olsoufiew, G. d'. Nouvelles espèces du genre *Compsocephalus* White d'Afrique orientale. Horæ Soc. ent. Ross. xxxv, pp. 603–611, pl. iii. [*Coleoptera.*]

979. Orbigny, H. d'. Mémoire sur les *Onthophagides* d'Afrique. Ann. Soc. ent. France 1902, pp. 1–324. [*Coleoptera.*]

980. Osborn, H. *Mallophagan* records and descriptions. Ohio Natural. ii, pp. 175–178, 201–204.

981. ——. A statistical study of variations in the periodical *Cicada.* Op. cit. iii, pp. 323–326. [*Hemiptera-Hom.*]

982. ——. Notes on *Coccidæ* occurring in Iowa. P. Iowa Ac. v, 1898, pp. 224–231.

983. [Osborn, H.] Additions to the list of *Hemiptera* of Iowa, with descriptions of new species. T. c. 1898, pp. 232–247.

984. —— & Ball, E. D. A review of the North American species of *Athysanus* (*Jassidæ*). Ohio Natural. ii, pp. 231–256, pls. xvi, xvii.

985. —— & Mally, C. W. Biologic notes on certain Iowa insects. P. Iowa Ac. iv, 1896, pp. 203–213.

986. —— & Sirrine, F. A. Plant lice infesting grass roots. Op. cit. ii, 1895, pp. 78–91. [*Aphidæ.*]

987. Osten Sacken, C. R. The position of *Phora* in the system of *Diptera*. Ent. Mag. xxxviii, pp. 204, 205.

988. ——. On a distinctive character of the Imagos of the suborders of *Diptera*: *Orthorrhapha Brachycera* and *Cyclorrhapha Athericera*, introduced by Latreille (1825), but overlooked by later authors. T. c. pp. 228, 229.

989. *——. A prospectus of the "Record of my Life work in Entomology" as it exists in Manuscript, 10 pp.

990. Ottolengui, R. *Plusia* and allied genera with descriptions of new species. J. N. York Ent. Soc. x, pp. 57–77, pls. vi–ix. [*Lepidoptera.*]

991. ——. Notes on *Calocampa* with description of a new species. T. c. pp. 77–79, pl. x. [*Lepidoptera.*]

992. *Pabst, —. Die *Nymphaliden*-Gattungen *Vanessa*, *Melitæa* und *Argynnis*, die *Satyriden* und *Hesperiden* der Umgegend von Chemnitz und ihre Entwickelungsgeschichte. Krancher Ent. Jahrb. 1902, pp. 137–165. [*Lepidoptera.*]
Summary, Allg. Zeitschr. Ent. vii, p. 381.

993. Packard, A. S. Two new genera of Bunaeinine African moths. J. N. York Ent. Soc. x, pp. 100–106. [*Lepidoptera.*]

994. ——. A preliminary sketch of the *Sphingicampidæ*, a new group of Protosphingine *Lepidoptera*, with its subdivisions. I. Psyche ix, pp. 304–307.

995. ——. On the limits of the family *Saturniidæ*, with a note on the genus *Rothschildia*. T. c. pp. 321–323. [*Lepidoptera.*]

996. Pagenstecher, A. Tagfalter. Wissenschaftliche Resultate der Reise des Freiherrn Carlo von Erlanger durch Süd-Schoa, die Galla und Somaliländer in 1900 und 1901. Jahrb. nassau. Ver. lv, pp. 113–204, pl. ii. [*Lepidoptera.*]

997. ——. *Libytheidæ* in Wytsman Genera insectorum i, 4 pp., 1 pl. [*Lepidoptera.*]

998. Pandellé, L. Études sur les *Muscides* de France. 3e partie, suite, pp. 373–492.
Published in connection with Rev. Ent. franc., but as a distinct volume with separate pagination. These pages apparently conclude the *Sciomyzaires*.

999. Pantel, J. Sur la biologie du *Meigenia floralis* Mg. Bull. Soc. ent. France 1902, pp. 56–60. [*Diptera.*]

1000. —— & Sinéty, R. de. Sur l'évolution de l'acrosome dans la spermatide du *Notonecte*. C.R. Ac. Sci. cxxxv, pp. 1124–1126.

1001. —— & ——. Sur l'origine du Nebenkern et les mouvements nucléiniens dans la spermatide de *Notonecta glauca*. T. c. pp. 1359–1362.

1002. PÁSZTOR, J. A Körterügyfúró bogár. Rov. Lapok ix, pp. 67–74. [*Coleoptera.*]

1003. PATTERSON, ROSE W. Notes on *Cerococcus.* P. Calif. Ac. (3) ii, pp. 387–396, pl. xxii–xxiv. [*Coccidæ.*]
Recorded last year from a reprint by the Hopkins Lab.

1004. PATTERSON, R., CARPENTER, G. H., HALBERT, J. N., JOHNSON, W. F., NICHOLS, A. R., ORR, H. L., PRAEGER, R. L., SHARFF, R. F., WELCH, R. & WRIGHT, J. Zoology, pp. 148–242 [in] a Guide to Belfast and the Counties of Down and Antrim. Belfast, 1902, 283 pp.

1005. PAUX, P. Les *Lépidoptères* du département du Nord. Bull. Sci. France Belgique xxxv, pp. 453–716.
1353 species, with brief descriptions of larvæ and other notes.

1006. PÉREZ, J. Espèces nouvelles de Mellifères paléarctiques. Pr.-verb. Soc. Bordeaux 1902, pp. xliii–xlviii, lvii–lxviii, cxix–cxxii, clxxiv–clxxix. [*Hymenoptera.*]

1007. PÉRINGUEY, L. Some phases of insect life in South Africa. Presidential address. Tr. S. African Soc. xi, Proc. pp. xxvi–xlvi.

1008. ——. Descriptive catalogue of the *Coleoptera* of South Africa. Op. cit. xii, pp. 563–896, pls. x–xii.

1009. PERKINS, R. C. L. Notes on Hawaiian wasps, with descriptions of new species. Tr. ent. Soc. London 1902, pp. 131–140. [*Hymenoptera.*]

1010. ——. Four new species and a new genus of parastic *Hymenoptera* (*Ichneumonidæ* subfam. *Ophioninæ*) from the Hawaiian islands. T. c. pp. 141–143.

1011. ——. On the generic characters of Hawaiian *Crobronidæ*; four new genera characterized. T. c. pp. 145–148. [*Hymenoptera.*]

1012. PETERSEN, W. Bemerkungen zur Systematik der Schmetterlinge. Allg. Zeitschr. Ent. vii, pp. 500–506, 534–538. [*Lepidoptera.*]

1013. PETRI, C. Ein neuer *Quedius* aus den transsilvanischen Alpen. Verh. Ges. Wien lii, p. 153. [*Coleoptera.*]

1014. ——. *Otiorrhynchus amplus* nov. spec. T. c. p. 94. [*Coleoptera.*]

1015. ——. Ein neuer *Dorytomus* aus Ungarn und Mähren. Wien. ent. Zeit. xxi, p. 156. [*Coleoptera.*]

1016. PETTIT, R. H. The egg of the water-scorpion (*Ranatra fusca*). Canad. Ent. xxxiv, pp. 212–214. [*Hemipt.-Heter.*]

1017. PEYERIMHOFF, P. DE. *Coléoptères* nouveaux pour la faune française. Bull. Soc. ent. France 1902, p. 246.

1018. ——. Note sur la position systématique des *Cupedidæ.* T. c. pp. 206–208. [*Coleoptera.*]

1019. ——. Sur la nervation alaire des *Caraboidea* et particulièrement sur celle du genre *Omma.* T. c. pp. 330–332. [*Coleoptera.*]

1020. ——. Descriptions de trois *Coléoptères* exotiques. Ann. Soc. ent. France lxxi, pp. 710–718.

1021. PIC, M. Matériaux pour servir à l'étude des *Longicornes.* 4me Cahier. 1re parties. Saint-Amand, 1902, pp. 1–37. [*Coleoptera.*]

1022. ——. Contribution à l'étude des *Xyletini* du Brésil. Ann. Soc. ent. Belgique xlvi, pp. 17, 18. [*Coleoptera.*]

1023. [Pic, M.] Addenda aux *Xyletini* du Brésil. T. c. pp. 130, 131. [*Coleoptera.*]

1024. ——. Étude dichotomique sur les *Trichodesma* Lec. du Brésil. T. c. pp. 408, 409. [*Coleoptera.*]

1025. ——. *Anthicides* de Manille. Ann. Soc. ent. France 1902, pp. 643–648. [*Coleoptera.*]

1026. ——. *Coléoptères* asiatiques nouveaux. Echange xvii, pp. 1, 2.

1027. ——. Descriptions et notes diverses. T. c. pp. 9, 10, 17–19, 47–49, 55–57. [*Coleoptera.*]

1028. ——. *Coléoptères* paléarctiques présumés nouveaux. T. c. pp. 25–27.

1029. ——. Diagnoses de quatre *Coléoptères* péruviens. T. c. p. 31. [First time.]

1030. ——. Descriptions et notes diverses. v. T. c. pp. 71, 72. [*Coleoptera.*]

1031. ——. Diagnoses de *Coléoptères* de l'ancien et du nouveau monde. T. c. pp. 23–26 [error for 33–36].

1032. ——. Nouvelles espèces et variétés de *Coléoptères* paléarctiques. T. c. pp. 31–33 [second time] and 79, 80.

1033. ——. Un nouveau genre et quatre nouvelles espèces de *Hylophilidæ.* T. c. pp. 33, 34. [*Coleoptera.*]

1034. ——. Diagnoses de *Sibinia* nouvelles. T. c. pp. 39, 40. [*Coleoptera.*]

1035. ——. Deux notes entomologiques avec synopsis. T. c. pp. 42, 44. [*Coleoptera.*]

1036. ——. *Coléoptères* nouveaux originaires de la Pátagonie. T. c. pp. 49–51.

1037. ——. *Coléoptères* présumés nouveaux de la faune circaméditerranéenne. T. c. pp. 63–65.

1038. ——. *Coléoptères* nouveaux de l'île de Ténériffe. T. c. pp. 80, 81.

1039. ——. Descriptions *d'Anthicides* exotiques nouveaux. Bull. Soc. ent. France 1902, pp. 39–41. [*Coleoptera.*]

1040. ——. Deux *Coléoptères* nouveaux du Congoportugais. T. c. pp. 138–140.

1041. ——. Sur le genre *Polypria* Chevr. T. c. pp. 166, 167. [*Coleoptera.*]

1042. ——. *Anthicides* recueillis en Orient par M. Paul de Peyerimhoff. T. c. pp. 185–187. [*Coleoptera.*]

1043. ——. Description d'un *Macratria* nouveau de l'île Maurice. T. c. p. 191. [*Coleoptera.*]

1044. ——. Descriptions de deux *Hylophilus* d'Océanie, appartenant au Musée civique de Gênes. T. c. p. 227. [*Coleoptera.*]

1045. ——. Notes sur le genre *Cardiophorus* Esch. T. c. pp. 305, 306. [*Coleoptera.*]

1046. ——. Diagnoses d'Hétéromères recueillis par M. Charles Alluaud à Madagascar. T. c. pp. 334–337. [*Coleoptera.*]

1047. ——. *Coléoptères* présumés nouveaux de la Rhodésia. Rev. Ent. franc. xxi, pp. 4, 5.

1048. [Pic, M.] *Coléoptères Cérambycides* recueillis au Japon par M. le Dr Harmand, ministre plénipotentiaire de France à Tokio. Bull. Mus. Paris vii, pp. 337–342.

1049. ——. Liste des *Ptinidæ Hedobiini* et *Anthicidæ* recueillis au Japon..... T. c. p. 343. [*Coleoptera.*]

1050. ——. Description d'un *Dorcadion*, de la Turquie d'Asie. Op. cit. viii, p. 93. [*Coleoptera.*]

1051. ——. *Anthicidæ* exotiques nouveaux du Musée national hongrois. Termes. Fuzetek xxv, pp. 405–410. [*Coleoptera.*]

1052. ——. *Hylophilidæ* d'Océanie recueillis par l'explorateur Biro. T. c. pp. 521–524. [*Coleoptera.*]

1053. ——. Diagnoses de douze *Hylophilides.* Bull. Soc. zool. France xxvii, pp. 19–22. [*Coleoptera.*]

1054. ——. Essai généalogique sur les *Xylotrechus* paléarctiques. T. c. pp. 71, 72. [*Coleoptera.*]

1055. ——. *Hylophilidæ.* [In] Wytsman Genera insectorum i, 14 pp., 1 pl. [*Coleoptera.*]

1056. ——. Description de *Coléoptères* brésiliens nouveaux. Naturaliste xxiv, p. 21.

1057. ——. Diagnoses de *Coleoptères* nouveaux. T. c. p. 55.

1058. ——. Diagnoses de *Coléoptères* nouveaux. T. c. p. 68.

1059. ——. Description de *Bruchides* nouveaux. T. c. p. 146. [*Coleoptera.*]

1060. ——. Description de *Coléoptères* nouveaux. *Bruchidæ* de l'Amerique méridionale. T. c. p. 172.

1061. ——. Diagnoses d'*Ichneumoniens* faisant partie de la collection Pic. Echange xvii, pp. 57, 58. [*Hymenoptera.*]

1062. Pictet, A. L'influence des changements de nourriture des chenilles sur le developpement de leurs papillons. Arch. Sci. Nat. 1902, pp. 537–540. [*Lepidoptera.*]

1063. Piepers, M. C. Thesen über Mimicry. Verh. Congr. Zool. v, pp. 340–355.

1064. Pierce, W. D. A new *Myodites* (*Rhipiphoridæ*). Canad. Ent. xxxiv, p. 293. [*Coleoptera.*]

1065. Pierre (Abbé). Sur la ponte d'un *Neuroptère* cecidozoon, *Lestes viridis* Van. d. Lind. Rev. Sci. Bourbonnais xv, pp. 181–194.

1066. ——. Moeurs de *Grapholitha conterminana* H. S. Echange xvii, pp. 23, 24, 31, 32 and 28, 29 [second time]. [*Lepidoptera, Hymenoptera.*]

1067. Plateau, F. Les pavots décorollés et les insectes visiteurs. Expériences sur le *Papaver orientale* L. Bull. Ac. Belgique 1902, pp. 657–684.

1068. ——. Observations sur les erreurs commises par les *Hyménoptères* visitant les fleurs. Ann. Soc. ent. Belgique xlvi, pp. 113–129.

1069. ——. L'ablation des antennes chez les Bourdons et les appréciations d'Auguste Forel. T. c. pp. 414–426. [*Hymenoptera.*]

1070. ——. Notice sur la vie et les travaux de Michel-Edmond Baron de Selys Longchamps. Annuaire Ac. Belgique 1902, 117 pp., portrait.

1071. Pleske, T. Nachtrag zu meinen Arbeiten über die palaearctischen Arten der *Dipteren*-Gattung *Stratiomyia*. Termes. Fuzetek xxv, pp. 411–416.

1072. Poche, F. Bemerkungen zu Herrn Krauss' Bearbeitung der *Hemimeriden* im "Tierreich." Zool. Anz. xxv, pp. 667–670.
Krauss answers. Op. cit. xxvi, pp. 55, 56.

1073. Pocock, R. I. The stridulating organ in the Egyptian beetle *Graphipterus variegatus*. Ann. Nat. Hist. x, pp. 154–158. [*Coleoptera.*]

1074. Poëy, A. Les moustiques et la fièvre jaune à la Havane. C.R. Ac. Sci. cxxxv, pp. 193–195. [*Diptera.*]

1075. Poling, O. C. A new *Megathymus* from Arizona. Ent. News. Philad. xiii, p. 97, pl. iv. [*Lepidoptera.*]

1076. Pomerantzev, D. Zur Kenntnis der auf der Fichte (*Picea excelsa*) lebendenschädlichen Insecten. Zool. Anz. xxv, pp. 260–262. [*Hymenoptera*, *Lepidoptera.*]

1077. ——. Notes biologiques sur les *Coléoptères* vivant sous les écorces et utiles dans la sylviculture. i. Rev. Russe Ent. ii, pp. 87–91. ii. T. c. pp. 151–156. iii. T. c. pp. 328–322.

1078. Poppius, B. Eine neue Art der Gattung *Cryptophagus* Herbst. Medd. Soc. Faun. Fenn. xxvi, p. 189. [*Coleoptera.*]

1079. Porritt, G. T. Presidential Address. Tr. Yorks. Union 1900, 39th Ann. Rep. pp. 97–108. [*Lepidoptera.*]

1080. Porta, A. Die Funktion der Leber bei den Insekten. Vorläufige Mitteilung. Allg. Zeitschr. Ent. vii, pp. 427–429.

1081. ——. Ricerche sull' apparato di secrezione e sul secreto della *Coccinella 7-punctata* L. Anat. Anz. xxii, pp. 177–193. [*Coleoptera.*]

1082. ——. Le differenze sessuali secondarie quantitative nel *Carabus auratus* L. Bull. Soc. ent. Ital. xxxiv, pp. 61–103. [*Coleoptera.*]

1083. ——. Ricerche sull' *Aphrophora spumaria* L. Rend. Ist. Lombardo xxxiii, pp. 920–928, pl. vii. [*Hemipt.-Hom.*]

1084. Portschinsky, J. Sur les *Oestrides* du genre *Oestromyia* et les larves cuticoles de la *Saiga tatarica* L. et de l'*Antilope gutturosa* Pall. Annuaire Mus. St. Petersb. vii, pp. 205–222, pl. vi. [*Diptera.*]
Entirely in Russian, except this translation of the title.

1085. *——. Die Bekampfung einiger schädlicher Schmetterlinge mit Hilfe polyphager Parasiten unter den Insekten. St. Petersburg, 1901, 32 pp.
In Russian; Summary, Zool. Centrlbl. 1903, p. 157.

1086. *——. Die Getreidemotte (*Sitotroga cerealella* Oliv.) und das einfachste Mittel zu ihrer Vernichtung. St. Petersb. 1902, 14 pp.
In Russian; Summary, Zool. Centrlbl. 1903, p. 159.

1087. Poulton, E. B. Mimicry and Natural selection. Verh. Congr. Zool. v, pp. 171–179.

——. [See also Marshall (868).]

1088. —— & MacMunn, C. A. Colours of Animals. i. Bionomics by E. B. P. ii. Chemistry by C. A. MacMunn. Enc. Brit. xxvii, pp. 146–151.

1089. Preiss, P. Wissenschaftliche Resultate der Reise Carlo Freiherrn v. Erlanger's durch Süd-Schoa, Galla und Somaliländer. *Cetonidæ.* Jahrb. nassau. Ver. lv, pp. 93–111, pl. i. [*Coleoptera.*]

1090. Prout, L. B. The genus *Cidaria.* Tr. City London Soc. 1901, pp. 37–53. [*Lepidoptera.*]

1091. ——. Retrospect of a Lepidopterist for the year 1901. Ent. Rec. xiv, pp. 1–7.

1092. Prowazek, S. Vitalfärbungen an Insekten. Allg. Zeitschr. Ent. vii, pp. 12–14.

1093. ——. Ameisenbeobachtungen. Zool. Garten 1901, pp. 49–52. [*Hymenoptera*, Ethology.]

1094. Pruvot, G. Henri de Lacaze-Duthiers. Arch. Zool. exp. 1902, pp. 1–64, list of writings, pp. 65–78.

1095. Püngeler, R. *Tephroclystis thalictrata*, n. sp. Deutsche ent. Zeitschr. Iris xv, pp. 137–140. [*Lepidoptera.*]

1096. ——. *Nola tigranula*, n. sp. T. c. p. 141. [*Lepidoptera.*]

1097. ——. Neue *Macrolepidopteren* aus Palaestina. T. c. xv, pp. 143–146.

1098. ——. Neue *Macrolepidopteren* aus Centralasien. T. c. pp. 147–160. Continuation of his paper (1091) last year.

1099. ——. *Deilephila siehei*, n. sp. Berlin ent. Zeitschr. 1092, p. 235, pl. iii. [*Lepidoptera.*]

1100. Quail, A. Embryology of New Zealand *Lepidoptera.* Part ii. Tr. N. Zealand Inst. xxxiv, pp. 226–238, pl. xiii.

1101. Quaintance, A. L. On the feeding habits of adults of the periodical *Cicada.* Bull. U. S. Dep. Agric. Ent. No. 37, pp. 90–95, pl. i. [*Hemiptera-Homoptera.*]

1102. —— & Smith, R. I. Egg-laying record of the plum *Curculio.* T. c. pp. 105–107. [*Coleoptera.*]

1103. Raciborski, M. Rośliny i mrówki. (Plants and ants.) Kosmos Lemberg xxvii, pp. 11–18. [*Hymenoptera.*]

1104. Rádl, E. Ueber die Lichtreaktionen der Arthropoden auf der Drehscheibe. Biol. Centrbl. pp. 728–732.

1105. Rebel, H. Neue *Pyraliden*, *Pterophoriden* und *Tineen* des paläarctischen Faunengebietes. Deutsche ent. Zeitschr. Iris xv, pp. 100–126, pl. iv. [*Lepidoptera.*]

1106. ——. *Lepidopteren* aus Morea gesammelt von Herrn Martin Holtz im Jahre 1901. Berlin. ent. Zeitschr. 1902, pp. 83–110.

1107. ——. *Euxoa* (*Agrotis*) *canariensis*, eine neue *Noctuide* von den canarischen Inseln. Ann. Hofmus. Wien xvii, Notizen, p. 59. [*Lepidoptera.*]

1108. ——. Diagnosen und Bemerkungen zu einigen neuen Gattungen paläarktischer *Lepidopteren.* Verh. Ges. Wien lii, pp. 567–572.

——. [See also Bartel (70).]

1109. Reed, E. C. Sinopsis de los *hemípteros heteróptero*s de Chile. Revist. chilena iv, pp. 93, 121, 141, 157, 173, and v, pp. 23, 42, 64, 92, 109. Cf. Berg ( ).

1110. Regen, J. Neue Beobachtungen über die Stridulationsorgane der saltatoren *Orthopteren.* Zool. Anz. xxv, pp. 489–491.

1111. Régimbart, M. Voyage du Dr W. Horn à Ceylan, *Coléoptères* aquatiques. Ann. Soc. ent. France 1902, pp. 468–475.

1112. ——. Contribution à la connaissance de la faune de Cameroun. No. 12. *Dytiscidæ* et *Gyrinidæ* recueillis au Cameroun par le Dr Y. Sjöstedt. Ent. Tidskr. xxiii, pp. 295–300. [*Coleoptera.*]

1113. ——. *Gyrinidæ* in Wytsman Genera insectorum i, 12 pp., 1 pl. [*Coleoptera.*]

1114. Reh, L. Kleinere Untersuchungen an Schildlausen. Allg. Zeitschr. Ent. vii, pp. 47–51. [*Coccidæ.*]

1115. ——. Biologisch-statistische Untersuchungen an amerikanischen Obst-Schildläusen. Zool. Jahrb. Syst. xvii, pp. 237–284. [*Coccidæ.*]

1116. ——. Die Verschleppung von Tieren durch den Handel; ihre zoologische und wirtschaftliche Bedeutung. Biol. Centrbl. xxii, pp. 119–128.
Summary, Zool. Centrlbl. 1902, p. 313.

1117. ——. Die Zoologie im Pflanzenschutz. Verh. Deutsch. zool. Ges. 1902, pp. 186–192.

1118. Rehberg, A. Schädliche Insecten Westpreussens und deren Bekämpfung. I. Die wichtigsten Schädlinge unserer Halmfrüchte. Schr. Ges. Danzig x, pp. 64–81.

1119. Rehn, J. A. G. A new species of the *Orthopterous* genus *Pseudophyllus* from Sumatra. P. Ac. Philad. liv, p. 21.

1120. ——. A new *Aptenopedes* from Florida. Ent. News Philad. xiii, p. 14. [*Orthoptera.*]

1121. ——. Two new species of N. American *Stenopelmatinæ.* T. c. pp. 240, 241. [*Orthoptera.*]

1122. ——. Notes on some Southern Californian *Orthoptera.* Canad. Ent. xxxiv, pp. 141–146.

1123. ——. On some generic names employed by Serville in the revue methodique, and Fieber in the synopsis du Europaischen *Orthopteren.* T. c. pp. 316, 317.

1124. ——. On the genus *Phrynotettix* Glover (*Haldemanella* auct.). P. Ac. Philad. liv, pp. 595–598. [*Orthoptera.*]

1125. ——. Contributions towards a knowledge of the *Orthoptera* of Japan and Korea. I. *Acridiidæ.* T. c. pp. 629–637.

1126. ——. Notes on the *Orthoptera* of New Mexico and Western Texas. T. c. pp. 717–727.

1127. Reichenbach, H. Ueber Parthenogenese bei Ameisen und andere Beobachtungen an Ameisenkolonien in künstlichen Nestern. Biol. Centrbl. xxii, pp. 461–465. [*Hymenoptera.*]

1128. Reitter, E. Neue und seltene *Coleopteren* gesammelt im Jahre 1901, in der Herzegowina, in Dalmatien und Bosnien. Wien. ent. Zeit. xxi, pp. 1–9, pl. i.

1129. ——. Drei neue *Coleopteren* aus Italien und Persien. T. c. pp. 81, 82.

1130. ——. Neue *Coleopteren* der palæarctischen Fauna. T. c. pp. 137–141.

1131. [Reitter, E.] Neuer Beitrag zur systematischen Gruppeneintheilung der *Melolonthidæ*. T. c. pp. 173–176. [*Coleoptera.*]

1132. ——. Beschreibungen neuer *Coleopteren* aus dem russischen Reiche. T. c. pp. 185–190.

1133. ——. Fünfzehntner Beitrag zur *Coleopteren*-Fauna von Europa und den angrenzenden Ländern. T. c. pp. 191–196.

1134. ——. *Coleopterologische* Studien. I. T. c. pp. 203–217.

1135. ——. Zwei Grotten-*Silphiden* aus Nordbosnien. T. c. pp. 223, 224. [*Coleoptera.*]

1136. ——. Uebersicht der mir bekannten Arten der *Coleopteren*-Gattung *Cerallus* Duv. T. c. pp. 226–229.

1137. ——. Uebersicht der Arten der *Coleopteren*-Gattung *Trichoceble* Thoms. T. c. pp. 257–260.

1138. Reuter, E. *Physopus tenuicornis* Uzel als Erzeuger totaler Weissährigheit bei Hafer. Medd. Soc. Faun. Fenn. xxvii, pp. 115–120.

1139. ——. *Aeolothrips fasciata* (L.). Eine carnivore *Thysanoptère*. Op. cit. xxviii, pp. 75–83.

1140. ——. *Meromyza cerealium*, n. sp., ein neuer Getreide-Schädiger. T. c. pp. 84–91. [*Diptera.*]

1141. Reuter, O. M. Two new species of *Hemiptera-Heteroptera* from Spain. Ent. Mag. xxxviii, pp. 102, 103.

1142. ——. *Capsidæ* novæ mediterraneæ. IV. Ofv. Finska Forh. xliv, pp. 51–70. [*Hemiptera-Heteroptera.*]

1143. ——. Miscellanea *Hemipterologica*. T. c. pp. 141–188.

1144. ——. *Collembola* på snö. Medd. Soc. Faun. Fenn. xxiii, pp. 44–46.

1145. ——. Ett förbisedt arbete öfver *Collembola*. Op. cit. xxvi, pp. 140–143.

1146. ——. Anteckningar om Finska *Heteroptera*. T. c. pp. 124–130.

1147. ——. De finska Arterna af *Aradus lugubris*-gruppen. T. c. pp. 131–139. [*Hem.-Heteropt.*]

1148. ——. Tre för Finland nya *Hemiptera-Heteroptera*. Op. cit. xxvii, pp. 143–145.

1149. Rhé-Philipe, G. W. V. de. The butterflies of the Lucknow district. J. Bombay Soc. xiv, pp. 481–493. [*Rhopalocera.*]

1150. Ribaga, C. Anatomia del *Trichopsocus dalii*. Riv. Patol. Veg. ix, pp. 130–176, pls. i–vi. [*Psocidæ.*]

1151. Ricardo, Miss G. Further notes on the *Pangoninæ* of the family *Tabanidæ* in the British Museum collection. [Continuation.] Ann. Nat. Hist. ix, pp. 366–381, and 424–438. [*Diptera.*]

1152. Richters, F. Die Larve von *Ithytrichia lamellaris* Eat. Ber. Senckenberg. Ges. 1902, pp. 19–21. [*Trichoptera.*]

1153. Ridley, H. N. Malay tiger-beetles. J. Straits Branch Asiat. Soc. No. 38, pp. 129–131. [*Coleoptera.*]

1154. Riffarth, H. Nochmals Ch. Oberthür's Etudes d'Entomologie. Berlin. ent. Zeitschr. 1902, pp. 157–166. [*Lepidoptera.*]
Relates to Oberthür (969).

1155. Rippon, R. H. F. Icones Ornithopterorum. Pts. 15 and 16. London, 1902, folio.

1156. ——. *Ornithopteridæ* in Wytsman Genera insectorum i, 14 pp., 2 pls.

1157. Ris, F. Die schweizerischen Arten der *Perliden*-Gattung *Nemura*. Mt. Schweiz. ent. Ges. x, pp. 378–405.

1158. Ritsema, C. A new species of the *Lucanoid* genus *Cardanus*. Notes Leyden Mus. xxiii, p. 229. [*Coleoptera.*]

1159. Robertson, C. Synopsis of *Andreninæ*. Tr. Amer. ent. Soc. xxxv, pp. 187–194. [*Hymenoptera.*]

1160. ——. Some new or little-known bees. ii. Canad. Ent. xxxiv, pp. 48, 49. [*Hymenoptera.*]

1161. ——. Synopsis of *Halictinæ*. T. c. pp. 243–250. [*Hymenoptera.*]

1162. ——. Some new or little-known bees. iv. T. c. pp. 321–325. [*Hymenoptera.*]

1163. ——. Some new or little known bees. Ent. News Philad. xiii, pp. 79–81. [*Hymenoptera.*]

1164. ——. Some Illinois bees. Tr. Ac. St. Louis x, 1900, pp. 47–55. [*Hymenoptera.*]

1165. Robson, J. E. A catalogue of the *Lepidoptera* of Northumberland, Durham and Newcastle-upon-Tyne. Part ii. *Geometrina*. Index and Introduction. Nat. Hist. Trans. Northumb. xii, xvi+193–318 pp.

1166. Rocquigny, Adanson. Sur la diminution de poids d'un *Lépidoptère* hivernant. Rev. Sci. Bourbonnais xv, pp. 121, 122.

1167. Rondou, P. Catalogue des *Lépidoptères* des Pyrénées. Act. Soc. Bordeaux lvii, pp. 177–355.

1168. Rosmini, O. Viaggio del Dr Enrico Festa nella Repubblica dell' Ecuador e regioni vicine. xxiv. *Passalidi*. Boll. Mus. Torino 1902, No. 428, 10 pp. [*Coleoptera.*]

1169. *Rossikow, K. N. Ueber die Bekämpfung der Laubkäfer. St. Petersb. 1901, 21 pp. [*Coleoptera.*]
In Russian. Summary, Zool. Centrlbl. 1903, pp. 162, 163.

1170. Rostagno, F. Classificazione descrittiva dei *Lepidotteri* italiani. [Continuation.] Boll. Soc. zool. Ital. xi, pp. 108–128, 178–192.

1171. *Rothe, C. Vollständiges Vezeichniss der Schmetterlinge Oesterreich-Ungarns, Deutschlands und der Schweiz nebst Angabe der Flugzeit, Nährpflanzen und der Entwicklungszeit der Raupen. 2 Auflage. Wien, 1902. [*Lepidoptera.*]
Review Berlin. ent. Zeitschr. 1902, p. 153, and Verh. Ges. Wien lii, p. 419.

1172. Rothschild, Hon. W. Some new N.E. African *Lepidoptera* discovered by Oscar Neumann. Nov. Zool. ix, pp. 595–598.

1173. Rothschild, Hon. N. C. Some new Nearctic fleas. Ent. Rec. xiv, pp. 62, 63, pl. ii. [*Aphaniptera.*]

1174. ——. New British fleas. Ent. Mag. xxxviii, p. 225. [*Aphaniptera.*]

1175. Rübsaamen, E. H. Mittheilung über die von Herrn Bornmüller im Oriente gesammelten Zoocecidiien. Zool. Jahrb. Syst. xvi, pp. 243–336, pls. 12–16.

1176. [Rübsaamen, E. H.] Nachtrag zu den Zoocecidien von der Balkan-Halbinsel. Allg. Zeitschr. Ent. vii, pp. 14–16.

1177. ——. Zur Blutlausfrage. Allg. Zeitschr. Ent. vi, pp. 229, 230. [*Aphidæ.*]
Refers to Thiele (1367).

1178. ——. *Pteromaliden.* Ergebn. Magalhaens. Sammelreise vi, 4 pp., 1 pl. [*Hymenoptera.*]

1179. Rusiecka, Marie de. Monographie du genre *Phantia* Fieb. Mt. Schweiz. ent. Ges. x, pp. 420–424. [*Hemipt.-Hom.*]

1180. Ruzsky, M. Neue Ameisen aus Russland. Zool. Jahrb. Syst. xvii, pp. 469–484. [*Hymenoptera.*]

1181. ——. Contribution à la faune myrmécologique de la province de Tourgaï. Rev. Russe Ent. ii, pp. 232–235. [*Hymenoptera.*]

1182. *——. Die Ameisen der Umgebung des Aral-Sees. Taschkent 1902, 24 pp. [*Hymenoptera.*]
In Russian; Summary, Zool. Centrlbl. 1903, p. 166.

1183. Rybinski, M. *Coleopterorum* species novæ, minusve cognitæ, in Galicia inventæ. Bull. Ac. Cracovie 1902, pp. 10–12, pls. ii, iii.

1184. Sainte-Claire-Deville, J. Études sur divers *Platysma* des Alpes occidentales. Ann. Soc. ent. France 1902, pp. 588–619. [*Coleoptera.*]

1185. ——. Exploration entomologique des grottes des Alpes-maritimes. T. c. pp. 695–709.

1186. Sanders, J. G. A new *Phenacoccus* on *Platanus occidentalis.* Ohio Natural. ii, pp. 284–286. [*Coccidæ.*]

1187. Sanderson, E. D. Notes upon the structure and classification of *Chrysomelid* larvæ. P. ent. Soc. Washington v, pp. 21–31. [*Coleoptera.*]

1188. *——. Insects injurious to staple crops. x + 255 pp., 163 figs., New York, 1902.
Review, Allg. Zeitschr. Ent. vii, p. 281.

1189. Sarmento, M. & Franca, C. Sur quelques *Culicides* portugais. C.R. Soc. Biol. 1902, pp. 152, 153. [*Diptera.*]

Sauber, —. [See Semper (1253).]

1190. Saunders, E. *Odynerus bifasciatus* Linn., an addition to the list of British *Hymenoptera.* Ent. Mag. xxxviii, p. 106.

1191. ——. *Hymenoptera-Aculeata* of Jersey, Guernsey, Alderney and St. Briac. T. c. pp. 140–146.

1192. —— [& others]. *Hymenoptera* collected by Col. Yerbury in S.W. Ireland in 1901. Ent. Mag. xxxviii, pp. 51–55.

1193. Schaus, W. Descriptions of new American butterflies. P. U. S. Mus. xxiv, No. 1262, March 1, 1902, pp. 383–460. [*Lepidoptera.*]

1194. ——. A new species of *Dirphia.* J. N. York Ent. Soc. x, p. 54. [*Lepidoptera.*]

1195. Schenkling, S. Die von Dr Dohrn auf Sumatra gesammelten *Cleriden.* Stettin Ent. Zeit. 1902, pp. 367–375. [*Coleoptera.*]

1196. ——. Verzeichniss der von Dr Sculthеiss 1884–85 in N.-O.-Sumatra (Tebing tinggi) gesammelten *Cleriden.* Deutsche ent. Zeitschr. 1902, pp. 111, 112. [*Coleoptera.*]

1197. [SCHENKLING, S.] Einige neue australische und asiatische *Cleriden*. Deutsche ent. Zeitschr. 1902, pp. 157–160. [*Coleoptera.*]

1198. ——. *Clérides* nouveaux du Muséum d'histoire naturelle de Paris. Bull. Mus. Paris viii, pp. 317–333. [*Coleoptera.*]

1199. ——. Neue *Cleriden* des Museums zu Leyden. Notes Leyden Mus. xxiii, pp. 123–130. [*Coleoptera.*]

1200. SCHILSKY, J. Die Käfer Europás. Heft XXXIX. Nürnberg, 1902. [*Coleoptera.*]

1201. SCHMIEDEKNECHT, O. Die *Ichneumonidentribus* der *Anomalinen*. Zeitschr. Hym. Dipt. ii, pp. 356–368 [incomplete]. [*Hymenoptera.*]

1202. ——. Opuscula ichneumonologica. Fasc. I. Blankenburg, 8vo, pp. 1–80.

1203. SCHNABL, J. *Dipterologische* Bemerkungen. I. Wien. ent. Zeit. xxi, pp. 66–72. II. T. c. pp. 127–135, pl. ii. III. T. c. pp. 199–202.

1204. ——. *Limnospila*, nov. gen. *Anthomyidarum*. T. c. pp. 111–114. [*Diptera.*]

1205. ——. Eine neue Gattung der *Muscaria* schizometopa (*Diptera*). Rev. Russe Ent. ii, pp. 79–83.

1206. ——. Eine neue *Cœlomyia* (*Diptera*, *Muscidæ*) vom Cap. Horn. T. c. pp. 160–162.

1207. ——. Eine neues *Diptera*-Genus. Zeitschr. Hym. Dipt. ii, pp. 94, 95.

1208. SCHNEIDER, J. SPARRE. *Lepidopterologiske* Meddelelser fra det Söndenfjeldske Norge. Ent. Tidskr. xxiii, pp. 49–60.

1209. SCHNEIDER, O. *Phaleria ligurica*, n. sp., nebst Bemerkungen über *Ph. reyi* und *Ph. cava*. Wien. ent. Zeit. xxi, pp. 10–12. [*Coleoptera.*]

1210. SCHOUTEDEN, H. *Aphidologische* Notizen. Zool. Anz. xxv, pp. 654–657.

1211. ——. *Pentatomidæ* et *Reduviidæ* novæ africanæ. Wien. ent. Zeit. xxi, pp. 233–243. [*Hemiptera-Heteroptera.*]

1212. ——. Les *Aphides* radicicoles de Belgique et les fourmis. Ann. Soc. ent. Belgique xlvi, pp. 136–142. [*Hymenoptera*, *Aphidæ.*]

1213. *SCHREINER, P. T. Ueber die den Obstgarten schädlichen Rüsselkäfer. Obstzucht, 1900 (1901), 27 pp.
In Russian; good summary by v. ADELUNG, Zool. Centrlbl. 1902, pp. 570–572.

1215. SCHRÖDER, C. Die Untersuchung der männlichen Genitalanhänge als Kriterium für die Artberechtigung im Genus *Eupithecia* Curt. (*Lep. Geometræ*). Allg. Zeitschr. Ent. vii, pp. 526–529.

1215A. SCHRÖDER, L. Entwicklungsgeschichtliche und anatomische Studien über das männliche Genitalorgan einiger *Scolytiden*. Arch. Naturg. lxviii, i, pp. 79–112, pl. vii. [*Coleoptera.*]
Summary by ESCHERICH, Zool. Centrlbl. 1903, pp. 537–539.

1216. SCHROTTKY, C. *Hymenoptères* nouveaux de l'Amérique méridionale. An. Mus. Buenos Aires vii, pp. 309–316.

1217. ——. Les espèces des genres *Megacilissa*, *Caupolicana*, *Oxæa*, *Epicharis*, *Centris*, *Meliphila* et *Euglossa* dans la collection du Musée national de Buenos Ayres. T. c. pp. 317–327. [*Hymenoptera.*]

1218. ——. Neue argentinische *Hymenopteren*. T. c. pp. 91–117.

1219. [SCHROTTKY, C.] Les parasites de l'*Œceticus platensis* Berg (Bicho de Cesto). Op. cit. viii, pp. 45–48.

1220. ——. Beitrag zur Kenntniss der *Syntomiden* Argentiniens. Deutsche ent. Zeitschr. Iris xv, pp. 133–136. [*Lepidoptera.*]

1221. SCHUBERT, K. Neue *Staphyliniden* aus Natal. Deutsche ent. Zeitschr. 1902, pp. 405–409. [*Coleoptera.*]

1222. ——. Ein neuer mexicanischer *Conurus.* T. c. p. 410. [*Coleoptera.*]

1223. SCHULTZ, O. Varietäten und Aberrationen von *Papilio podalirius* L. Uebersicht über die Variabilität dieser Species. Berlin. ent. Zeitschr. 1902, pp. 119–133, pl. ii. [*Lepidoptera.*]

1224. SCHULTZE, A. Kritisches Verzeichniss der bis jetzt beschriebenen palaearctischen *Ceuthorrhynchinen.* Deutsche ent. Zeitschr. 1902, pp. 193–226. [*Coleoptera.*]

1225. SCHÜTZE, K. T. Die Kleinschmetterlinge der sächsischen *Oberlausitz.* III. Theil. (*Tineina*, *Micropterygina*). Deutsche ent. Zeitschr. Iris xv, pp. 1–49. [*Lepidoptera.*]

1226. SCHULZ, A. Zur Kenntnis der Nistweise von *Euglossa cordata* L. Allg. Zeitschr. Ent. vii, pp. 153, 154. [*Hymenoptera.*]

1227. SCHWARZ, O. Neue *Elateriden.* Stettin Ent. Zeit. 1902, pp. 194–316. [*Coleoptera.*]

1228. ——. Neue *Elateriden* aus Australien. Deutsche ent. Zeitschr. 1902, pp. 113–126. [*Coleoptera.*]

1229. ——. Zwei neue Arten der *Elateriden*-Gattung *Cylindroderus* Esch. T. c. pp. 127, 128. [*Coleoptera.*]

1230. ——. Neue *Elateriden* aus Süd-Amerika, besonders aus Peru. T. c. pp. 129–152. [*Coleoptera.*]

1231. ——. *Dodecacius* nov. gen. *Elateridarum* aus Peru. T. c. pp. 153–155. [*Coleoptera.*]

1232. ——. Neue *Elateriden* aus dem tropischen Asien, den malayischen Inseln und den Inseln der Südsee. T. c. pp. 305–350. [*Coleoptera.*]

1233. ——. Sieben neue *Eucnemiden.* T. c. pp. 351–357. [*Coleoptera.*]

1234. ——. Neue australische *Elateriden.* T. c. pp. 358–363. [*Coleoptera.*]

1235. ——. Ueber die *Elateriden*-Gattung *Protelater* Sharp und *Anaspasis* Cand. und ihre systematische Stellung nebst Beschreibung einer neuen Gattung und Art. T. c. pp. 364–366. [*Coleoptera.*]

1236. *SCHWARZE, W. Beiträge zur Kenntniss der Symbiose im Tierreich. Hamburg, 1902, Progr. (Johanneum) 40 pp.
Summary, Zool. Centrlbl. 1902, pp. 331–334, by ESCHERICH.

1237. SCRIVEN, J. B. The preparation of serial sections of insects, based upon experiments with the blow-fly. J. Quekett Club (2) viii, pp. 343–348.

1238. SCUDDER, S. H. The species of *Gryllus* found in the United States east of the Sierra Nevadas. Psyche ix, pp. 291–296. [*Orthoptera.*]

1239. ——. On the United States *Orthoptera*, which have been referred to the genus *Tridactylus.* T. c. pp. 308–310.

1240. ——. Group characteristics of some N. American butterflies. T. c. pp. 370 etc. [*Lepidoptera.*]

1241. *Sedlaczek, W. Über den Darmkanal der *Scolytiden.* Centrbl. ges. Forstwesen 1902.
Summary by Escherich, Zool. Centrlbl. 1902, pp. 539–541.

1242. Seidlitz, G. Bericht über die wissenschaftlichen Leistungen im Gebiete der Entomologie während des Jahres 1900. Erste Hälfte *Insecta*: Allgemeines und Coleoptera, pp. 1–288. [Forms part of Arch. Naturges. i.]

1243. Seifert, O. Contributions to the knowledge of North American *Arctiidæ.* i, ii. J. N. York Ent. Soc. x, pp. 1–10, pls. i, ii. iii. T. c. pp. 82–89, pl. xi. [*Lepidoptera.*]

[Selys Longchamps. Obituary and Memoirs. See Camerano (197), Lameere (763), Plateau (1070).]

1244. Semenow, A. *Coleoptera* nova Rossiæ europeæ Caucasique. viii. Horæ Soc. ent. Ross. xxxv, pp. 253–265.

1245. ——. Notes sur les *Coléoptères* de la Russie d'Europe et du Caucase. Rev. Russe Ent. ii, pp. 16–22.

1246. ——. De nova *Calosomatis* specie rossica (*Coleoptera, Carabidæ*). T. c. pp. 84–86.

1247. ——. *Dermatoptera* nova aut minus cognita. T. c. pp. 99–102.

1248. ——. *Chrysididarum* species novæ vel parum cognitæ. (*Hymenoptera*). T. c. pp. 168–171.

1249. ——. Synopsis præcursoria specierum mesasiaticarum generis *Rhizotrogus* Latr., subgenus *Chionosoma* (Kr.) Sem. efficientum. *Coleoptera, Scarabæidæ.* T. c. pp. 198–217.

1250. ——. Novæ *Scolytidarum* species e fauna Rossiæ et Asiæ centralis. (*Coleoptera.*) T. c. ii, pp. 265–273.

1251. ——. Generis *Necydalis* L. species caucasica atque synopsis ejus congenerium rossicarum. T. c. pp. 284–288. [*Coleoptera.*]

1252. ——. De genere *Trematode* Fald. (*Coleoptera, Melolonthidæ*) ejusque novis speciebus. T. c. pp. 344–346.

1253. Semper, G. Reisen im Archipel der Philippinen von Dr C. Semper. Zweiter Theil. Wissenschaftliche Resultate. Sechste Band. Die Nachtfalter. *Heterocera*, pp. 625–728, pls. lxiv–lxvi and V.
Completes the volume. Some of the descriptions are by Sauber.

1254. Senna, A. *Brentidi* delle regioni dei Batacchi indipendenti (Sumatra). Bull. Soc. ent. Ital. xxxiv, pp. 152–178. [*Coleoptera.*]

——. [See also Shelford (1263).]

1255. Sharp, D. Insects. Encycl. Brit. xxix, pp. 498–504.

1256. ——. Termites. Op. cit. xxxiii, pp. 253–256.

1257. ——. Descriptions of oriental *Limnichini* (*Coleoptera*, Fam. *Byrrhidæ*). Ent. Mag. xxxviii, pp. 61–63.

1258. ——. Insecta. Zool. Rec. xxxviii, 1901, 309 pp.

——. [See also Godman (545) and Waterhouse, C. D. (1462).]

1259. Sharpe, Emily M. Descriptions of three new butterflies from East Africa. Entomologist 1902, pp. 40–42. [*Lepidoptera.*]

1260. [SHARPE, EMILY M.] A list of *Lepidoptera* collected by Dr Cuthbert Christy in Nigeria. T. c. pp. 65–68, 101–107.

1261. ——. Descriptions of two new species of the genus *Planema* from the Uganda protectorate. T. c. p. 135. [*Lepidoptera.*]

1262. ——. On the butterflies collected in equatorial Africa by Captain Clement Sykes. T. c. pp. 276–280, 308–311. [*Lepidoptera.*]

1263. SHELFORD, R. Observations on some mimetic insects and spiders from Borneo and Singapore. With appendices containing descriptions of new species by R. SHELFORD, Dr KARL JORDAN, C. J. GAHAN, the Rev. H. S. GORHAM, and Dr A. SENNA. P. Zool. Soc. London 1902, ii, pp. 230–284, pls. xix–xxiii.

1264. SHERBORN, C. D. Index animalium, sive Index nominum que ab A.D. MDCCLVIII generibus et speciebus imposita sunt. Sectio prima, a kalendis Januariis MDCCLVIII usque ad finem Decembris MDCCC. Cambridge, 1902 (lx+1195 pp.).

1265. SHIPLEY, A. E. & WILSON, E. On a possible stridulating organ in the mosquito. (*Anopheles maculipennis* Meig.) Tr. R. Soc. Edinb. pp. 368–372, 1 pl. [*Diptera.*]

1266. SILFVENIUS, A. J. Über die Metamorphose einiger *Phryganeiden* und *Limnophiliden.* Act. Soc. Faun. Fenn. xxi, No. 4, 101 pp. 4 pls. [*Trichroptera.*]

1267. SILVESTRI, F. Note preliminari sui *Termitidi* e Termitofili sud-americani. Frammenti biografici. Boll. Mus. Torino 1902, No. 419, 29 pp.

1268. ——. Ergebnisse biologischer Studien an südamerikanischen *Termiten.* Allg. Zeitschr. Ent. vii, pp. 173–178, 257–260, 289–292, 326–334.
Summary by ESCHERICH, Zool. Centrlbl. 1902, pp. 743–745.

1269. ——. Einige Bemerkungen über den sogenannten Mikrothorax der Insecten. Zool. Anz. xxv, pp. 619, 620.
Relates to VERHOEFF (1404).

1270. SIMOND, — & LAVERAN, A. Description d'un moustique dont le mâle possède une trompe en faucille. C.R. Soc. Biol. liv, pp. 1158–1160. [*Diptera.*]

1271. SIMPSON, C. B. The alimentary canal of certain *lepidopterous* larvæ. P. ent. Soc. Washington v, p. 72.

1272. ——. Report on codling-moth investigations. Bull. U. S. Dep. Agric. Ent. No. 35, 29 pp. [*Lepidoptera.*]

SINETY, R. DE. [See PANTEL & SINETY (1000, 1001).]

1273. SIRRINE, F. A. A new species of *Pemphigus* occurring on Thorn. P. Iowa Ac. i, pl. iv, 1894, pp. 129–131. [*Aphidæ.*]

1274. SJÖSTEDT, Y. *Locustodeen* aus Kamerun und Kongo. Bih. Svenska Ak. xxvii, No. 3, 45 pp., 4 pls. [*Orthoptera.*]

1275. ——. Svensk Insektfauna. 3. Tredje Ordningen. Sländor. *Pseudoneuroptera.* Ent. Tidskr. xxiii, pp. 1–27.

1276. ——. *Termites* novos ex Africa reportatos. T. c. p. 40.

1277. ——. C. J. Emil Haglund [obituary]. T. c. pp. 41–46.

1278. ——. Eine neue *Termite* aus Kamerun. T. c. p. 252.

1279. —— Neue afrikanische *Termiten.* T. c. pp. 302–304.

1280. SKINNER, H. New species of *Rhopalocera.* Ent. News Philad. xiii, p. 15.

1281. ——. A new moth from Alaska. T. c. p. 141. [*Lepidoptera.*]

1282. ——. A new *Hesperid.* T. c. p. 213. [*Lepidoptera.*]

1283. ——. A new species of *Melitæa.* T. c. p. 304. [*Lepidoptera.*]

1284. SKORIKOW, A. S. Note sur le genre *Tomacerus* (*Collembola*) avec la description d'une nouvelle espèce de la Russie orientale. Trav. Soc. Univ. Kharkov. xxxv, pp. 73–82.

1285. ——. Les *Collemboles* de la faune de Spitzbergen. T. c. pp. 83–106.
Summary, Zool. Centrlbl. viii, pp. 62, 63.

1286. SLADEN, F. W. L. A scent-producing organ in the abdomen of the worker of *Apis mellifica.* Ent. Mag. xxxviii, pp. 208–211. [*Hymenoptera.*]

1287. SLINGERLAND, M. V. Report of section on entomology. Bull. U. S. Dep. Agric. exp. Stat. No. 115, pp. 21, 22.
Importance of original work.

1288. ——. Some entomological suggestions and notes. T. c. pp. 120–123.
Introduction of Mantids to N. America.

1289. ——. Notes on New York insect pests in 1901. 5 pp.
Read at 47th Ann. Meeting Western New York Hortic. Soc., Jan. 22nd, 1902.

1290. ——. Insect control. 5 pp.
There is no indication from whence this is extracted; but it was read before the New York State Fruit Growers' Association, January 1902.

1291. ——. Trap-lanterns or "moth catchers." Bull. Cornell Exp. Stat. No. 202, pp. 199–241.

1292. —— & CRAIG, J. The grape root-worm : further experiments and cultural suggestions. Bull. Cornell. exp. Stat. No. 208, pp. 177–200, pls. [*Coleoptera.*]

1293. SLOANE, T. G. Studies in Australian entomology. No. XI. Description of a new ground beetle from Victoria. P. Linn. Soc. N. S. Wales xxvi, p. 672. [*Coleoptera.*]

1294. ——. A revision of the genus *Notonomus* (family *Carabidæ* subfamily *Feronini*). Op. cit. pp. 252–325. [*Coleoptera.*]

1295. SMITH, J. B. Concerning certain mosquitoes. Science xv, pp. 13–15. [*Diptera.*]

1296. ——. Contributions toward a monograph of the *Lepidopterous* family *Noctuidæ* of boreal North America. A revision of the moths referred to the genus *Leucania*, with descriptions of new species. P. U. S. Mus. xxv, No. 1283, pp. 159–209, pls. v, vi.

1297. ——. Life-history *Aëdes smithii* Coq. J. N. York Ent. Soc. x, pp. 10–15. [*Diptera.*]

1298. ——. Practical suggestions for mosquito control. New Brunswick, May 16th, 1902. 4 pp.
In consequence of a law of the State of New Jersey.

1299. ——. New species of *Noctuidæ* for 1902. J. N. York Ent. Soc. x, pp. 33–53. [*Lepidoptera.*]

1300. [SMITH, J. B.] Three new *Noctuids* from British North America. Ent. News Philad. xxxiv, pp. 29–32. [*Lepidoptera.*]

1301. ——. Description of a new *Carneades.* Canad. Ent. xxxiv, p. 125. [*Lepidoptera.*]

1302. ——. Report of the Entomological Department of the New Jersey Agricultural College experiment Station for the year 1901, pp. 464–587.
Includes article on mosquitoes, and on *Scudderia texensis.*

1303. ——. Report for the year 1902, pp. 425–493.
Chiefly *Cicada septendecim* and mosquitoes. Appendix on malaria by H. P. JOHNSON, pp. 559–593.

1304. ——. The rose scale. *Diaspis rosæ.* Bull. N. Jersey exp. Stat. No. 159, 14 pp. [*Coccidæ.*]

1305. ——. Treatment for San José scale in Orchard and Nursery. Bull. No. 90, Pennsylvania Dep. Agric. [*Coccidæ.*]
Mode of spreading, enemies.

1306. ——. Modern methods of studying and dealing with horticultural insect pests. Rep. N. Jersey Hortic. Soc., Jany. 1902, 11 pp.

1307. ——. The salt-marsh mosquito, *Culex sollicitans* Walk. Special Bull. N. Jersey exp. Stat. i, 10 pp.

SMITH, R. I. [See QUAINTANCE & SMITH (1102).]

1308. SMITH, W. W. On mites attacking moths and beetles. Tr. N. Zealand Inst. xxxiv, pp. 199–201.
Changes in the N. Zealand fauna.

1309. SMYTH, E. A. Identity of *Hemaris tenuis* and *H. diffinis.* Ent. News Philad. xiii, p. 82. [*Lepidoptera.*]

1310. SNELLEN, P. C. T. Mededeeling over de *Lepidoptera* van de Kangean-eilanden. Tijdschr. Ent. xlv, pp. 73–86.

1311. ——. Aanteekeningen over eenige soorten van het genus *Grammodes* Guenée met beschrijving van drie nieuwe. T. c. pp. 87–94. [*Lepidoptera.*]

1312. SNODGRASS, R. E. Papers from the Hopkins Stanford Galapagos expedition, 1898–1899. VIII. Entomological Results (7). *Schistocerca, Sphingonotus* and *Halmenus.* P. Washington Ac. iv, pp. 411–464, pls. xxvi, xxvii. [*Orthoptera.*]

1313. ——. The inverted hypopygium of *Dasyllis* and *Laphria.* Psyche ix, pp. 399, 400, pl. v. [*Diptera.*]

1314. SNOW, LAETITIA M. The microcosm of the drift line. Amer. Natural. xxxvi, pp. 855–864.
Insects drifted on shores of Lake Michigan.

1315. SOSNOWSKI, J. Contribution à l'étude de la physiologie du développement des mouches. Bull. Ac. Cracovie 1902, pp. 568—573.
Summary, J. R. Micr. Soc. 1903, p. 172.

1316. SOULE, C. G. Notes on hybrids of *Samia cynthia* and *Attacus promethea.* Psyche ix, pp. 411–413. [*Lepidoptera.*]

1317. SOULIÉ, H. Recherches sur les *Culicides* de l'Algérie. C.R. Ac. Sci. cxxxv, pp. 118–120. [*Diptera.*]

1318. SOUTH, R. Gynandrous examples of *Amphidasys betularia.* Entomologist 1902, p. 72. [*Lepidoptera.*]

1319. Spaeth, F. Beschreibung neuer centralafrikanischer *Cassiden* aus dem Museum zu Brüssel. Ann. Soc. ent. Belgique xlvi, pp. 446–461. [*Coleoptera.*]

1320. ——. Neue *Cassiden* aus Peru. Deutsche ent. Zeitschr. 1902, pp. 81–101. [*Coleoptera.*]

1321. ——. Beitrag zur Kenntniss der in das Subgenus "*Orphnoda*" gehörigen *Laccoptera*-Arten (*Cassididæ*). Termes. Fuzetek xxv, pp. 20–25. [*Coleoptera.*]

1322. Speiser, P. *Diptera pupipara* [in] Fauna Hawaiiensis iii, pp. 86–92.

1323. ——. Studien über *Diptera pupipara.* Zeitschr. Hym. Dipt. ii, pp. 145–180.

1324. ——. Besprechung einiger Gattungen und Arten der *Diptera Pupipara.* Termes. Fuzetek xxv, p. 327–338.

1325. ——. *Lepidoptero*logische Notizen. Berlin. ent. Zeitschr. 1902, pp. 135–143.
Chiefly nomenclature.

1326. *Standfuss, M. Zur Frage der Gestaltung und Vererbung auf Grund 28-jähriger Experimente. Insekten-Börse xix, pp. 155 & 163.

1327. Stein, P. Einige Wiedemann'sche u. Jaennicke'sche aussereuropäische *Anthomyiden.* Zeitschr. Hym. Dipt. ii, pp. 129–137. [*Diptera.*]

1328. ——. Die Zetterstedt'schen, Holmgren'schen u. Boheman'schen *Anthomyiden*typen des Stockholmer Museums. Wien. ent. Zeit. xxi, pp. 29–66. [*Diptera.*]

1329. Stephens, J. W. W. & Christophers, S. R. Reports to the Malaria Committee. Sixth series, 23 pp. Seventh series, 52 pp. London 1902, Royal Society. [*Diptera.*]

1330. Stertz, O. Eine neue *Geometride* aus dem Wallis. Deutsche ent. Zeitschr. Iris xv, pp. 96–99. [*Lepidoptera.*]

1331. Stevenson, C. Commercial entomology, or Insects and Insect-products met with in commerce. Rep. ent. Soc. Ontario xxxii, pp. 113–115.

1332. Stichel, H. Kritische Bemerkungen über die Artberechtigung der Schmetterlinge. II. Deutsche ent. Zeitschr. Iris xv, pp. 50–95, pls. 1, 2. [*Lepidoptera.*]

1333. ——. Betrachtungen über Ch. Oberthür's Etudes d'Entomologie, Vol. xxi, und über die Synonymie von *Papilio* (*Heliconius*) *erato* Linné. Berlin. ent. Zeitschr. 1902, pp. 147–152. [*Lepidoptera.*]
Relates to C. Oberthür (969).

1334. Stierlin, G. Beschreibung einiger neuen Species von *Coleopteren.* Mt. Schweiz. ent. Ges. x, pp. 425–427.

1335. Strand, E. *Depressaria arctica* Strand, n. sp. Arch. Naturv. Christian. xxiv, No. 7, 4 pp. [*Lepidoptera.*]

1336. ——. Beitrag zur Schmetterlingsfauna Norwegens. II. Nyt. Mag. xl, pp. 135–192. [*Lepidoptera.*]

1337. ——. Bemerkungen über einige Norwegische *Tephroclystien* und *Tineinen.* Norske Selsk. Skr. 1901, No. 8, 6 pp.

1338. ——. *Coleophora æthiopiformis* Strand, nov. spec. Verh. Ges. Wien lii, p. 562. [*Lepidoptera.*]

1339. [STRAND, E.] Eine neue arktische *Gelechia*-Art. Berlin. ent. Zeitschr. 1902, pp. 155, 156. [*Lepidoptera.*]

1340. ——. *Plutella hyperboreella*, n. sp. Ent. Tidskr. xxiii, pp. 63, 64. [*Lepidoptera.*]

1341. STROBL, P. G. Ichneumoniden Steiermarks (und der Nachbarländer), [continuation]. Mt. Ver. Steiermark xxxviii, pp. 3–48. [*Hymenoptera.*]

1342. SUMMERS, H. E. A generic synopsis of the Nearctic *Pentatomidæ*. P. Iowa Ac. vi, 1899, pp. 40–46. [*Hemiptera-Heteropt.*]

1343. SUTTON, W. S. On the morphology of the chromosome group in *Brachystola magna*. Biol. Bull. iv, pp. 24–39.

1344. SWINHOE, C. New species of Eastern and Australian *Heterocera*. Ann. Nat. Hist. (7) ix, pp. 77–87.

1345. ——. Descriptions of new Eastern and Australian moths. T. c. pp. 165–182. [*Lepidoptera.*]

1346. ——. New species of Eastern and Australian *Heterocera*. T. c. pp. 415–424.

1347. ——. New and little-known species of Eastern and Australian moths. Op. cit. x, pp. 47–51. [*Lepidoptera.*]

1348. ——. New Eastern *Heterocera*. T. c. pp. 495–503.

1349. ——. New and little-known species of *Drepanulidæ*, *Epiplemidæ*, *Microniidæ* & *Geometridæ* in the national collection. Tr. ent. Soc. London 1902, pp. 585–677. [*Lepidoptera.*]

1350. SYKES, MARK L. Evolution in butterfly scales. Tr. Manchester Micr. Soc. 1901, pp. 82–87, illustr. [*Lepidoptera.*]

1351. SZÉPLIGETI, G. Tropische *Cenocœlioniden* und *Braconiden* aus der Sammlung des ungarischen National-Museums. II. Termes. Fuzetek xxv, pp. 39–84. [*Hymenoptera.*]

1352. ——. Neue *Trigonalys-*, *Megalyra-* und *Stephanus*-Arten aus der Sammlung des ungarischen National-Museums. T. c. pp. 525–534. [*Hymenoptera.*]

[TARGIONI-TOZZETTI. Obituary. See BARGAGLI (67).]

1353. TARNANI, J. C. Nouvelle théorie de la pénétration, sous la peau des animaux, des larves de l'*Hypoderma bovis* Deg. (notice préliminaire) [in Russian]. Rev. Russe Ent. ii, pp. 218–220.

1354. TAVARES, J. DA SILVA. As Zoocecidias portuguezas Addenda. Com a descripção de quinze especies cecidogenicas novas. Broteria i, pp. 3–48. [*Hymenoptera, Diptera.*]

1355. ——. Zoocecidias dos suburbios de Vienna d'Austria. T. c. pp. 77–93.

1356. ——Descripção de seis *Coleopterocecidias* novas. T. c. pp. 172–177. Includes information as to a very remarkable "jumping-gall."

1357. ——. Quatro dias na Estrella. T. c. pp. 177–182.

1358. ——. Descripção de tres *Cecidomyias* novas. T. c. pp. 182–185. [*Diptera.*]

1359. TAYLOR, T. H. On the tracheal system of *Simulium*. Tr. ent. Soc. London 1902, pp. 701–716. [*Diptera.*]

1360. Tepper, J. G. O. List of the described genera and species of the Australian and Polynesian *Phasmidæ* (Spectre-insects). Tr. R. Soc. S. Austral. xxvi, pp. 278–287. [*Orthoptera.*]

1361. Thaxter, R. Preliminary diagnoses of new species of *Laboulbeniaceæ.* P. Amer. Ac. xxxviii, pp. 9–57.
Gives the names of the insects on which the parasites live.

1362. Theobald, F. V. Notes on economic entomology. 1. Currant scale insects and their treatment. 2. The social pear-fly. 3. The buff-tip moth. 4. Some notes on the *Ribes*-feeding sawflies of Europe and America, and sawfly remedies. 5. The bee moth. 6. The introduction of foreign lady birds. 7. General report on insect and other pests in 1901. J. S. Eastern Agric. Coll. No. 11, pp. 20–53.

1363. ——. A short description of the *Culicidæ* of India, with descriptions of new species of *Anopheles.* P. R. Soc. London lxix, pp. 367–394. [*Diptera.*]

1364. ——. Economic Entomology. Encycl. Brit. xxvii, pp. 632–636.

1365. ——. Mosquitoes. Op. cit. xxxi, pp. 5, 6. [*Diptera.*]

1366. ——. Tsetse fly. Op. cit. xxxiii, pp. 468, 469. [*Diptera.*]

1367. Thiele, R. Die Blutlaus [*Schizoneura lanigera* Htg.). Zeitschr. Naturw. 1902, pp. 361–430. [*Aphidæ.*]
Cf. Rübsaamen (1177).

1368. Thieme, O. Zwei neue *Satyriden* aus der Cordillere von Südamerica. Berlin. ent. Zeitschr. 1902, pp. 281–282. [*Lepidoptera.*]

1369. ——. Eine neue *Tithorea* vom Chanchamyo. T. c. p. 282. [*Lepidoptera.*]

1370. Therese von Bayern, Prinzessin. Von ihre Königl. Hoheit der Prinzessin Therese von Bayern auf einer Reise in Südamerika gesammelte Insekten. v. *Dipteren.* Berlin. ent. Zeitschr. 1902, pp. 243–245. vi. *Rhynchoten*, t. c. pp. 246–278, pls. iv, v.
Descriptions of new species by Kuhlgatz & Melichar.

1371. Thomas, F. Die *Dipterocecidien* von *Vaccinium uliginosum* mit Bemerkungen über Blattgrübchen und über terminologische Fragen. Marcellia i, pp. 146–161.

1372. Thomson, A. E. The house-fly, *Musca domestica.* Tr. Manchester Micr. Soc. 1901, pp. 44–53.
Popular general account.

1373. Thouless, H. J. *Pseudophlœus waltlii* H.-S., a species new to the British fauna. Ent. Mag. xxxviii, p. 80. [*Hemipt.-Het.*]

1374. Tichomirow, A. Eigenthümlichkeiten der Entwicklung bei künstlicher Parthenogenese. Zool. Anz. xxv, pp. 386–391.
Summary, J. R. Micr. Soc. 1902, p. 428.

1375. Tiraboschi, C. Gli animali propagatori della peste bubonica. i. Nota. Le pulei parassite dei ratti e dei sorie *Histrichopsylla tripectinata*, nova sp. Boll. Soc. zool. Ital. xi, pp. 160–171, 1 pl. [*Aphaniptera.*]

1376. ——. Sulla *Sarcopsylla gallinacea* Westw. T. c. p. 172. [*Aphaniptera.*]

1377. Titus, E. S. G. Three new *Anthidiinæ* from Colorado. Ent. News Philad. xiii, pp. 169–171. [*Hymenoptera.*]

1378. [TITUS, E. S. G.] Colorado *Bombidæ*. Canad Ent. xxxiv, pp. 37–44. [*Hymenoptera.*]

1379. TOURNIER, G. La mouche Tsétsé. Naturaliste xxiv, pp. 201–3. [*Diptera.*]

1380. TOWER, W. L. Observations on the structure of the exuvial glands and the formation of the exuvial fluid in insects. Zool. Anz. xxv, pp. 466–472.
Cf. VERSON (1411). Summary, J. R. Micr. Soc. 1903, p. 173.

1381. *TROTTER, A. Studi cecidologici. II. Le ragioni biologiche della cecidogenesi. Nuov. Giorn. bot. viii, p. 557.
Review by MÜLLER, Verh. Ges. Wien lii, pp. 580–582.

1382. ——. Nuovo contributo alla conoscenza degli Entomocecidi della flora italiana. Riv. Patol. Veg. ix, pp. 359–382, pls. xiv, xv.

1383. *——. Terza communicazione intorno alle Galle (Zoocecidi) del Portogallo. Bol. Soc. Broter. xviii.
Summary, Broteria, i, p. 191.

1384. TSCHITSCHÉRINE, T. *Platysmatini* (*Coleoptera*, *Carabidæ*) nouveaux ou peu connus de l'Asie orientale. Horæ Soc. ent. Ross. xxxv, pp. 494–501.

1385. ——. Notes sur les *Platysmatini* de l'Australie. T. c. pp. 502–534. [*Coleoptera.*]

1386. ——. Bemerkungen über *Harpalini* (*Coleoptera*, *Carabidæ*). T. c. pp. 584–597.

1387. ——. Notice sur un nouveau genre de la tribu des *Platysmatini*, (*Coleoptera*, *Carabidæ*). T. c. pp. 28–30.

1388. ——. Notice sur le genre *Pioprosopus* Tsch. (*Coleoptera*, *Carabidæ*). T. c. pp. 39, 40.

1389. ——. De nova generis *Amara* Bon. (*Coleoptera*, *Carabidæ*) specie transcaspica ad subgenus *Phanerodonta* Tsch. spectante. T. c. p. 71.

1390. ——. Notice sur un nouveau genre européen de la sous-tribu des *Trigonognathini* (*Coleoptera*, *Carabidæ*). Rev. Russe Ent. ii, p. 28.

1391. TURNER, A. JEFFERIS. New genera and species of *Lepidoptera* belonging to the family *Noctuidæ*. P. Linn. Soc. N. S. Wales xxvii, pp. 77–136.

1392. ——. New Australian *Lepidoptera*. Tr. R. Soc. S. Austral. xxvi, pp. 175–207.

1393. TUTT, J. W. A natural history of the British *Lepidoptera*. Vol. III. London, 1902, xi + 558 pp.
Reviews: Berlin. ent. Zeitschr. 1902, pp. 289, 290; Deutsche ent. Zeitschr. Iris xv, pp. 330 334; by F. MERRIFIELD, Ent. Mag. xxxviii, p. 270; by DYAR, Canad. Ent. xxxiv, pp. 298–300.

1394. ——. List of species, varieties and aberrations of *Lepidoptera* so far only recorded from the British islands. Ent. Rec. xiv, pp. 113–118, 202–205, 259–262.

1395. ——. Migration and dispersal of Insects. Ent. Rec. xiv, pp. 73, etc. etc. [Conclusion of the series.]

1396. ULKE, H. A list of the beetles of the district of Columbia. P. U. S. Mus. xxv, No. 1275, pp. 1–57. [*Coleoptera.*]
2975 species. An appendix of ecological notes.

1397. Ulmer, G. *Trichopterologische* Beobachtungen aus der Umgegend von Hamburg. Stettin Ent. Zeit. 1902, pp. 360–366 and 384–387.

1398. ——. Anleitung zum Fang, zur Aufsucht und Konservierung der Köcherfliegen (*Trichopteren*), ihrer Larven und Puppen. Allg. Zeitschr. Ent. vii, pp. 143–150.

1399. ——. Zur *Trichopteren*-Fauna des Schwarzwaldes. Mit Beschreibungen einiger neuer Metamorphose-Stadier. T. c. pp. 465–470, 489–494.

1400. Uyttenboogaart, D. L. List of beetles collected in the months of August and September 1900 in Surinam (Dutch Guyana) and on the island of Barbadoes. Tijdschr. Ent. xlv, pp. 112–121. [*Coleoptera.*]

1401. Vachal, J. *Halictus* nouveaux ou litigieux de la collection Radoszkovski. (*Hymenoptera, Apidæ.*) Rev. Russe Ent. ii, pp. 225–231.

1402. Vaney, C. Contributions à l'étude des larves et des metamorphoses des *Diptères.* Ann. Univ. Lyon n. s. i, Fasc. 9, 178 pp., iv pls.

1403. Vayssière, A. Description d'une espèce nouvelle d'Hyménoptère térébrant appartenant au genre *Bracon.* Bull. Soc. ent. France 1902, p. 279.

1404. Verhoeff, K. W. Über *Dermapteren.* I. Aufsatz: Versuch eines neuen natürlichen Systems auf vergleichend-morphologischer Grundlage und uber den Mikrothorax der Insecten. Zool. Anz. xxv, pp. 181–208.
Cf. Silvestri (1269). Summary by v. Adelung, Zool. Centrlbl. 1902, pp. 527–530; by Burr, Ent. Rec. xiv, pp. 156–160.

1405. ——. Über *Dermapteren* (2 Aufsatz: Neue ungeflügelte *Eudermapteren*-Gattungen). SB. Ges. naturf. Berlin 1902, pp. 7–18.
Continues his paper in Zool. Anz.

1406. ——. Über die verwandschaftliche Stellung von *Hemimerus.* T. c. pp. 87–89. [*Orthoptera.*]

1407. ——. Über die Zusammengesetzte Zirpvorrichtung von *Geotrupes.* T. c. pp. 149–155. [*Coleoptera.*]

1408. ——. Über die Nerven des Metacephal-segmentes und die Insectenordnung *Oothecaria.* Zool. Anz. xxvi, pp. 20–31.

1409. ——. Zur Vergleichende Morphologie der Coxalorgane und Genitalanhänge der Tracheaten. T. c. pp. 60–77.

1410. Vermorel, — & Gastine, —. Sur un nouveau procédé pour la destruction de la *pyrale* et d'autres insectes nuisibles. C.R. Ac. Sci. cxxxv, pp. 66–68.

1410a. Verrill, A. E. The Bermuda islands: their scenery, climate, productions, physiography, Natural history, and Geology; with sketches of their early history and the changes due to man. Tr. Connecticut Ac. xi, pp. 413–956, pls. lxv–civ.
Insects, pp. 735–828.

1411. Verson, E. Observations on the structure of the exuvial glands and the formation of the exuvial fluid in Insects. Zool. Anz. xxv, pp. 652–654.

1412. Vevey, S. A. de. Pseudo parasitisme des *Thrips.* Bull. Soc. zool. France xxvii, pp. 207–209. [*Thysanoptera.*]
Summary, J. R. Micr. Soc. 1903, p. 174.

1413. VIEHMEYER, H. *Lomechusa strumosa* F. und die Pseudogynen. Allg. Zeitschr. Ent. vii, pp. 472–476. [*Hymenoptera.*]

1414. VIERECK, H. L. The home of some aculeate *Hymenoptera* with descriptions of two new species. Ent. News Philad. xiii, pp. 71–74.

1415. ——. A new species of *Cratichneumon.* T. c. p. 87. [*Hymenoptera.*]

1416. ——. Concerning bees. T. c. pp. 237, 238. [*Hymenoptera.*]

1417. ——. A new *Ceropales.* T. c. p. 275. [*Hymenoptera.*]

1418. ——. Some new parasitic *Hymenoptera.* Canad. Ent. xxxiv, pp. 67–70.

1419. ——. Descriptions of North American bees. T. c. pp. 325–331. [*Hymenoptera.*]

1420. ——. *Hymenoptera* from Southern California and New Mexico, with descriptions of new species. P. Ac. Philad. liv, pp. 728–743.

1421. VILLENEUVE, J. Sur *Onesia sepulchralis.* Wien. ent. Zeit. xxi, pp. 25, 26. [*Diptera.*]
HENDEL (590) controverts this paper, and VILLENEUVE reiterates, t. c. pp. 153–156.

1422. ——. Description d'une nouvelle espèce de *Limnophora* vivant au bord de la mer. T. c. pp. 197, 198. [*Diptera.*]

1423. VIRÉ, A. & ALZONA, C. Note sur l'*Anophthalmus fabiani* Gestro. Bull. Mus. Paris vii, p. 344. [*Coleoptera.*]

VITURAT. [See FAUCONNET and VITURAT (425).]

1424. VODOZ, G.-P. Observations sur les espèces Corses des sous-genres *Abacopercus* Gangl. et *Percus* Bon. Bull. Soc. ent. France 1902, pp. 145–148. [*Coleoptera.*]

1425. ——. Observations sur la faune des *Coléoptères* de la Corse. C.R. Ass. Franc. 1901, pl. 2, pp. 626–643.

1426. *VOELSCHOW, A. Die Zucht der Seidenspinner. Ausführliche Beschreibung sämtlicher in Europa eingeführten seideerzeugenden Schmetterlinge und ihrer Zucht. Schwerin, 1902, 83 pp., illustrations.
Review by GROTE, Allg. Zeitschr. Ent. vii, p. 315.

1427. VOELTZKOW, —. Die von Aldabra bis jetzt bekannte Flora und Fauna. Abh. Senckenb. Ges. xxvi, pp. 539–565.

1428. VOÏNOV, D. N. La spermatogenèse chez le *Cybister roeselii.* C.R. Ac. Sci. cxxxv, pp. 201–203. [*Coleoptera.*]
Summary, J. R. Micr. Soc. 1903, p. 36.

1429. VOSSELER, J. Beiträge zur Faunistik und Biologie der *Orthopteren* Algeriens und Tunesiens. Zool. Jahrb. Syst. xvi, pp. 337–404, pls. xvii, xviii.

1430. ——. Beiträge zur Faunistik und Biologie der *Orthopteren* Algeriens und Tunesiens. II. Theil. Op. cit. xvii, pp. 1–99, pls. i–iii.
Review of this and the preceding by V. ADELUNG, Zool. Centrlbl. 1903, pp. 128–134. Reprint, Mt. Nat.-Kab. Stuttgart, No. 23.

1431. ——. Über Anpassung und chemische Vertheidigungsmittel bei nordafrikanischen *Orthopteren.* Verh. Deutsch. zool. Ges. 1902, pp. 108–121.
Reprint, Mt. Nat.-Kab. Stuttgart, No. 22. Summary, J. R. Micr. Soc. 1903, p. 174.

1432. [Vosseler, J.] Ueber einige Insektenpilze. Jahresh. Ver. Wurttemb. 1902, pp. 380–388, and reprint in Mt. Nat.-Kab. Stuttgart xxi.

1433. Wagner, J. Notiz über die *Ceratophyllus*-arten (*Aphaniptera*), welche auf den Zieseln leben. Rev. Russe Ent. ii, pp. 325–327. [*Aphaniptera.*]

1434. *Wagner, W. Ueber Farbung und Mimicry bei Thieren. Trudui St. Petersb. Obshch. xxxi, 76 pp., 1 pl.
Summary, Zool. Centrlbl. 1902, p. 334.

1435. Walker, E. M. The Canadian species of *Trimerotropis.* Canad. Ent. xxxiv, pp. 1–11, pl. i. [*Orthoptera.*]

1436. ——. A preliminary list of *Acridiidæ* of Ontario. T. c. pp. 251–258. [*Orthoptera.*]

1437. Walker, F. A. Locusts and grasshoppers, with special reference to Biblical species. J. Victoria Inst. xxxiv, pp. 197–215. [*Orthoptera.*]

1438. Walker, J. J. Antipodean field notes. I. New Caledonia, New Hebrides and the adjacent islands. Ent. Mag. xxxviii, pp. 189–203.

1439. Walker, S. Two new aberrations of *Noctua rubi.* Ent. Rec. xiv, pp. 171–173. [*Lepidoptera.*]

1440. Walsingham, the Lord, & Durrant, J. H. Revision of the nomenclature of *Micro-lepidoptera.* Ent. Mag. xxxviii, pp. 28, 29, and 163–170.

1441. Wandolleck, B. Über die Gliedmassennatur der Styli. Verh. Deutsch. zool. Ges. 1902, pp. 193–195. [*Coleoptera.*]
A correction to this article is made in Zool. Anz. xxvi, p. 77.

——. [See also Lucas & Wandolleck (833).]

1442. Warburton, C. Annual report for 1902 of the Zoologist. J. R. Agric. Soc. England 1902, pp. 296–307.

1443. ——. Orchard and bush-fruit pests and how to combat them. T. c. pp. 115–134.

1444. Warren, Ernest. Variation and inheritance in the parthenogenetic generations of *Aphis "Hyalopterus trirhodus"* (Walker). Biometrika i, pp. 129–154.

1445. Warren, W. *Drepanulidæ*, *Thyrididæ*, *Uraniidæ*, and *Geometridæ* from the Oriental region. Nov. Zool. ix, pp. 340–372. [*Lepidoptera.*]

1446. ——. New African *Drepanulidæ*, *Thyrididæ*, *Epiplemidæ*, and *Geometridæ* in the Tring Museum. T. c. pp. 487–536. [*Lepidoptera.*]

1447. Washburn, F. L. Seventh annual report of the Entomologist of the State experiment Station of the University of Minnesota. First annual report of the F. L. W. St. Anthony, 1902, 74 pp.

1448. Wasmann, E. Noch ein Wort zu Bethe's Reflextheorie. Biol. Centrbl. xxii, pp. 573–576.
Relates to Bethe (100).

1449. ——. Zur näheren Kenntnis der termitophilen *Dipteren*-gattung *Termitoxenia* Wasm. Verh. Congr. Zool. v, pp. 852–873, 1 pl.

1450. ——. *Termiten*, Termitophilen und Myrmekophilen gesammelt auf Ceylon von Dr W. Horn 1899, mit anderm ostindischen Material. 129 Beitrag zur Kenntniss der Myrmekophilen und Termitophilen. Zool. Jahrb. Syst. xvii, pp. 99–164, pls. iv, v. [*Neuroptera*, *Coleoptera*, *Diptera.*]

1451. [WASMANN, E.] Species novæ Insectorum termitophilorum ex America meridionali. Tijdschr. Ent. xlv, pp. 95–107, pl. ix.

1452. ——. Species novæ insectorum termitophilorum, a D. Filippo Silvestri in America meridionali inventæ. (Contributio 128, ad cognitionem *Myrmecophilorum* et *Termitophilorum.*) Boll. Mus. Torino 1902, No. 427, 6 pp.

1453. ——. Einige Bemerkungen zu J. Sjöstedt's "Monographie der Termiten Afrikas." Biol. Centrbl. xxii, pp. 714–717.

1454. ——. Biologische und phylogenetische Bemerkungen über die *Dorylinen*gäste der alten und der neuen Welt, mit specieller Berücksichtigung ihrer Convergenzerscheinungen. Verh. Deutsch. zool. Ges. 1902, pp. 86–98, pl. i.

1455. ——. Neue Bestätigungen der *Lomechusa*-Pseudogynentheorie. Verh. Deutsch. zool. Ges. 1902, pp. 98–108, pl. ii.

1456. ——. Neues über die zusammengesetzten Nester und gemischten Kolonien der Ameisen. [Continuation.] Allg. Zeitschr. Ent. vii, pp. 2 etc. [*Hymenoptera.*]
This has been published also separately extending to 78 pp., 1 pl.

1457. ——. *Coléoptères* myrmécophiles recueillis par M. le Prof. A. Lameere en Algérie. Ann. Soc. ent. Belgique xlvi, p. 159.

1458. ——. Zwei neue europäische *Coleopteren.* Deutsche ent. Zeitschr. 1902, p. 16.

1459. ——. Ein neuer myrmekophiler *Ilyobates* aus dem Rheinland. T. c. p. 62. [*Coleoptera.*]

1460. ——. Riesige Kurzflügler. Insekten-Börse xix, 11 pp [*Coleoptera.*]

1461. WATERHOUSE, C. O. Descriptions of two new *Coleoptera* of the family *Buprestidæ.* Ann. Nat. Hist. x, pp. 330, 331.

1462. ——. Index Zoologicus. An alphabetical list of names of genera and subgenera proposed for use in Zoology as recorded in the "Zoological Record" 1880–1900: together with other names not included in the "Nomenclator Zoologicus" of S. H. Scudder. Compiled (for the Zoological Society of London) by CHARLES OWEN WATERHOUSE, and edited by DAVID SHARP. London, 1902, 8vo, xii + 421 pp.

——. [See also JOHNSTON (660).]

1463. WATERHOUSE, G. A. Notes on Australian *Rhopalocera*: *Lycænidæ.* Part I. P. Linn. Soc. N. S. Wales xxvii, pp. 331–342, pl. xiv.

1464. WEBER, L. Die Larve von *Aphaobius paganettii* Ganglb., n. sp. Allg. Zeitschr. Ent. vii, pp. 17–19. [*Coleoptera.*]

1465. ——. Beobachtungen bei der copula der Hirschkäfer. T. c. pp. 335–337. [*Coleoptera.*]

1466. WEBSTER, F. M. The trend of insect diffusion in North America. Rep. ent. Soc. Ontario xxxii, pp. 63–67.

1467. ——. Winds and storms as agents in the diffusion of insects. Amer. Natural. xxxvi, pp. 795–801.

1468. ——. The imported willow and poplar *Curculio.* Rep. ent. Soc. Ontario xxxii, pp. 67–73. [*Coleoptera.*]

1469. *——. The grape-cane gallmaker and its enemies (*Ampeloglypter sesorostris*). Bull. Ohio Exp. Stat. No. 116, pp. 195–198. [*Coleoptera.*]

1470. WEEKS, A. G. New species of butterflies from Bolivia. Ent. News Philad. xiii, pp. 104–107. [*Lepidoptera.*]

1471. ——. New diurnal *Lepidoptera* from Bolivia. Canad. Ent. xxxiv, p. 138.

1472. ——. Descriptions of six new butterflies from Bolivia. P. New England Zool. Club iii, pp. 1–7. [*Lepidoptera.*]

1473. ——. Some undescribed butterflies from Colombia and from Lower California. T. c. pp. 9–13. [*Lepidoptera.*]

1474. WEELE, H. W. VAN DER. Description of a new genus and species of Holophthalmous *Ascalaphidæ.* Notes Leyden Mus. xxiii, pp. 234–236. [*Neuroptera.*]

1475. WEGELIN, H. Verzeichniss der *Hymenopteren* des Kantons Thurgau. Mt. Thurgau Ges. xiv, pp. 119–150.

1476. WEISE, J. Afrikanische *Chrysomeliden.* Arch. Naturg. lxviii, i, pp. 119–174. [*Coleoptera.*]

1477. ——. *Coccinelliden* aus der Sammlung des ungarischen National-Museums. Termes. Fuzetek xxv, pp. 489–520. [*Coleoptera.*]

1478. ——. Biologische Mittheilungen. Deutsche ent. Zeitschr. 1902, pp. 103–109. [*Coleoptera.*]

1479. ——. Uebersicht der *Eumela*-Arten. T. c. pp. 109, 110. [*Coleoptera.*]

1480. ——. *Coccinelliden* aus Südamerika. III. T. c. pp. 161–176. [*Coleoptera.*]

1481. ——. Ein neuer deutscher *Scymnus.* T. c. p. 240. [*Coleoptera.*]

1482. ——. Afrikanische *Halticinen.* T. c. pp. 301–304. [*Coleoptera.*]

1483. ——. Ueber die mit *Pseudomesomphalia floccosa* Er. verwandten Arten. T. c. pp. 241–243. [*Coleoptera.*]

1484. ——. Zwei neue *Chrysomeliden* aus Tonkin. T. c. pp. 367, 368. [*Coleoptera.*]

1485. WEISMANN, A. Vorträge uber Descendenztheorie gehalten an der Universität zu Freiburg im Breisgau. 2 vols. Jena, 1902, Vol. i, xii + 456 pp., Vol. ii, vi + 462 pp.
Two of the chapters are devoted to colour, protection, mimicry.

1486. WERNER, F. Beiträge zur Kenntnis der *Orthopteren*fauna Greichenlands. Berlin. ent. Zeitschr. 1902, pp. 111–118.

1487. WESCHÉ, W. Modifications of the legs in some *Dipterous* flies. J. Quekett Club (2) viii, pp. 245–250, pls. xiii, xiv.
Summary, J. R. Micr. Soc. 1902, p. 553.

1488. ——. Undescribed palpi on the proboscis of some *Dipterous* flies, with remarks on the mouth-parts in several families. J. R. Micr. Soc. 1902, pp. 412–416, pls. ix, x.

1489. WHEELER, W. M. The occurrence of *Formica cinerea* and *Formica rufibarbis* Fabricius in North America. Amer. Natural. xxxvi, pp. 947–952. [*Hymenoptera.*]

1490. ——. An American *Cerapachys*, with remarks on the affinities of the *Cerapachyinæ.* Biol. Bull. iii, pp. 181–191. [*Hymenoptera.*]

1490a. ——. A new agricultural ant from Texas. Amer. Natural. xxxvi, pp. 85–100. [*Hymenoptera.*]

1491. [WHEELER, W. M.] New agricultural ants from Texas. Psyche ix, pp. 387–393. [*Hymenoptera.*]

1492. ——. A consideration of S. B. Buckley's North American *Formicidæ.* Tr. Texas Ac. iv, pt. 2, No. 2, pp. 17–31. [*Hymenoptera.*]

——. [See also EMERY (393).]

1493. WICKHAM, H. F. Two new *Silphidæ* from Colorado. Canad. Ent. xxxiv, pp. 180, 181. [*Coleoptera.*]

1494. ——. A catalogue of the *Coleoptera* of Colorado. Bull. Illinois Lab. v, pp. 217–310.

1495. WILLEM, V. Les rapports d'*Actaletes* avec les autres *Collemboles.* Ann. Soc. ent. Belgique xlvi, pp. 11, 12.

1496. ——. La position des *Anuphoriens* dans la classification des *Collemboles.* T. c. pp. 21–23.

1497. ——. Note préliminaire sur les *Collemboles* des grottes de Han et de Rochefort. T. c. pp. 275–283.

1498. WILLIAMSON, E. B. A new species of *Gomphus* (*Odonata*) related to *G. fraternus.* Ent. News. Philad. xiii, pp. 47–49.

1499. ——. A list of the dragon-flies observed in Western Pennsylvania. T. c. pp. 65–70 etc. etc., pl. iii. [*Odonata.*]

1499A. ——. Additions to the Indiana list of dragon-flies with a few notes. P. Indiana Ac. 1900, pp. 173–178. [*Odonata.*]

1499B. ——. Additions... No. 2, op. cit. 1901, pp. 119–128. [*Odonata.*]

WILSON, E. [See SHIPLEY & WILSON (1265).]

1500. WITCHELL, C. A. Some instances of intelligence in animals. P. Cotteswold Club xiv, pp. 119–125.

1501. WOODWORTH, C. W. Grasshoppers in California. Bull. Agric. exp. Stat. California, No. 142, 36 pp. [*Orthoptera.*]

1502. WOOLLEY, J. Notes on some Vegetable Insect pests. Tr. Leicester Soc. vi, pp. 190–197.

1503. WRIGHT, E. P. Naturalists of Ireland. I. Alexander Henry Haliday [with portrait]. Irish Natural. xi, pp. 197–199.

WYTSMAN, P. Genera Insectorum. Fasc. i–xii, Bruxelles, 1902. [See RÉGIMBART (1113), KIEFFER (684), BELON (86), PAGENSTECHER (997), RIPPON (1156), BOUCOMONT (143), PIC (1055), DALLA TORRE & KIEFFER (301), ANDRÉ (25), WYTSMAN (1504), & KERREMANS (677).] The first eleven fascicles complete Vol. i.

1504. ——. *Leptocircinæ* [in] Wytsman Genera insectorum i, 3 pp., 1 pl. [*Lepidoptera.*]

1505. XAMBEU, —. Mœurs et métamorphoses des insectes. Mélanges entomologiques 11e Mémoire. Ann. Soc. Linn. Lyon xlviii, pp. 1–40. [*Hymenoptera, Diptera.*]

1506. ——. Mélanges entomologiques. Soc. Pyrenees-or. xliii, pp. 110–124.
1. *Aphis persicæ*; 2. Insects and frost.

1507. ——. Mœurs et métamorphoses des insectes. C.R. Ass. Franc. 1901, pt. 2, pp. 588–614. [*Coleoptera.*]

1508. YERBURY, J. W. A list of the *Diptera* met with in Cork and Kerry during the summer of 1901. Irish Natural. xi, pp. 74–93.

1509. ZAVŘEL, J. Untersuchungen über die Entwicklung der Stirnaugen (Stemmata) von *Vespa*. SB. Bohmisch. Ges. 1902, No. xiii, 36 pp., 3 pls. Summary by HESSE, Zool. Centrlbl. 1902, p. 698.

1510. ZEHNTNER, L. De Zeuzeraboorder (*Zeuzera coffeæ* Nietn.). Bull. Proefstat. Salatiga, No. 2, pp. 1–11, pl. [*Lepidoptera.*]

1511. ——. Het Koffie-snuitkevertje (*Aræcerus fasciculatus* De Geer). Op. cit. No. 3, pp. 1–17, pl. [*Coleoptera.*]

1512. PAGENSTECHER, A. *Callidulidæ.* Das Tierreich, 17 Lief. viii + 25 pp. [*Lepidoptera.*]

II. BIOLOGY.

SUBJECT-INDEX.

1. ANATOMY AND PHYSIOLOGY.

N.B. The arrangement in the subsections *a–g* of Anatomy and Physiology is of little importance, as it will be noticed that each subsection may not be complete in itself.

a. Morphology. (See also "General," below.)

Morphology and taxonomy of *Arthropoda*, LANKESTER (772).

Theory of origin of morphology of alimentary canal, and morphology of gaster of *Myrmica*, JANET (655 A).

Ectoderm and endoderm in the imago, VANEY (1402).

b. General (comprehensive) and External. (See also the other subsections for special systems or organs.)

Elementary text-book, anatomy, COMSTOCK & KELLOGG (279).

Chitin, structure, BIEDERMANN (106).

Chitin layer, relations of to underlying tissues, HOLMGREN (611).

The skeleton of the head, COMSTOCK & KOCHI (278).

The mesosternum of *Lepidoptera*, Hyposternum etc., JORDAN (661).

Thorax of *Gerridæ*, BERGROTH (91).

Abdominal structure of *Forficulidæ*, supra-anal and sub-anal plates, VERHOEFF (1405).

Morphology of abdomen of *Hemimerus*, VERHOEFF (1406).

Morphology of coxal organs and abdominal appendages, VERHOEFF (1409).

Styli as segmented appendages, WANDOLLECK (1441).

Antennal-organs of *Collembola*, BÖRNER (138).

Homologies of trophi, KELLOGG (668).

Mandibles of *Diptera*, LANGHOFFER (770).

Trophi of *Diptera*, labial palpi, WESCHE (1488).

Trophi of *Braula*, LÖSY (828).

Maxillæ of larvæ of *Coleoptera*, EICHELBAUM (390).

LÉON's paper, recorded last year, morphology of labium of *Hemiptera* has now appeared in Bull. Soc. Jassy xv, pp. 183–195.

The "Microthorax" (cervical sclerites) of Insects, VERHOEFF (1404).

Microthorax, SILVESTRI (1269).

Metacephalic segment (= Microthorax) VERHOEFF (1408).

Morphology of wing, IMHOF (634).

Wing of *Coleoptera*, KEMPERS (674).
Wing of *Omma*, PEYERIMHOFF (1019).
Suture of elytra, *Coleoptera*, ALLUAUD (15).
Nervures of *Lepidopterous* wing, tracheal system of in pupa, ENDERLEIN (399).
Morphology of leg, BÖRNER (137).
Legs of *Diptera*, WESCHÉ (1487).
Anatomy of *Dolichopoda*, MONTI (924).
Anatomy of *Trichopsocus*, RIBAGA (1150).
Anatomy of *Actaletes*, WILLEM (1495).
Anatomy of *Molanna* (*Trichoptera*) larva, BETTEN (102).
Internal anatomy of *Sisyra* larva, ANTHONY (29 A).
External structure of *Passalus*, LANDACRE (769).
External structure of *Ceratopogon*, COLLEDGE (275).
Cocoon-cutter in *Antheræa*, DODD, Entomologist 1902, p. 16.
Protrusible organ in some male *Lepidoptera*, LISTER (824).
Tuft, ♂, of *Noctuidæ*, LISTER, Ent. Rec. xiv, p. 340.
Structure of scales of various butterflies, SYKES (1350).

c. Nervous System, Sense-Organs. (For Senses, Psychology etc., see p. 83.)

Eye of Arthropoda, specially *Crustacea*, KUNSTLER & GINESTE (746).
Development of stemmata *Vespa*, ZAVŘEL (1509).
Sense-organs on pupa of *Lepidoptera*, VON LINDEN (819).
Terminations of motor nerves, AGGAZZOTTI (6).
Morphology of infraœsophageal ganglion, VERHOEFF (1408).
Antennal organs *Collembola*, see **b**.
Embryology of nervous system *Muscidæ*, ESCHERICH (405).
Development of nervous system *Lucilia*, ESCHERICH (406).

d. Muscular System. Vacant. (Muscle in metamorphosis, see **g**.)

e. Nutrition (incl. Circulatory and Respiratory Organs, Glands, Excretion). See also **g**.

Alimentary canal of *Xylocopa*, BUGNION (179).
Alimentary canal of *Scolytidæ*, SEDLACZEK (1241).
Alimentary canal of larva of *Lep.*, SIMPSON (1271).
Regenerating crypts of mesenteron of *Hydrophilus*, DEEGENER (311).
Alimentary canal and malpighian tubes of *Acherontia* pupa, BORDAS (132).
Alimentary canal and malpighian tubes *Lepidoptera*, BORDAS (131).
Malpighian tubes, *Gryllidæ*, histology, BORDAS (130).
Malpighian tubes and receptacle, *Gryllidæ*, BORDAS (129).
Structure of gizzard, *Coleoptera*, BORDAS (128).
Respiration, *Hydroptilidæ* larvæ, RICHTERS (1152).
Tracheal system, *Simulium*, larva, pupa, imago, TAYLOR (1359).
Dorsal vessel, BERGH (89).
Excretory organs in *Coleoptera*, HOLMGREN (614).
Mandibular and labial glands, *Cossus ligniperda* larva, BORDAS (133).
Salivary glands of *Periplaneta*, LEBEDEFF (786).
Spinning glands of *Embiidæ*, MELANDER (886).
Foam-glands of *Aphrophora*, PORTA (1083).
New dermal gland, BETTEN (102).
Exuvial glands and setigerous cells in ecdysis, TOWER (1380).
Exuvial glands and hair-cells distinguished, VERSON (1411).
Fluid-ejecting apparatus, stink-glands in *Orthoptera*, VOSSELER (1439).
Dorsal glands of *Hemiptera* larva, GULDE (573).

Scent-organ in *Apis*, SLADEN (1286).
Scent-organ of *Hepialus hectus*, DEEGENER (310).
Scent-organs of *Hepialidæ*, DODD (341).

f. Sexual organs and Sex (incl. Hermaphrodites).

Genital appendages, morphology. See VERHOEFF in **b**.
External sexual organs of *Musca domestica*, BERLESE (96).
Anatomy and development of the internal sexual organs of *Scolytidæ*, SCHRÖDER (1215).
Genitalia of *Trichoptera*, KLAPÁLEK (715).
♂ genitalia, *Asilidæ*, SNODGRASS (1313).
Asymmetrical ♂ genitalia, *Sphingidæ*, CHAPMAN (225).
Structure of testes of *Collembola*, LÉCAILLON (787).
Histology of testes, *Anurida*, LÉCAILLON (788).
Structure of female organs, branched glands, *Hydrophilus*, MEGUŠAR (884).
Structure of female genitalia, *Apatania*, MORTON (930).
Receptaculum seminis, *Culicidæ*, NEVEU-LEMAIRE (954).
Structure of ovipositing apparatus of *Mantidæ*, GIARDINA (354), of *Acridiidæ*, GIARDINA (355).
Oogenesis, *Dytiscus*, GIARDINA (537).
Oogenesis, in *Lepidoptera*, GRÜNBERG (570).
Spermatogenesis, Acrosome, Idiozome, PANTEL & SINÉTY (1000).
Spermatogenesis in *Silpha*, HOLMGREN (613).
Spermatogenesis, dimorphism, *Cybister*, VOÏNOV (1428).
Spermatogenesis and histology of testis, *Tenebrio*, DEMOKIDOFF (575).
Spermatogenesis in *Pygæra*, MEVES (903); *Sciara*, GIARD (529), synandry; *Notonecta*, PANTEL & SINÉTY (1000, 1001); *Orthoptera*, MCCLUNG (880); *Locustidæ*, MCCLUNG (881); *Brachystola*, SUTTON (1343).
Hermaphroditism, protandric, WASMANN (1449).
Hermaphrodites of *Chermes strobilobius*, CHOLODKOVSKY (239).
Hermaphrodite *Lepidoptera*, GILLMER (540).—*Samia*, GROTE (558).
Gynandromorphous *Lycæna icarus*, CARPENTER, p. xxxviii, JOY, p. xl, P. ent. Soc. London 1902.—Gynandromorph *Euchloë*, SHEPHEARD-WALWYN, P. ent. Soc. London 1902, p. xxi.—Gynandrous *Argynnis paphia*, CHARLES, Entomologist 1902, p. 242.—Gynandrous *Amphidasys*, 7 examples from one female, SOUTH (1318).
Gynandromorph *Pterostichus*, EHRMANN, Ent. News Philad. xiii, p. 140.
Determination of sex, MCCLUNG (880).
Determination of sex in *Apis* etc., BEARD (73); KULAGIN (743).

g. Physiology. (See also subsections **a—f**, and 2, 3, 4.)

Hepatic function in Insects, PORTA (1080).
Influence of food and external conditions on cycles of life, CHOLODKOVSKY (240).
Flightlessness and apterism, physiology of, DEWITZ (324).
Metamorphosis, Fodiometabola and Sitometabola, BRUNELLI (172).
Histology of metamorphosis, ANGLAS (26).
Physiology of metamorphosis, ANGLAS (27); BERLESE (93–95); SOSNOWSKI (1315); VANEY (1402).
Physiology of metamorphosis and coloration, DEWITZ (325, 326).
Physiology of metamorphosis, enzymes, DEWITZ (328, 329).
Suppression or delay of metamorphosis, DEWITZ (327).
Regeneration of tarsus in *Samia*, BRINDLEY (167).
Regeneration in *Odonata* and *Ephemeridæ*, HÜBNER (628).
Causation of Ant-pseudogynes, VIEHMEYER (1413); WASMANN (1455).

Parthenogenesis; unimpregnated workers of ants producing workers, REICHENBACH (1127).
Parthenogenesis in silkworm artificially induced, TICHOMIROW (1374).
Parthenogenesis in *Phasmid*, HANITSCH (580).
Variation and inheritance in parthenogenetic generations, WARREN (1444).
Ecdysis of *Eugaster*; blood, spermatophores, ejected fluid, etc., VOSSELER (1431).
Liquid emitted by *Coccinella*, PORTA (1081).
Movement in decapitated *Lucanus*, SAUNDERS, Ent. Mag. xxxviii, p. 242.
Period of existence without food, PORTER, Revist. chilena iv, p. 147.
Temperature, VON LINDEN (820, 822).
Longevity of *Hydrophilus*, POUJADE, Bull. Soc. ent. France 1902, pp. 206, 219, 238.
Susceptibility to cold of *Lep.* pupa, BACHMETJEW (51).
Heat-relations of *Lepidopterous* pupa, BACHMETJEW (50).
Frost and Insects, XAMBEU (1506).
Hibernation, diminution in weight during, ROCQUIGNY ADANSON (1169).
Epithelial mitosis, *Arthropoda*, LÉGER & DUBOSCQ (790).
Vibratile cilia in *Chironomus* larva, LÉGER (789).
Geometry of rigid wings, AMANS (20).
Determination of sex. See **f**.

2. ETHOLOGY. HABITS, INSTINCT, including SENSES, PSYCHOLOGY. (Organs of Sense, see **1c**, p. 81.)

Animal psychology and evolution theory, FOREL (460).
Orientation of Arthropods, RÁDL (1104).
Experiments as to sensitiveness of Ants to ultra-violet and Röntgen rays, FOREL & DUFOUR (471), DUFOUR (364).
Senses, HUDSON (629), PLATEAU (1067).—Sense of smell, FOREL (462).—Sense of taste in Ants, COBELLI (245).—Odour and sight, ablation of antennæ of *Bombus*, PLATEAU (1069).
Instinct of Aculeate *Hymenoptera*, FERTON (432), BETHE (100), WASMANN (1448), HÖPPNER (619), XAMBEU (1505).
The homing faculty of *Hymenoptera*, BETHE (100).
Oecophylla smaragdina using larvæ for spinning etc., DODD (342).
Intelligence of Ants, FOREL (461), PROWAZEK (1093), REICHENBACH (1127).
Senses and psychology of Ants, FIELDE (436).
Habits of Ants, LAMEERE (761).—Habits and Psychology of Algerian *Myrmecocystus*, ESCHERICH (408).—Agricultural Ant, WHEELER (1490 A, 1491).—Ants finding their way, OSTEN SACKEN, Ent. Mag. xxxviii, p. 172.
Habits of *Hoplomerus reniformis*, ADLERZ (3); of *Ceratocolus subterraneus*, NIELSEN (963); of *Stizus fasciatus*, FERTON (434); of *Dielis formosa*, FROGGATT (491).
Habits of solitary bees, NIELSEN (962).
Instinct of bees, *Halictus*, FABRE (410).
Habits of *Copridæ* in La Plata, LALOY (755).
Habits of *Oncideres*, HERRICK (597).
Habits of *Rhynchites*, SCHREINER (1213).
Natural history and generations of *Pieris brassicæ*, AUEL (44).
Hydrocampa, notes, CANNAVIELLO (209).
Instinct of *Sciara* larvæ, GIARD (530).
Biology of *Anopheles claviger* in Finland, LEVANDER (806).
Food-habits, *Cicada*, QUAINTANCE (1101).
Habits of Termites, SILVESTRI (1267, 1268), LAMEERE (762).

Habits of *Embiidæ*, MELANDER (886).
Ulula hyalina, life-history, McCLENDON (879).
Thrips, habits, VEVEY (1412).
Carnivorous *Thrips*, REUTER (1139).
Habits of Saharan *Orthoptera*, VOSSELER (1429).
Habits and coloration of *Tettigidæ*, HANCOCK (578).
Food-habits of *Hemimerus*, POCHE (1072).
Mantis and its prey, BELLEVOYE (80).
Errors of *Hymenoptera* in visiting flowers, PLATEAU (1068).
Instinct of Processionary caterpillars at fault, ROCQUIGNY-ADANSON, Feuille Natural. xxxii, p. 170.
Change of habits in Hawaii, ANON (29), p. cv.
Variation in habit of Cyprian honey-bee, BENTON, P. ent. Soc. Washington v, p. 45.
Instinct and use of wings, in Corsica, FERTON (432).
Nests of European *Megachile*, DU BUYSSON (191).
Euglossa, nesting habits, SCHULZ (1226).
Combs of *Apis florea* and *dorsata*, FRIESE (487).
Nests of *Formica*, MUCKERMANN (934).
Termitarium construction, MILLETT (917).
Sleeping *Hymenoptera*, BANKS (64).
Resting-habits, *Anthidium*, MELANDER (888).
Hibernation, LOCHHEAD (825).
Cleaning antennæ, *Lamiides*, LAMEERE (765).
Relations of some insects living under bank, POMERANTZEW (1077).
Cannibalism in *Scolytidæ*, LEIST (792).
"Mining *Coccidæ*", REH (1114).
Jumping-gall, mechanics, TAVARES (1356).
Seeking places of concealment, WITCHELL (1500).
Constancy to food-plant, POULTON, etc., P. ent. Soc. London 1902, p. xli.
Cecidomyia-larva and rust-spores, LINDROTH (823).
Apatura iris, pugnacity etc. of, JOY, P. ent. Soc. London 1902, pl. xl.
Parental care in *Hemiptera*, KIRKALDY, Entomologist 1902, p. 319.
Habits, incl. copulation, *Cicindelidæ*, MITCHELL (918).
Mating of *Hemiptera*, GADEAU DE KERVILLE (512).
Mating, oviposition, CHAPMAN (229).
Copula of *Homalota*, EDWARDS, Ent. Mag. xxxviii, p. 181; of *Platycerus cervus*, WEBER (1465); of *Musca*, BERLESE (96).
Oviposition and intelligence of *Mylabris*, BUYSSON (192).
Oviposition and habits of *Inostemma*, MARCHAL (856).
Oviposition of *Lestes* (*Odonata*), PIERRE (1065).
Ootheca of *Acridiidæ*, GIARDINA (355); of *Mantidæ*, GIARDINA (354), VOSSELER (1429).
Cases, etc., *Clythra 4-punctata*, DONISTHORPE (348).
Cocoon construction, *Marmara salictella*, BUSCK, P. ent. Soc. Washington v, p. 102.
Cocoon of *Telea*, GROTE (558); of *Curculionidæ*, KEW (681 a).
Origin of an ant-community, FOREL (467, 468).
Mixed and compound associations of ants, of ants and termites, ant-psychology, WASSMANN (1456).
Colonial habits of *Allodape* a solitary bee, BRAUNS (155).
Gregarious instinct, POULTON, Tr. ent. Soc. London 1902, 460–465.
Migration, TUTT (1395); Migration of butterflies, Kangra Valley, DUDGEON, J. Bombay Soc. xiv, pp. 147, 148, NURSE, t. c. p. 179; of *Vanessa cardui*, ROCQUIGNY ADANSON, Rev. Sci. Bourbonnais xv, p. 120; of *Anosia archippus*, MOFFAT, Rep. ent. Soc. Ontario xxxii, p. 51, of *Pyrameis cardui*, FLETCHER, t. c. pp. 54-57; Migration of *Libellula*, FONTAINE, Ann. Soc. ent. Belgique xlvi, p. 7.

Stridulation, value of, MARSHALL, Tr. ent. Soc. London 1902, p. 403 ; Stridulation, MORLEY, Ent. Mag. xxxviii, p. 249.

Stridulation of *Pentodon*, JAKOWLEFF (649) ; of *Geotrupes*, VERHOEFF (1407) ; of *Mutilla*, GARCIA MERCET, Bol. Soc. espan. ii, pp. 309–311 ; of *Acherontia*, COBELLI (245) ; of *Orthoptera*, REGEN (1110).

Stridulating organ, *Graphipterus*, POCOCK (1073); Stridulating organ, *Anopheles*, SHIPLEY & WILSON (1265) ; Stridulatory structure of *Helioscirtus* and *Sphingonotus*, VOSSELER, Zool. Jahrb. Syst. xvi, p. 365.

Aquatic *Hymenoptera*, PEREZ (321); Aquatic *Orthoptera*, GREEN, Ent. Mag. xxxviii, p. 214; Aquatic cricket, MIALL & GILSON (916).

Snow, Insects on, CAUDELL (216).

Inflation for emergence from pupa-case, CHAPMAN (231).

History of a parasitic *Dipteron*, PANTEL (999).

Laboulbeniaceous parasites, THAXTER (1361).

Symbiosis, SCHWARZE (1236).

Oxybelus and its parasites, KIEFFER (690).

Lepidopterous larva on a *Fulgorid*, DYAR (369).

Commensalism of *Braula cœca*, LÓSY (828).

Ants and *Lycæna* larva, REY, Berlin. ent. Zeitschr. 1902, SB. p. 3.

Symbiosis of Termite and bee, GIARD, p. 23, Bull. Soc. ent. France 1902.

Myrmecophilous insects in Algeria, origin of symphily, ESCHERICH (407).

Guests of *Dorylini*, WASMANN (1454).

Myrmecophilous Insects, BRUES (169), DONISTHORPE (348, 350), WASMANN (1460).—*Coleoptera*, WASMANN (1457, 1459), RIVERS, Bull. S. Calif. Ac. i, p. 71.—Ants-nest *Aphidæ*, SCHOUTEDEN (1212).—Ants-nest *Coccidæ*, GREEN (553), KING (693, 696).—Myrmecophilous *Diptera*, LONG (826).

Termitophilous and myrmecophilous Insects, WASMANN (1450); Termitophilous and myrmecophilous *Coleoptera*, BRUES (170).

Termitophilous Insects, S. America, Classification of termitophilous Ins., SILVESTRI (1267).—Termitophilous Ins., WASMANN (1451, 1452).—Termitophilous *Coleoptera*, WASMANN (1458).

Coleoptera in nests of Hamster, HEIDENREICH, Deutsche ent. Zeitschr. 1902, p. 156.

Cave Insects, ABSOLON (1), BREIT (163), CARPENTER (212), CHOBAUT (236), GANGLBAUER (515), REITTER (1135), SAINTE-CLAIRE-DEVILLE (1185), VIRÉ & ALZONA (1423), WILLEM (1497).

Blind Collembola, FOLSOM (457).

3. DEVELOPMENT. (See also 1g, Physiology.)

Development of mouth parts, KELLOGG (668).

Development of wing in *Sisyra*, ANTHONY (29A).

The pupal and imaginal wings of *Lepidoptera*, ENDERLEIN (399).

Development of elytron, *Coleoptera*, OHAUS, Ent. Zeit. Stettin 1902, pp. 3–9.

Early development of ovary and testis, later development of ovary, GRÜNBERG (570).

Life-cycle of *Chermes viridanus*, CHOLODKOVSKY (238).

Early stage of *Laria*, DARBOUX & MINGAUD (307, 308).

Early stages of *Mantidæ*, GIARDINA (354).

Abnormal ontogeny of termitophilous *Dipteron*, WASMANN (1449).

Premature development in parts of larvæ, H. KOLBE (723).

Delayed pupal emergence, *Lachneis lanestris*, CHAPMAN, Ent. Rec. xiv, p. 122.

Physiology of metamorphosis. See 1g Physiology.

4. General Subject.

Variation and Teratology.

Variation, segregation, Chapman (226).

Variation in generic characters, Lyman (847).

Individual with characters of two genera, Rosmini, Boll. Mus. Torino, No. 428, p. 9.

Increase of melanism in *Noctuidæ*, Slevogt, Soc. ent. xvii, p. 43.

Variation and change of food, Pictet (1062).—Varieties of *Lep.* by feeding, Pabst (992).

Variation in wings, same hive, Landacre (768).

Breeding from varr. of *Noctua rubi*, Walker (1439).

Varieties, structural etc., *Staphylinidæ*, Eichelbaum (389).

Variation in armature of male *Scarabæidæ*, Griffini (555).

Variation in colour, *Pieridæ*, Geest (521).

Temperature experiments, Frings (488).

Temperature varr., new, of *Vanessa*, Fischer, Soc. ent. xvii, pp. 49, 50.

Artificial varieties, *Lepidoptera*, heredity of acquired characters, von Linden (820).

Seasonal dimorphism, experiments, Dixey (340).

Seasonal forms, peculiarities, Rey, Berlin. ent. Zeitschr. 1902, SB. p. 18.

Influence of season on a dimorphic species, Smyth (1309).

Variation in dimensions of *Carabus auratus*, Porta (1082).

Var. of *Cychrus andrewsii*, Ehrmann, Ent. News Philad. xiii, p. 140.

Variability of spanish *Dorcadion*, Escalera (403).

Three varr. of N. American *Rhopalocera*, Ellsworth, Ent. News Philad. xiii, pp. 103, 104.

Varr. of European *Lep.* especially *Rhopalocera*, Habich and others, Verh. Ges. Wien lii, pp. 141–144.

Varr. of *Argynnis*, *Epinephele*, *Lycæna*, South, Entomologist 1902, p. 1, cuts.

The variation of *Papilio podalirius*, Schultz (1223) and Stichel, Berlin. ent. Zeitschr. 1902, S.B., pp. 3, 4, cuts.—*Pieris brassicæ*, Madeira var. in Lapland, Thurau, Berlin. ent. Zeitschr. 1902, S.B., p. 28.—Varr. of *Pieris napi* at Liège, Severin, Ann. Soc. ent. Belgique x, p. 9 and Crombrugghe, t. c., p. 20.—Variation of *Heliconia*, C. Oberthür (969).—Var. albinic of *Cœnonympha pamphilus*, Ent. Mag. xxxviii, p. 245.—Colour variation in *Epinephele lycaon*, Jakontow, Rev. Russe Ent. ii, pp. 172–174.—Variation of *Erebia æthiops*, Mousley, Ent. Rec. xiv, p. 18.—*V. io* phylogenetic var., Rey, Berlin. ent. Zeitschr. 1902, S.B., p. 1.—*Argynnis aglaia* melanic var., Moss, Ent. Rec. xiv, p. 311, cut.—Var. of *A. pales*, Galvagni, Verh. Ges. Wien lii, p. 586.—*A. paphia* ♂ var., Thiele, Berlin. ent. Zeitschr. 1902, S.B., p. 28.—*A. paphia* melanic ♂, Rohrbach, Berlin. ent. Zeitschr. 1902, S. B., p. 17.—*A. vitatha*, melanic ♀, Nicéville, J. Bombay Soc. xiv, p. 245, pl. ff, fig. 6.

Varr. of *Lycæna corydon* in Wilts, Sladen, Entomologist 1902, pp. 273–275.

Varr. of *Smerinthus tiliæ*, Ziegler, Berlin. ent. Zeitschr. 1902, SB., p. 5.—Var. of *Actias luna*, Grote, Canad. Ent. xxxiv, p. 70.—Varr. of *Lithosia deplana*, South, P. ent. Soc. London 1902, p. xxxvii.—Varr. of *Euchelia jacobeæ*, Shepheard-Walwyn, P. ent. Soc. London 1902, p. xix.—Var. of *Euchelia jacobeæ*, Rousseau, Ann. Soc. ent. Belgique xlvi, p. 19.—Varr. of *Arctia arge* and *nais radians*, breeding, Seifert (1243).—Variation of *Hyphantria*, Lyman (848).—Varr. of *Zygæna*, Dziurzynski (382).—Varr. of *Zygæna* in the Bukowina, Hormuzaki, Soc. ent. xvii, p. 137–139.—Var. *Hepialus humuli*, Faeröe Ids., Ent. Mag. xxxviii, p. 263.—*Abraxas grossulariata*, rearing varr., Raynor, Ent. Rec. xiv, pp. 321–325.—*Rivula*

sericealis melanic form, HELLWEGER, Verh. Ges. Wien lii, p. 711.—Melanic var. *Phigalia pedaria*, CORBETT, Naturalist 1902, p. 222.—Increase of melanism in *Hybernia*, ATMORE, Ent. Rec. xiv, p. 103.—Var. of *Boarmia cinctaria*, GALVAGNI, Verh. Ges. Wien lii, p. 70.—*Amphidasys betularia*, *doubledayaria*, crossing, CARR, Entomologist 1902, p. 218.—Var. albinic of *Catoptria ulicetana*, BANKES, Ent. Mag. xxxviii, p. 246.

Variation of *Eremocharis insignis*, similarity to soil, KRAUSS, Verh. Ges. Wien lii, p. 245.

Supernumerary tarsi, *Melontha*, LEARDI, Atti Soc. Ital. xli, pp. 353–356.

Abnormal wings, *Lepidoptera*, ENDERLEIN (399).

Antenna malformed, *Cantharis*, MINSMER, Bull. Soc. ent. France 1902, p. 91, cut.

A *Sphinx* reversed in pupa-skin? BAUER (72).

Hybrids.

Hybrid *Lepidoptera*, STANDFUSS, Mt. Schweiz. ent. Ges. x, p. 372, and MORY, t. c. p. 373.

Hybrid *Saturniidæ*, SOULE (1316).

Hybrid of *Selenia bilunaria*, *tetralunaria*, ADKIN, P. ent. Soc. London 1902, p. xliv.

Hybrids of *Malacosoma castrensis* and *neustria*, BACOT, Tr. ent. Soc. London 1902, Proc. p. vii.

Amorpha populi and *Smerinthus ocellatus*, progeny of cross, STANDFUSS, Ent. Rec. xiv, p. 191.

Colour.

Colour, bionomics, POULTON (1088), Chemistry, MACMUNN (1088).

Etiology of coloration of *Lepidoptera*, VON LINDEN (816).

Colour in *Lepidoptera*, VON LINDEN (821).

Colours of *Lepidoptera*, VON LINDEN (815–817, 820, 821).

Pattern of wing in *Lepidoptera*, ontogeny and phylogeny, VON LINDEN (815).

Warning colour, REY, Berlin. ent. Zeitschr. 1902, S.B., p. 3.

Protection.

Protection of desert *Orthoptera*, VOSSELER (1431).

Protection, two modes of in *Hybernia leucophœaria*, DAY, Ent. Rec. xiv, p. 131.

Boring Noctuid larvæ, BIRD (109).

Protective resemblance, HINDE (601).

Birds destroying butterflies, FRINGS & GRABAUER (489).

Rats eating butterflies, LEIGH, P. ent. Soc. London 1902, p. xlii.

Mice destroying insects, WEBSTER, Ent. News Philad. xiii, pp. 277–280.

Resemblance.

ANNANDALE (28), FOWLER (476), MELDOLA (891), C. OBERTHÜR (970), PIEPERS (1063), RHÉ-PHILIPE (1149), SHELFORD (1263), WAGNER (1434), WASMANN (1454).

Natural selection and mimicry, POULTON (1087).

Mimicry, protection, edibility etc., MARSHALL & POULTON (868).

Protective resemblance etc., PORRITT (1079).

Resemblance, general discussion of phenomena in S. Africa, PÉRINGUEY (1007).

Mimicry, criticism, AIGNER-ABAFI (10).

Mimicry of *Kallima*, BASHFORD DEAN (309).

Mimicry in *Mantidæ* and *Phasmidæ*, DISTANT (332).

Mimicry in ants'-nest Insects, BRUES (169).
Protective resemblance of *Trimerotropis maritima*, OSBORN, Ohio Natural. i, p. 90.
Resemblance amongst *Geometridæ*, SWINHOE (1349).
Clerid to spider, FAIRMAIRE, Bull. Mus. Paris viii, p. 311.
Homopteron and rush, OSBORN, Psyche ix, p. 327.
Resemblance of *Myrmedonia* to ants, DONISTHORPE (350).
Brachypterous *Hemipteron* resembling Ant, KIRKALDY, Tr. ent. Soc. London 1902, p. 249, pl. vi.

Phylogeny (including phylogenesis of Organs), Evolution, Heredity.

Phylogeny of Insecta, Myriapoda, COOK (280).
Origin of metabola, etc., SHARP (1255).
Relations, phylogenetic, of Orders, ENDERLEIN (399).
Phylogeny of *Carabus*, LAPOUGE (773).
Phylogeny and taxonomy of *Lepidoptera*, PETERSEN (1012).
Phylogeny of *Nomadidæ*, COCKERELL & ATKINS (273).
Environment and Modification, VOSSELER (1430).
Adaptation. Asymmetry of wings in *Naucoris* etc., ENDERLEIN (399).
Natural selection and colour of *Lepidoptera*, MAYER (877).
Evolution, periodical appearance of many individuals, ADLERZ (4).
Evolution of coloration *Rhopalocera*, GROTE, Canad. Ent. xxxiv, p. 94.
Origin of sound-organs, LUTZ, Canad. Ent. xxxiv, pp. 64, 65.
Heredity, STANDFUSS (1326).
Inheritance of acquired characters, FISCHER (441) and continuation, in favour of Lamarck, FISCHER, Allg. Zeitschr. Ent. pp. 129 etc.; VON LINDEN (820).

Galls.

CALABRESE-MILANI (193), CHRÉTIEN (241, 242, 243), COCKERELL (256, 269), COOK, general work on galls (281), CORDEMOY (288), CORTI (289), DARBOUX (306), DE STEFANI-PEREZ (320, 322, 323), GEISENHEYNER (522), GERBER (523, 524), GIARD (531), GILLETTE (539), HOUARD (624, 625); KIEFFER, European galls, arranged (1) according to plants, (2) according to the Insects (685, 689); KOTINSKY, Coccid-gall (734), LUDWIG, Australian Thysanopterocecidia (836), RÜBSAAMEN (1175, 1176, 1178), TAVARES (1354–1358), THOMAS, Terminology (1371), TROTTER (1381, 1382, 1383).
Nutritive value, analysis, HOPKINS, P. ent. Soc. Washington v, p. 151.

Insects and Flowers and Plants.

Insects and flowers, GORKA (548), COCKERELL (247), LOVELL (829), PLATEAU (1067, 1069), MEEHAN, *Lobelia* (883).
Bees and flowers, DUCKE (357); Tongue of *Bombus*, COCKERELL & M'NARY, Canad. Ent. xxxiv, p. 71.
Ants and plants, RACIBORSKI (1103).
Insects on *Acacia* (wattle), Australia, FROGGATT (494).

Collections, Preservation, Museums, Nomenclature.

The custody of types, LUZE (841).
Lepidoptera in U. S. Nat. Mus., DYAR (372) and Canad. Ent. xxxiv, p. 36.
Number of Insects in the Magyar Museum, HORVÁTH, and others, Rov. Lapok ix, pp. 197–207.
Say's collection, Ent. News Philad. xiii, p. 11.
Strecker's collection to the American Museum, Science xv, p. 156.

The Walsingham collection of *Micro-Lepidoptera*, Ent. Mag. xxxviii, p. 7.
The Castelnau *Carabidæ*, SHARP, Ent. Mag. xxxviii, p. 8.
Collector's annual, KRANCHER (735).
Collection, preservation, transmission, JACOBSON (639).
Collecting and preserving, FROGGATT (493).
Collecting mosquitoes, NEVEU-LEMAIRE (955).
Collecting *Trichoptera* and larvæ, ULMER (1398).
Carbolic acid as a preventive of mould, etc., SHARP, Ent. Mag. xxxviii, p. 88.
Gasoline for removing grease, SMITH, Ent. News Philad. xiii, pp. 244–246.
Mode of reproducing nervuration of *Lep.* etc., HALL, Ent. News Philad. xiii, p. 276.
Relaxing, PILCHER, Entomologist 1902, p. 39.
Preserving colour during relaxing, PILCHER, J. Bombay Soc. xiv, p. 613.
Improved setting-board, NEEDHAM, Psyche ix, p. 427.
Preparing for section-cutting, SCRIVEN (1237).
Method of coloring tissues during life, PROWAZEK (1092).
Validity of old names and bad descriptions, GIRSCHNER (542).
Nomenclature and the interpretation of old names, BECKER & KERTÉSZ (75).
Treatment of an old author, WALSINGHAM & DURRANT (1440).

Bibliography.

Alphabetical Index of Generic names, WATERHOUSE (1462).
Index of names of genera and species, 1758–1800, includes a valuable bibliography, SHERBORN (1264).
Record of Insecta literature for 1901, SHARP (1258).
Record of Insect literature for 1898, LUCAS & WANDOLLECK (833).
Record for 1900, General Subject and *Coleoptera*, SEIDLITZ (1242).
Bibliographic lists, Canada, 1900, BETHUNE (101).
Billberg's Enumeratio Insectorum, WALSINGHAM & DURRANT, Ent. Mag. xxxviii, pp. 163–170.
Hübner's Sammlung, dates of plates, GÄLLMER, Soc. ent. xvii, p. 115.
Hübner's "Tentamen," TUTT, Ent. Rec. xiv, pp. 166–168.
List of works by T. D. A. COCKERELL and others, Prospectus New Mexico University 1902, pp. 35–38.

Biography.

Berg, Carlos. Biography with portrait and bibliographical list, GALLARDO (513).
Haliday, Alexander Henry, with portrait and supplementary list of writings, Irish Natural. xi, pp. 197–199, pl. 2.
Lacaze-Duthiers, Henri de, with portrait, account of obsequies and list of writings, PRUVOT (1094).
Say, Thomas, letters of to Melsheimer, Ent. News Philad., pp. 9 etc.
Selys Longchamps, CAMERANO (197); Memoir with portrait and list of writings, LAMEERE (763); with portrait and bibliography, PLATEAU (1070).
Miss Taka Nawa, with portrait and notice of the "Insect World" journal of Japan, ROTHSCHILD, Ent. Rec. xiv, pp. 225, 226.

Obituary Notices (arranged alphabetically).

Alpheraky, S., Bull. Soc. ent. France 1902, p. 21.
Bassett, Homer Franklin, with portrait, Ent. News Philad. xiii, pp. 203–205; Ent. Mag. xxxviii, p. 289.

Baudi di Selve, Flaminio, Bull. Soc. ent. Ital. xxxiv, pp. 118, 119.
Berg, Carlos, Ent. Mag. xxxviii, p. 114.
Cresson, Charles Caleb, Ent. News Philad. xiii, p. 64.
Deyrolle, Henri, Bull. Soc. ent. France 1902, p. 145.
Dietz, Ottomar, Ent. News Philad. xiii, p. 64.
Fletcher, J. E., Ent. Mag. xxxviii, p. 134.
Haberhauer, Josef, Verh. Ges. Wien lii, p. 585.
Haglund, C. J. Emil, SJÖSTEDT (1277) with portrait.
Hudak, E. A., AIGNER-ABAFI, Rov. Lapok ix, p. 131.
Kriechbaumer, Dr Jos. by FR. W. K., Zeitschr. Hym. Dipt. ii, pp. 273–275; Ent. Mag. xxxviii, p. 288.
Lugger, Otto, Rep. ent. Soc. Ontario xxxii, p. 125.
May, J. W., Ent. Mag. xxxviii, p. 186.
Muggenburg, Friedrich Hans, by LICHTWARDT, Zeitschr. Hym. Dipt. ii, p. 1.
Nerén, C. H., with portrait, Ent. Tidskr. xxiii, pp. 195–197.
Nicéville, C. L de, J. Bombay Soc. xiv, p. 140.
Ormerod, Eleanor A., with portrait, Rep. ent. Soc. Ontario xxxii, p. 121.
Sikora, F., Bull. Soc. ent. France 1902, p. 258.
Sonthonnax, Léon, Echange xvii, p. 23 [second time].
Strecker, Ferdinand Heinrich Herman Strecker with portrait, Ent. News Philad. xiii, pp. 1–4; Canad. Ent. xxxiv, pp. 25, 26.
Targioni Tozzetti, Adolf, BARGAGLI (67); Bull. Soc. ent. France 1902, p. 237.
Tosquinet, P. J., Ann. Soc. ent. Belgique xlvi, pp. 445 and 487–489.
Vivian, H. W., Ent. Mag. xxxviii, p. 13.
Wakefield, Charles Marcus, Ent. Mag. xxxviii, p. 135.

ECONOMIC ENTOMOLOGY.

Reports : Sweden, LAMPA (766).—England, WARBURTON (1442).—Kent, THEOBALD (1362).—Ireland, CARPENTER (213).—Rhine, GOETHE (547).—Tauria, MOKRZETZKI (922).—Natal, FULLER (510).—U. S. Secretary of Agriculture, ANON. (29), MARLATT (862).—Minnesota, *Acridiidæ* etc., WASHBURN (1447).—New York, SLINGERLAND (1287, 1289).—New Jersey, SMITH (1302, 1303).—Connecticut, BRITTON (168).—Illinois, FORBES (458, 459).—California, HILGARD (599), FOWLER (474).
Crops in N. America, insects injurious to, CHITTENDEN (234).
Economic Entomology, THEOBALD (1364).
Treatise on economic Entomology, SANDERSON (1188).
Elementary introduction, MIALL (915).
General work, garden insects, KOLBE (724).
Orchard pests, WARBURTON (1443).
Insect control, SLINGERLAND (1290).
Modern methods, SMITH (1306).
Syllabus of lectures, CLÉMENT (244).
Value of entomological study, FYLES (511). Injurious Insects in 1901 in Canada, YOUNG, EVANS, JOHNSTON, Rep. ent. Soc. Ontario xxxii, pp. 24–28, also LOCHHEAD, t. c. pp. 43–50.
Proceedings of the fourteenth annual meeting of the Association of economic entomologists, Bull. U. S. Dep. Agric. Ent. No. 37, 127 pp.; includes papers on remedies etc. in addition to those we record.
List of some economic works of the year 1900, MEUNIER (902).
Importance of parasites, EMBLETON (392), BERLESE (92), PORTSCHINSKY (1085).
Parasites and predatory insects, MARLATT (861).
Zoological knowledge and the protection of crops, REH (1117), EMBLETON (392), BERLESE (92).

Introduced forms, importance of, REH (1116).
Economic value of insectivorous birds, ECKSTEIN (383).
Commercial entomology, STEVENSON (1331).
Forest insects, N. America, HOPKINS (618).—Forest trees in Italy, *Tortrix pinicolana* etc., CECCONI (222).
Elm trees, enemies of, FELT (430).
Picea excelsa, injurious insects of, POMERANTZEW (1076).
Black pine, enemies of, N. America, HOPKINS (617).
Oak, injury to by *Pterochlorus*, NOEL (965).
Olive, Insects attacking, GUERCIO (571, 572).
Rice, *Jassidæ*, injurious to in Japan, MATSUMURA, Termes. Fuzetek xxv, p. 354.
Sugar-cane, Lamellicorn beetles, enemy of, FROGGATT (491).
Corn, Persia, ravages of *Eurygaster*, SEVERIN, Ann. Soc. ent. Belgique xlvi, p. 9.
Corn, new *Meromyza* injurious to, REUTER (1140).
Corn, Insects injurious to in Prussia, REHBERG (1118).
Finnish Hafer injured by *Physopus tenuicornis*, E. REUTER (1138).
Grasses, *Aphidæ* at roots of, OSBORN & SIRRINE (986).
Chrysanthemums injured by *Rhynchites*, GIRARDIN (541).
Grape and *Fidia*, SLINGERLAND & CRAIG (1292).
Hops, *Rhyparochromus vulgaris* injurious to, REMISCH, Soc. ent. xvi, p. 153.
Mangoes and *Cryptorhynchus mangifera*, AITKEN, J. Bombay Soc. xiv, p. 624.
Melolontha etc. in Russia, ROSSIKOW (1169).
Lyctus canaliculatus, ravages, LEFEBVRE, Bull. Soc. Elbeuf 1901, pp. 43–46.
Rhynchophora, injurious, SCHREINER (1213).—Beetles injurious to coconut palms, *Rhynchophorus ferrugineus*, *Oryctes rhinoceros*, BROWN, Agric. Bull. Straits ii, pp. 65, 66.
Conotrachelus, fertility of, QUAINTANCE & SMITH (1102).
Ampeloglypter, natural history, WEBSTER (1469).
Calandra oryzæ, KUNSTLER (744).
Aræcerus fasciculatus, ZEHNTNER (1511).
Galeruca ulmi, MENEGAUX (896).
Tenthredinidæ, injurious, MARCHAND (858).—*Athalia spinarum* at Paris, MARCHAL (855).
Lymantria monacha, "nun," life-history, parasites etc., BENGTSSON (87). —"Nun" in Sweden, MEVES, Ent. Tidskr. xxiii, pp. 238–240.
Fidonia, ravages, ECKSTEIN (383).
Zeuzera coffeæ, ZEHNTNER (1510).
Eurycreon sticticalis, MOKRZETZKI (921).
Tortrix pinicolana, HENRY (594).
Tinea and *Tineola* in Sweden, LAMPA (767).
Hyponomeuta and fruit-trees, MARCHAL (857).—*Hyponomeuta*, ravages and remedy, LABORDE (751).
Plutella cruciferarum, CARPENTER (214).
Sitotroga cerealella, PORTSCHINSKI (1086).
Grapholitha conterminana, parasites, PIERRE (1060).
Carpocapsa pomonella, SIMPSON (1272).
Moth injurious to potato, *Phthorimæa operculella*=(*solanella* Boisd.), MEYRICK (910).
Moths damaging fruit in S. Africa, BARRETT, Ent. Mag. xxxviii, p. 128.
Silkworms in Europe, VOELSCHOW (1426).
Diplosis pyrivora, enemy of, MARCHAL (856).
Tomato-fly, codlin moth etc. at Leicester, WOOLLEY (1502).
Oestrid larvæ, PORTSCHINSKY (1084).

Hypoderma bovis, larval habits, TARNANI (1353).
Helopeltis, habits, MANN (853).
Phylloxera, FISHER (442).
Schizoneura lanigera in Germany, THIELE (1367), RÜBSAAMEN (1177).
Aphis persicæ, XAMBEU (1506).
Coccidæ, biological statistics as to age, sex etc., REH (1115).—*Coccidæ*, importance of their parasites, EMBLETON (392), FROGGATT (496).—Dissemination, means of, GOETHE (547).—*Coccidæ* on olive, GUERCIO (571).—Greenhouse *Coccidæ*, continued, KING, Ent. News Philad. xiii, p. 152.—*Coccidæ* and parasites in the West Indies, MAXWELL-LEFROY (876).
Aspidiotus perniciosus, spreading, enemies, SMITH (1305).—San José scale, list of trees and shrubs attacked, BRITTON (168, pp. 130–138).—*Aspidiotus perniciosus* in Japan and China, parasites and predators, MARLATT (860).
Ceroplastes ceriferus in Orchards, FROGGATT, Agric Gaz. N. S. W. xiii, p. 919.
Chrysomphalus agavis, injurious in Mexico, COCKERELL, Ent. News Philad. xiii, p. 15.
Diaspis rosæ, SMITH (1304).
Lecanium destroyed by *Exochomus plagiatus*, SCHWARZ, P. ent. Soc. Washington v, p. 40.
Acridiidæ in California, WOODWORTH (1501).
Locusts in Nebraska, BRUNER (175).
Locusts in Argentina, BRUNER (173, 174).
Blattidæ, N. America, MARLATT (867).
Lepisma saccharina, MARLATT (865).
Termes flavipes, MARLATT (866).
Madagascar, injurious insects, FLEUTIAUX, p. 173, Bull. Soc. ent. France 1902.
Vine *Lepidoptera*, destruction of, VERMOREL & GASTINE (1410).
Rust-spores and *Cecidomyia* larva, LINDROTH (823).
Trap-lanterns, SLINGERLAND (1291).
Hydrocyanic gas, use of, in houses, HOWARD (626).
Bark, useful insects living under, POMERANTZEW (1077).
Toads and their food, GERMAN (525).
Snakes eating caterpillars, WILLIAMS, Rep. ent. Soc. Ontario xxxii, p. 115.
Diptera attacking man, MARSHALL, Tr. ent. Soc. London 1902, p. 540.
Hemiptera puncturing man, BLANCHARD (116).

Mosquitoes and disease.

Malaria and mosquitoes, LEVICK (810), LÜHE (837).—Malaria and mosquitoes, SMITH (1302, 1307), SMITH & JOHNSON (1303).—Malaria, STEPHENS and CHRISTOPHERS (1329).—Malaria, summaries of 11 recent works, by LÜHE, Zool. Zentrlbl. 1903, pp. 19–27.
Malaria in Palestine, CROPPER (294).
Mosquitoes and yellow fever, DURHAM (365).
Report of a Malaria Committee, FICALBI (435), Malaria, GRASSI (551).
Mosquitoes in Mexico, HERRERA (595).
Mosquitoes and yellow fever, *Stegomyia fasciata*, POËY (1074).—*Culicidæ* and yellow fever, DYÉ (381).—Spread of malaria, filariasis, yellow fever etc., GRASSI (551).
Destruction of mosquitoes by parasites, LAVERAN (781).
Mosquito control, SMITH (1298).
Mosquito-extermination, LUTZ & CHAMBERS (838).—Plans for the extermination of mosquitoes, cf. SMITH, Science xv, p. 1029.
See also *Culicidæ*, for systematic and other memoirs.

FAUNISTIC: GEOGRAPHICAL DISTRIBUTION.

N.B.—The numbers in brackets refer to "Titles"; by their means it is intended to give a reference to every memoir containing a notice affecting the entomological fauna of each of the twelve regions here adopted. But synonymical notes and changes of systematic position are not included in these references. In addition to giving references to titles of works that actually add to the faunistic record of a region, there are also comprised references to a large number of works on local faunæ, or "stations." The locality in such cases is usually added, and the reference is, as a rule, made direct to the original work, not to our title-numbers, many of these local faunistic notes not being included at all in our list of titles. Besides this a geographical name is frequently added to the literary reference, but this has no value beyond indicating that the paper refers to that locality; a collection of these references with a locality appended would not be complete as regards that locality, for any other references in the same division that have not any particular locality attached may refer also in part to this special locality.

General.

Introduced forms, Reh (1116).
Winds and storms as agents of diffusion, Webster (1467).
Insects at sea, *Nomophila*, Demaison (312).
N. spp. without locality: *Coleoptera*, *Rhætus parryi*, cf. *Lucanidæ*.—*Hemiptera*, *Flatoides intermedius*, cf. *Fulgoridæ*.

1. Arctic and Antarctic.

Coleoptera, Spitzbergen, Ericson (402); Arctic, Sahlberg, Medd. Soc. Faun. Fenn. xxvii, pp. 96–98.
Hymenoptera, Arctic, Friese (480), Kiaer (682), Konow (732).
Hemiptera, Arctic, Breddin (159).
Collembola, Arctic, Skorikow (1285).
Collembola, Kerguelen, Börner (139).

2. Insular (including New Zealand).

Azores, Madeira, Canaries: *Coleoptera*, Fauvel (427).
Madeira: *Hem.-Heter.*, Horvath (622).
Canary Ids.: *Coleoptera*, Pic (1038); *Lepidoptera*, Rebel (1107) and Elliott, Ent. Mag. xxxviii, pp. 131 and 220.
St Helena: *Hemiptera*, Melichar (892).
Maldive and Laccadive Ids.: *Hymenoptera*, Cameron (200); *Lepidoptera*, Meyrick (906); *Odonata*, Laidlaw (752, 753).
Loo-Choo Ids., Fiji, Solomon Ids., Louisiade Arch.: *Lepidoptera*, Swinhoe (1349).
Hawaii: *Hymenoptera*, Perkins (1009, 1010, 1011); *Diptera*, Grimshaw (556), Speiser (1322, 1323); *Hemiptera*, Kirkaldy (705); *Mallophaga*, Kellogg & Chapman (671).
Galapagos Ids.: *Coccidæ*, Kuwana (748); *Mallophaga*, Kellogg & Kuwana (672); *Orthoptera*, Snodgrass (1312).
Cocos Id., Costa Rica: *Hymenoptera*, Forel (467); *Termitidæ*, Wasmann (1450).
Polynesia: *Orthoptera*, Tepper (1360).
Bismarck Arch.: *Coccidæ*, Cockerell (259, 269).
New Britain: *Coleoptera*, Fauvel (426).
New Hebrides: *Coleoptera*, Pic (1039); *Diptera*, Laveran (780).
New Pomerania, Solomon Ids.: *Lepidoptera*, Warren (1445).
Viti: *Lepidoptera*, Fruhstorfer (504).

Fiji: *Lepidoptera*, SWINHOE (1345); *Orthoptera*, MIALL & GILSON (916).
New Mecklenburg, Solomon Ids., Tonga-Tabu: *Coleoptera*, SCHWARZ (1227).
Solomon Ids.: *Hymenoptera*, MOCSÁRY (919); *Lepidoptera*, NICÉVILLE (957), SWINHOE (1348); *Hemiptera*, JACOBI (636), MELICHAR (892).
Isabel Is.: *Lepidoptera*, DRUCE (351).
Solomon Ids., Tokolau Ids., New Pomerania: *Coleoptera*, SCHWARZ (1232).
Louisiade Arch., New Hanover: *Coleoptera*, BOILEAU (119).
Marshall Ids.: *Coleoptera*, SCHNEE, Zool. Garten 1902, p. 174.
Lifu: *Lepidoptera*, DRUCE (352).
New Caledonia, New Hebrides: *Insecta*, WALKER (1438).
New Caledonia: *Hemiptera*, KIRKALDY & EDWARDS (712).
New Zealand: changes in fauna, SMITH (1308); *Coleoptera*, LEWIS (813), SCHWARZ (1234, 1235).—Auckland Ids.: *Coleoptera*, HUTTON (632); *Hymenoptera*, FOREL (465); ants displaced by wood-lice, SMITH, Ent. Mag. xxxviii, p. 132; *Diptera*, HUTTON (633).—New Zealand, Auckland Ids., etc.: *Diptera*, HUTTON (631).
Chatham Ids.: *Lepidoptera*, MEYRICK (908).
Kerguelen: *Collembola*, see 1. Antarctic.

3. PALÆARCTIC REGION.

(a.) Collective: i.e. Papers referring to the *whole region* or *several* of the subdivisions (*c*—*h*) thereof.

N.B. The greater part of China, in fact all with the exception of Mongolia, is recorded in "Asia."

Insecta. JACOBSON & BIANCHI (640).
Coleoptera. APFELBECK (32), BERNHAUER (97, 98); DU BUYSSON, S. Europe, N. Africa, Arabia (188); DANIEL (303), DESBROCHERS (315, 316, 317), HOLDHAUS (609); JAKOWLEFF, incl. Bukhara (644); JAKOWLEFF (647), LESNE (796), LUZE (839, 843, 845), PIC (1027, 1028, 1032, 1033, 1034), REITTER (1130, 1132, 1133, 1134, 1137); REITTER, Mongolia and Buchara (1136); SCHILSKY (1200), SCHULTZE (1224), SCHWARZ (1227); SEMENOW, Mongolia and China (1252); SEMENOW, Russia, Rev. Russe Ent. ii, pp. 37, 38; TSCHITSCHÉRINE (1386), WASMANN, Helgoland and Spain (1458).
Hymenoptera. KIEFFER & ANDRÉ (683), KONOW (732), MOCSÁRY (919); MORICE, Greece, S. France (926); PÉREZ (1006); PIC, Switzerland and N. Africa (1061); RUZSKY, East Russia and W. Asia (1180); VACHAL (1401).
Lepidoptera. FUCHS (506, 507), REBEL (1105); FOUNTAINE, Syria and Palestine, *Rhopalocera*, Entomologist 1902, pp. 60–62, 97–101.
Diptera. HENDEL (589), KIEFFER (686, 687), PLESKE (1071), PORTSCHINSKY (1084).
Hemiptera. HORVÁTH (622), JAKOWLEFF (652); JAKOWLEFF, Mongolia (653); JAKOWLEFF, Korea (655); MELICHAR (893, 894), REUTER (1142, 1143).
Orthoptera. ADELUNG (2); SEMENOW, Korea, Askold isld. (1247).

(b.) *Europe*, collectively.

Coleoptera. DU BUYSSON (187), DEMAISON (312), GANGLBAUER (518), LUZE (844), SEMENÓW (1244, 1245), STIERLIN (1334).
Hymenoptera. KIEFFER (689), KONOW (731).
Lepidoptera. KIRBY (704).
Diptera. BECKER (76), CZERNY (299), KIEFFER (687, 688), PANDELLÉ (998).

(c.) *British Islands.*

THE FAUNA AS A WHOLE.

Myrmecophilous fauna, DONISTHORPE (349).

Coleoptera. Bembidium argenteolum, *Læmostenus complanatus*, novelties, KEMP, P. ent. Soc. London 1902, p. xxxi.—*Læmostenus complanatus*, KEMP (673), and BEARE, op. eod., p. 241.—*Diastictus vulneratus* novelty, NEWBERY & MORLEY, Ent. Mag. xxxviii, p. 253.—*Apion brevicome* n. sp., SCHILSKY (1200).—*Gynandrophthalma affinis* novelty, FOWLER (477).—*Dibolia cynoglossi* novelty, DONISTHORPE, Ent. Rec. xiv, p. 265.

Quedius obliteratus confirmed, KEYS, Ent. Mag. xxxviii, p. 147.—*Rhizotrogus ochraceus* confirmed, SHARP, Ent. Mag. xxxviii, p. 218.

Cryptophilus integer imported, CHAMPION, Ent. Mag. xxxviii, p. 88.—*Enedreutes hilaris*, imported, NEWBERY, Ent. Rec. xiv, p. 338.—*Monohammus confusor*, imported, JOHNSON, Irish Natural. xi, p. 173.—*Leis conformis*, imported, THEOBALD, J. S.-East. Agric. Coll., No. 11, p. 48.

Homalota cribriceps Sh. is *Cœnonica puncticollis* Kr., FAUVEL, Rev. Ent. franc. xxi, p. 159; 1901, BEARE (74).

Bagous, revised, NEWBERY (956).—*Bagous lutosus*, as British, EDWARDS, Ent. Mag. xxxviii, p. 240.

Hymenoptera. Cœlioxys mandibularis, novelty, GARDNER, P. ent. Soc. London 1902, p. xix.—*Odynerus bifasciatus*, novelty, SAUNDERS (1190).—*Nyxeophilus corsicus*, novelty, MORLEY (929).—*Cynipides*, n. sp., KIEFFER (683).—*Microgaster suffolciensis*, n. sp., MORLEY (927).—*Comys infelix*, n. sp., EMBLETON (392).—*Amauronematus moricei*, n. sp., KONOW (731).

Ellampus truncatus, confirmed, MORICE, Ent. Mag. xxxviii, p. 170.

Macrophya hæmatopus, excluded, MORICE, Ent. Mag. xxxviii, p. 207.

Lepidoptera. Coleophora milvipennis, novelty, BARRETT (68).

List of precinctive forms, TUTT (1394).

General work, TUTT, Vol. III (1393).

British butterflies, CHARNLEY (232).

Papilio Machaon, historical, DALE, Ent. Mag. xxxviii, pp. 37, 38.—*Aporia crataegi*, historical, DALE, Ent. Mag. xxxviii, pp. 157, 158.—*Chrysophanus dispar*, CHARNLEY (233).—*Lycæna hylas*, in Kent, SLOPER, Ent. Mag. xxxviii, p. 286.—*Lycæna acis*, historical, DALE, Ent. Mag. xxxviii, pp. 76–79, GREENE, t. c. p. 112.—*Anosia plexippus*, Isle of Wight, WORSLEY-BENISON, Ent. Mag. xxxviii, p. 113.—*Deilephila livornica*, larva, JÄGER, Entomologist 1902, p. 287 and BIGNELL, t. c. p. 323.

Cidaria, PROUT (1090).

1901, PROUT (1091).

Diptera. N. spp., COLLIN (277).

Synonymical and taxonomical note on 2nd ed. of Verrall's list, HANDEL, Wien. ent. Zeit. xxi, pp. 159, 160.—Questions and answers as to 2nd ed. of Verrall's list, DALE, pp. 107, 108, VERRALL, pp. 108–110, Ent. Mag. xxxviii.—*Anthomyiidæ* omitted from Verrall's new list, VERRALL, Ent. Mag. xxxviii, p. 8.—*Hyetodesia vagans* confirmed, BRADLEY, Ent. Mag. xxxviii, p. 85.

Aphaniptera. ROTHSCHILD (1174).

Hemiptera. Pseudophlœus waltlii, novelty, THOULESS, Ent. Mag. xxxviii, p. 80.—*Stictocoris flaveola*, novelty, EDWARDS (385).—*Limotettix stactogala*, novelty, EDWARDS (386).

Strachia picta imported, THOULESS, Ent. Mag. xxxviii, p. 86.

Perlidæ. Leuctra, the British, MORTON, Ent. Mag. xxxviii, p. 255.

Odonata. Captures in 1901, LUCAS, Entomologist 1902, pp. 33–38.

Orthoptera. Stylopyga decorata, *Panchlora exoleta*, introduced, SHAW, Ent. Rec. xiv, pp. 295, 296.—*Panchlora exoleta*, imported, DISTANT, Ent. Mag. xxxviii, p. 247.—*Agroecia vittipes*, introduced, WESTELL, Ent. Rec. xiv, p. 269.

LOCAL LISTS.

The arrangement adopted in each Order is roughly, Channel Islands, England from South to North and from West to East, Wales, Scotland, Ireland.

Insecta. Channel Ids., LUFF, Rep. Guernsey Soc. 1901, pp. 56, 57, and 65–69.—Surrey, GOSS (548).—Marlborough, MEYRICK and others, Rep. Marlbor. Soc. l, pp. 45–74.—Northampton; Victoria History of the County of Northampton.—Bury St. Edmunds, TUCK, Tr. Norfolk Soc. vii, pp. 330–332.—Torksey, THORNLEY, Naturalist 1902, p. 137.—Halifax, Natural. vi, pp. 120–122.—Ambleside, PORRITT, Naturalist 1902, p. 3.—Ireland, CUTHBERT, Irish Natural. xi, p. 106.—Ireland, *Col. Hem.*, BUCKLE, Irish Natural. xi, pp. 40–43.—Belfast, G. H. CARPENTER, in Guide to Belfast, 1902, pp. 195–217.—Sligo, JOHNSON, Irish Natural. xi, pp. 163–167.

Coleoptera. S. Devon, JOY, Ent. Mag. xxxviii, p. 179.—Plymouth, KEYS, Ent. Mag. xxxviii, p. 268.—New Forest, NEWBERY, Ent. Mag. xxxviii, p. 65.—Isle of Wight, BEARE, Ent. Rec. xiv, p. 166; ELLIS, Ent. Rec. xiv, p. 337.—Hastings, ESAM, Ent. Mag. xxxviii, p. 39.—East Kent, CHITTY, Ent. Mag. xxxviii, pp. 73–76 and p. 219.—Charing and Greenhithe, Kent, JENNINGS, Ent. Mag. xxxviii, p. 180.—Guildford, CHAMPION, Ent. Mag. xxxviii, p. 287.—Esher, KEMP, Ent. Mag. xxxviii, p. 241.—Woking, CHAMPION, Ent. Mag. xxxviii, pp. 113, 134, 219.—Brent Valley, W. E. SHARP, Ent. Mag. xxxviii, p. 64.—Ealing, COTTAM, Ent. Mag. xxxviii, p. 268.—Gloucestershire, EDWARDS, Ent. Mag. xxxviii, p. 181.—Henley-on-Thames, FOWLER, Ent. Mag. xxxviii, p. 269.—Towcester, JOY, Ent. Mag. xxxviii, p. 179.—Hitchin, DURRANT, Ent. Mag. xxxviii, p. 88.—Broxbourne, JENNINGS, Ent. Mag. xxxviii, p. 268.—Brandon, MORLEY, Ent. Mag. xxxviii, p. 254.—Cromer, BEARE, Ent. Mag. xxxviii, p. 9.—Lincolnshire, THORNLEY, Ent. Mag. xxxviii, p. 287.—Derbyshire, FOWLER, Ent. Mag. xxxviii, p. 289.—Southport, CHASTER, Ent. Rec. xiv, pp. 335—337 and *Ægialia rufa*, CHASTER, Ent. Rec. xiv, p. 242.—Isle of Man, BAILEY, Ent. Mag. xxxviii, pp. 133, 178, 219.—Hoylake, SOPP, Ent. Mag. xxxviii, p. 9.—Yorkshire, BAYFORD, Naturalist 1902, p. 64; THOMPSON & HEY, Naturalist 1902, p. 259; THOMSON, Naturalist 1902, pp. 285–287.—Bradfield, JOY, Ent. Mag. xxxviii, p. 179.—Askham Bog, BEARE, Ent. Mag. xxxviii, p. 132.—N. Yorkshire, THOMPSON, Ent. Mag. xxxviii, p. 111.—Cumberland, DAY, in Victoria history of Cumberland.—Cumberland, DAY, Ent. Rec. xiv, pp. 76–80, 340; DAY, Ent. Mag. xxxviii, p. 268; Cumberland, DAY, t. c. p. 287, and ROUTLEDGE, l. c.; MURRAY, Naturalist 1902, p. 301.—Carlisle, MURRAY, t. c. pp. 32, 259.—Berwickshire, BEARE, Ent. Mag. xxxviii, p. 242.—Cardiff, BEARE, Ent. Mag. xxxviii, p. 8.—Barmouth & Bettsw-y-coed, TAYLOR, Ent. Mag. xxxviii, p. 268.—Snowdon, SOPP, Natural. J. xi, pp. 7– .—Scotland, JOLLY, Ann. Scott. Nat. Hist. 1902, p. 56; BEARE, pp. 265 etc., Ent. Rec. xiv.—Additions to the list of Scottish *Coleoptera*, FERGUSSON, Tr. Glasgow Nat. Hist. Soc. vi, pp. 214–216.—Rannoch, BEARE, Ent. Mag. xxxviii, p. 179.—Invernessshire, BLACK, Ent. Rec. xiv, pp. 296, 297.—Ireland, Catalogue, JOHNSON & HALBERT (659).—Ireland, KEMP, Ent. Mag. xxxviii, p. 177.—Ballycastle, Antrim, CHASTER & TOMLIN, Irish Natural. xi, pp. 61–65.—Lough Neagh, JOHNSON, Ent. Mag. xxxviii, p. 218.—Belfast, *Monohammus confusor*, JOHNSON, Irish Natural. xi, p. 173.

Hymenoptera. Channel islands, SAUNDERS (1191).—Newquay, NEVINSON, Ent. Mag. xxxviii, pp. 11, 12.—S. Devon, HAMM, Ent. Mag. xxxviii, p. 266.—Devonshire, BIGNELL, Ent. Mag. xxxviii, p. 288.—Hayward's Heath, MORICE, Ent. Mag. xxxviii, p. 223.—East Kent, CHITTY, Ent. Mag. xxxviii, pp. 73–76, 183.—Ripley, MORICE, Ent. Mag. xxxviii, p. 184.—Woking, MORICE, t. c. p. 223.—Essex, HARWOOD, Ent. Mag. xxxviii, p. 66.—Colchester, HARWOOD, Ent. Mag. xxxviii, p. 266.—*Sirex* in Herts. and Norfolk, DURRANT, Ent. Mag. xxxviii, p. 84.—N. Wales, BRADLEY, Ent.

Mag. xxxviii, p. 267.—Scotland, EVANS, pp. 56, 57, and 187, Ann. Scott. Nat. Hist. 1902.—S. W. Ireland, SAUNDERS etc., Ent. Mag. xxxviii, pp. 51–55; YERBURY, Irish Natural. xi, p. 186.

Lepidoptera. S. Devon, PORRITT, Entomologist 1902, pp. 27, 145.—Mortehoe, N. Devon, LONGSTAFF (827).—Dorsetshire, DALE, Entomologist 1902, p. 286.—Isle of Purbeck, BANKES, Ent. Mag. xxxviii, p. 246.—New Forest, PORRITT, Ent. Mag. xxxviii, p. 221.—Brighton, BENNETT, Entomologist 1902, p. 25.—Dover, STOCKWELL, Entomologist 1902, p. 25.—Burgess Hill, DOLLMAN, Ent. Rec. xiv, pp. 131–135.—N. W. Kent, STUDD, Ent. Mag. xxxviii, p. 131.—Surrey, SOUTH, Entomologist 1902, p. 220.—Wilts, MEYRICK, Ent. Mag. xxxviii, p. 222.—The *Macro-Lepidoptera* of the Newbury district, MARY KIMBER, Tr. Newbury Club iv, pp. 20–34.—London district, PROUT, Tr. City London Soc. 1901, pp. 54–68.—Cheshunt, List of the *Lepidoptera*, GIBBS, Tr. Hertfordsh. Soc. xi, pp. 75–86.—A list of *Tortrices* taken in South Essex between 1885 and 1901, THURNALL, Entomologist 1902, pp. 129–134.—Suffolk, BLOOMFIELD, Ent. Mag. xxxviii, pp. 6, 7; BARRETT, Ent. Mag. xxxviii, p. 263; PYETT, Entomologist 1902, pp. 2–7.—East Suffolk, WALLER, Ent. Mag. xxxviii, p. 247.—Ipswich, BEDWELL, Ent. Mag. xxxviii, p. 263.—Ely, *P. machaon*, DURRANT, Ent. Mag. xxxviii, p. 87.—Chippenham fen, Goss, Ent. Mag. xxxviii, p. 66.—Norfolk, *S. convolvuli*, DURRANT, Ent. Mag. xxxviii, p. 87.—North Staffordshire, BOSTOCK, Rep. N. Staffordsh. Club xxxvi, p. 69.—Cheshire, WRIGHT, Entomologist 1902, p. 25.—Chester, ARKLE, Entomologist 1902, pp. 116–118.—Delamere Forest, WALLINGTON, Ent. Mag. xxxviii, p. 7.—Yorkshire, HEWETT (598); CORBETT, Naturalist 1902, p. 302; PORRITT, Naturalist 1902, p. 368.—Halifax, *Dasypolia*, HALLIDAY, Ent. Mag. xxxviii, p. 66.—Skelmanthorpe, MORLEY, Naturalist 1902, p. 141.—Middlesbrough, ELGEE, Naturalist 1902, pp. 193–196.—Keswick, BEADLE, Ent. Rec. xiv, pp. 205, 206.—Witherslack, *Rhopalocera*, FORSYTHE, Entomologist 1902, p. 245.—Northumberland, Durham, ROBSON (1165); *S. convolvuli*, ROBSON, Ent. Mag. xxxviii, p. 67.—Glamorgan, CAMPBELL-TAYLOR, Ent. Mag. xxxviii, p. 184.—Scotland, *Hemaris fuciformis*, SERVICE and others, Ent. Rec. xiv, p. 162; *S. convolvuli*, EVANS, Ann. Scott. Nat. Hist. 1902, p. 56.—Banffshire, BROWN, Ann. Scott. Nat. Hist. 1902, p. 254.—Ireland, CARPENTER, Irish Natural. xi, p. 19; *Sphinx convolvuli*, CARPENTER, Irish Natural. xi, p. 46; *Rhopalocera*, JOHNSON, Rep. Belfast Club iv, pp. 489–491.—Waterford, FLEMYNG, Irish Natural. xi, p. 19.—Cork, STAWELL, Irish Natural. xi, p. 18.

Diptera. New Forest, ADAMS, Ent. Mag. xxxviii, p. 84; GORHAM, Ent. Mag. xxxviii, pp. 205, 206.—Lyndhurst, ADAMS, Ent. Mag. xxxviii, p. 110.—St Margaret's bay, *Paragus bicolor*, CHITTY, Ent. Mag. xxxviii, p. 86.—Savernake, *Lipopteria*, MEYRICK, Ent. Mag. xxxviii, p. 68.—Cambridge, JENKINSON, Ent. Mag. xxxviii, p. 285.—Norfolk mosquitoes, LONG, Tr. Norfolk Soc. vii, p. 353.—Ireland, YERBURY (1508).

Hemiptera. North Devon, WATERFALL, Ent. Mag. xxxviii, p. 9.—Woking, SAUNDERS, Ent. Mag. xxxviii, p. 269.—East Kent, CHITTY, Ent. Mag. xxxviii, p. 182.—Doddington, CHITTY, t. c. p. 66.—North Essex, HARWOOD, Ent. Mag. xxxviii, p. 66.—Mablethorpe, PLAYELL, Naturalist 1902, p. 14.—Scotland, *Aphis sorbi*, TRAIL, Ann. Scott. Nat. Hist. 1902, p. 255.—S.W. Ireland, DISTANT, Irish Natural. xi, pp. 108, 109.

Neuroptera. S. Devon, MCLACHLAN, Ent. Mag. 1902, pp. 235–238.—New Forest, PORRITT, Ent. Mag. xxxviii, p. 213.—Oxon and Berks, LUCAS, Entomologist 1902, p. 183.—Huddersfield and Skipwith, PORRITT, Naturalist 1902, p. 144.—North Wales, MORTON, pp. 34–36, Ent. Mag. xxxviii.—Inverness-shire, *Capnia atra* var., EVANS, Ann. Scott. Nat. Hist. 1902, p. 185.

Trichoptera. W. Cornwall, BOYD, Ent. Mag. xxxviii, pp. 112, 265.—S. Devon, MCLACHLAN, Ent. Mag. xxxviii, p. 212.—Lanarkshire, MORTON, Ent. Mag. xxxviii, p. 10.

Odonata. S. Devon, PORRITT, Ent. Mag. xxxviii, p. 265.—Grantham, SHAW, Ent. Mag. xxxviii, p. 264.—KING, Ent. Mag. xxxviii, p. 186.
Psocidæ. Bognor, GUERMONPREZ, Ent. Mag. xxxviii, p. 288.
Orthoptera. Redhill, BLOOMFIELD, Ent. Mag. xxxviii, p. 9.

(d.) *North Europe* and *Siberia* [see also (a.) and (b.)].

Insecta. Vols. 23–28 Medd. Soc. Faun. Fenn. contain numerous notes on the Finnish Insect-fauna, not specially recorded as the Vols. are so much behind.
Coleoptera. Norway, MÜNSTER (937, 938); SANDIN, Ent. Tidskr. xxiii, pp. 61, 62; STRAND, E., Faunistiske Notiser om *Staphylinider*, *Cassidiner* og *Coccinellider*, Norske Selsk. Skr. 1901, No. 7, 10 pp.; STRAND, Norske findesteder for *Coleoptera*, Nyt. Mag. xxxix, pp. 327–336.—Stockholm, MJÖBERG, Ent. Tidskr. xxiii, p. 256.—Småland, *Leptura fulva*, MUCHARDT, Ent. Tidskr. xxiii, p. 27.—Göteborg, MJÖBERG, Ent. Tidskr. xxiii, p. 28.—Finland, POPPIUS (1078), LEINBERG (791).—E. Siberia, JAKOWLEFF (645), LUZE (840).
Hymenoptera. Sweden, ADLERZ (5); Några bidrag till kännedomen om svenska Hymenopterers geografiska utbredning, NORDENSTRÖM, Ent. Tidskr. xxiii, pp. 199–206.—KONOW, E. Siberia (729).
Lepidoptera. Norway, SPARRE SCHNEIDER (1208), STRAND (1335, 1336, 1338, 1339); STRAND, many varr. mentioned, ?new (1336); STRAND, *Mesotype virgata*, *Chloroclystis chloerata*, Ent. Tidskr. xxiii, pp. 47, 48.—STRAND, Finland (1340).
Diptera. Finland, BERGROTH (90), REUTER (1140).—SCHNABL, Amurland (1205).
Hemiptera. Norway, STRAND, Ent. Tidskr. xxiii, pp. 257–270.—REUTER, Finland (1146, 1147, 1148).
Odonata. Finland, SJÖSTEDT (1275); STRAND, Ent. Tidskr. xxiii, p. 198.
Orthoptera. Sweden, HANSSON (581).
Collembola, Finland, AXELSON (48, 49), REUTER (1144).

(e.) *Central* and *Eastern Europe*, incl. *Denmark* [see also (a.) and (b.) and for Caucasus also (h.)].

Insecta. GEISENHEYNER, Germany, galls (522).—F. A. FOREL (472).—TAVARES, Vienna, galls (1355).—Hungary, numerous notices of the Hungarian Fauna, in Rov. Lapok ix.—ARNOLD, Mohilev (33).
Coleoptera. PETRI (1015).—ENGELHART, Denmark (400).—EVERTS, Netherlands (409).—Belgium, KERREMANS, *Agrilus*, Ann. Soc. ent. Belgique xlvi, p. 7.—ROSSEAU, *Anthocomus sanguinolentus*, Ann. Soc. ent. Belgique xlvi, p. 56.—SCHOUTEDEN, *Hydroporus*, Ann. Soc. ent. Belgique xlvi, p. 413.—Germany, WASMANN (1459), WEISE (1481).—KOLTZE, Hamburg (727).—Mecklenburg, FRIEDRICHS, Arch. Ver. Mecklenb. lv, p. 169.—Neuheiten der schlesischen Käferfauna, GERHARDT, Deutsche ent. Zeitschr. 1902, pp. 59–61.—Königsberg, VORBRINGER, Deutsche ent. Zeitschr. 1902, pp. 411–415.—Ergänzungen zur Thüringer Käferfauna, HUBENTHAL, Deutsche ent. Zeitschr. 1902, pp. 257–300.—Switzerland, BOURGEOIS (146).—MORY, Mt. Schweiz. ent. Ges. x, p. 374.—SAINTE-CLAIRE-DEVILLE, Alps (1184).—Julian Alps, KRAUSS (736), PETRI (1013), KRAUSS, Wien. ent. Zeit. xxi, pp. 89–92.—Siebenbürgen, PETRI (1014).—Hungary, Die Käferfauna von Déva, MALLÁSZ, SB. Siebenburg. Musver. xxiii, pp. 69–94.—RYBINSKI, Galicia (1183).—SEMENOW, Russia, Rev. Russe Ent. ii, p. 236.—Crimea, JAKOWLEFF (650).—Crimea *Ditomides*, SEMENOW, Rev. Russe Ent. ii, pp. 31, 32.

Hymenoptera. Denmark, NIELSEN (964).—Germany, SCHMIEDEKNECHT (1201), FRIESE (484).—N. W. Germany, ALFKEN (12).—Helgoland *Formicidæ*, WASMANN, Deutsche ent. Zeitschr. 1902, pp. 63, 64.—WEGELIN, Thurgau (1475).—GRAEFFE, Austria (550).—STROBL, Styria (1341).—Russia, KOKUJEW (721).—Tauria Sympheropolis, KOKUJEW (722), RUZSKY (1181).

Lepidoptera. HABERHAUER (574).—Centr. Europe, Catalogue, ROTHE (1171).—Denmark, at electric light, KLØCKER, Ent. Meddel. i, pp. 105–109.—Belgium, LAMBILLION (756).—BRAY, Virton, Ann. Soc. ent. Belgique xlvi, pp. 143–146.—WAUTERS, *Pseudophia*, Ann. Soc. ent. Belgique xlvi, p. 273.—DUFRANE, *Catocala electa*, Ann. Soc. ent. Belgique xlvi, p. 135.—CROMBRUGGHE, Ann. Soc. ent. Belgique xlvi, pp. 481–483.—CROMBRUGGHE, *Microlepidoptera*, t. c. pp. 57, 58.—Germany, BARTEL & HERZ, Berlin (71).—SCHÜTZE, Oberlausitz (1225).—Karlsruhe and Baden, GAUCKLER, Deutsche ent. Zeitschr. Iris xv, pp. 339–342.—Mecklenburg, KETEL, Arch. Ver. Mecklenb. lv, p. 167.—Mecklenburg, GILLMER, Arch. Ver. Mecklenb. lvi, pp. 124–126.—Stavenhagen, TESSMANN, Arch. Ver. Mecklenb. lvi, pp. 127–131.—Verzeichniss der bei Lübeck gefangenen Schmetterlinge, Arch. Ver. Mecklenb. lvi, pp. 132–187.—GALVAGNI, Austria, Verh. Ges. Wien lii, pp. 69, 70.—Judenburg, Styria, PIESZCZEK, Verh. Ges. Wien lii, pp. 9–11.—Switzerland, MEYRICK (912), PÜNGELER (1095), STERTZ (1330).—Nachtrag zur *Lepidopteren*-Fauna der Kantone St Gallen und Appenzell, TAESCHLER, Ber. St. Gall. Ges. 1900, 1901, pp. 215–271.—Rhone valley *Rhopalocera*, ROSA, Entomologist 1902, pp. 93–97.—Montreux, BARRAUD, Ent. Mag. xxxviii, pp. 243, 244.—Verzeichnis der *Bombyciden* von Liestal und Umgebung, SEILER, J. Ber. naturf. Ges. Basel 1900, 1901, pp. 54–67. Haute-Savoie, TUTT, Ent. Rec. xiv, pp. 226–229 and 253–257.—Jaroslawl, KROULIKOWSKY (739).—Ural, HÖLTZERMANN (615), BARTEL (70).

Diptera. Belgium, GUILLIAUME, Ann. Soc. ent. Belgique xlvi, p. 8.—LICHTWARDT, Hungary (814).

Aphaniptera, Russia, WAGNER (1433).

Hemiptera. Belgium, *Aphidæ*, SCHOUTEDEN (1210).—HUEBER, Germany (630).—JAKOWLEFF, Switzerland (654).—JAKOWLEFF, Russia, Rev. Russe Ent. ii, p. 274.—Crimea, JAKOWLEFF (651).

Trichoptera. Germany, ULMER (1397).—Schwarzwald, ULMER (1399).

Psocidæ. Switzerland, McLACHLAN, Ent. Mag. xxxviii, p. 176.

Perlidæ. RIS, Switzerland (1157).

Neuroptera. KLAPÁLEK, Hungary (713).—KLAPÁLEK, Carinthia (717).

Orthoptera. Russia, ADELUNG, *Forficula ætolica*, Annuaire Mus. St. Petersb. vii, p. xii.

Collembola. Belgium, WILLEM (1497).—Göttingen, VOIGTS, Zool. Anz. xxv, pp. 523, 524.—SKORIKOW, E. Russia (1284).

(f.) *France* [see also (a.), (b.) and (g.)].

Insecta. Alpes-maritimes, SAINTE-CLAIRE DEVILLE (1185).

Coleoptera. CHOBAUT (236), CHOBAUT, Camargue (235), FAUCONNET & VITURAT, Saône-et-Loire (425), LESNE (799, 801), PEYERIMHOFF (1017), SAINTE-CLAIRE DEVILLE, Bull. Soc. ent. France 1902, p. 175.—CARRET, various localities, Echange xvii, pp. 14, 15, 19, 20, 27, 28.—Vosges, BOURGEOIS (150).—Paris, MAINDRON, BOURGOIN, Bull. Soc. ent. France 1902, p. 314; Paris, *Hololepta*, Bull. Soc. ent. France 1902, p. 133.—Fontainebleau, GRUARDET, Bull. Soc. ent. France 1902, p. 159.—Seine, MÉQUIGNON, Bull. Soc. ent. France 1902, p. 238.—Bassin de la Seine, SAINTE-CLAIRE DEVILLE, Bull. Soc. ent. France 1902, pp. 247–250.—Catalogue des *Coléoptères* du département de Saône-et-Loire, VITURAT, Echange xvii, sep. pag.—PLANET, Bull. Soc. ent. France 1902, p. 278.—

Haute-Auvergne, Touraine, DESBROCHERS, Frelon xi, pp. 62–64.—Cazaux, LAMBERTIE, Pr.-verb. Soc. Bordeaux 1902, pp. clxii–clxiv.—MAYET, Pyrénées orientales, Miscell. ent. x, pp. 38–42, 105–119.

Hymenoptera. FERTON, Cerdagne (432), MARCHAND (858), VAYSSIÈRE (1403).—Normandy, *Macrophya erythrocnema*, DUPONT, Bull. Soc. Rouen xxxvii, p. 36.—Saône-et-Loire, PIC, Echange xvii, p. 38.

Lepidoptera. CHRÉTIEN (241, 243), PAUX (1005).—*Lepidoptères* nouveaux pour la faune, HOMBERG, Bull. Soc. ent. France 1902, p. 151.—COULON, Elbeuf (290).—BÉZIER, Brittany (104).—BROWN, Bordeaux, Pr.-verb. Soc. Bordeaux 1902, pp. clxiv–clxv.—RONDOU, Pyrenees (1167).—DIETZE, S. France (330).

Diptera. BLANCHARD (115), GIARD (529), VILLENEUVE (1422).

Hemiptera. DOMINIQUE (347).—LAMBERTIE, Bordeaux, Pr.-verb. Soc. Bordeaux 1902, p. xvii.—Gironde, LAMBERTIE, Bull. Soc. ent. France 1902, p. 325 and Pr.-verb. Soc. Bordeaux 1902, pp. lxxviii–lxxxi and clxxii–clxxiv.—LAMBERTIE, t. c. pp. lxxxiv, lxxxv.—NIBELLE, Normandy, *Dryoderes marginatus*, Bull. Soc. Rouen xxxvii, p. 115.—HORVÁTH, *Aphidæ*, Rev. Ent. franc. xxi, p. 44.

Coccidæ. COCKERELL, Ent. Mag. xxxviii, p. 86.

Orthoptera. BUYSSON, Bull. Soc. ent. France 1902, p. 219.—BELLEVOYE, Reims (80).

(g.) *Southern Europe* and *Mediterranean Basin* [see also (a.), (b.) and (f.)].

Insecta. Portugal, TAVARES (1354); Serra Estrella, TAVARES (1357); TROTTER (1383).—Spain, CHAMPION (223), CHAPMAN (230), DUSMET, Bol. Soc. espan. ii, pp. 175–178.—Guadalajara, NAVÁS (944).—Sicily, *Hymen.* and *Homopt.*, STEFANI-PEREZ (323).—CORTI, Valtellina galls (289).—Dalmatia, GALVAGNI (514).—Balkan-peninsula, galls, RÜBSAAMEN (1176).—Algeria, galls, HOUARD (625).

Coleoptera. PIC (1030, 1037), REITTER (1128), SCHNEIDER (1209).—Spain, ESCALERA (403, 404), FUENTE (509), LAUFFER (775).—Corsica, MARSHALL (871), VODOZ (1424, 1425), SAINTE-CLAIRE DEVILLE, Bull. Soc. ent. France 1902, p. 332.—Italy, MAINARDI (850), VITALE, Riv. ital. Sci. Nat. xxii, pp. 1 & 38; Specie e località da aggiungere al 'Catalogo dei *Coleotteri* d' Italia del Bertolini,' Boll. Nat. xxii, pp. 125–127; ZODDA, *Bolitobiini*, Riv. ital. Sci. Nat. xxii, pp. 86 etc.; Messina, *Rhynchophora*, VITALE, Riv. ital. Sci. Nat. xxii, pp. 115 etc.—S. Alps, BORN (136).—Dalmatia, GANGLBAUER (515, 516), MÜLLER (935, 936), MÜLLER, Wien. ent. Zeit. xxi, pp. 115, 116.—Bosnia, BREIT (163), DANIEL (304), REITTER (1135).—Bulgaria, BACHMETJEW (52).—Roumania, JAQUET, Bull. Soc. Bucarest xi, pp. 449–457.—Balkan peninsula, APFELBECK (31).—Turkey and Greece, APFELBECK (30).—Greece and Asia Minor, HINTZ (607).—N. Africa, BEDEL (79), FAUVEL (427), LEWIS (812).—Algerian Sahara, FOREL (466).—Algeria, BEDEL (78), BOURGEOIS (145), CHOBAUT (237), DESBROCHERS (318), PIC (1045), WASMANN (1457).—Cyclades, PIC (1035).—Asia Minor, DANIEL & DANIEL (305), PIC (1050).

Hymenoptera. PEREZ (321).—Spain, SCHRAMM, Bol. Soc. espan. ii, pp. 198–203.—Sicily, MAYR (878).—Corsica, FERTON (432, 433).—Dalmatia, GASPERRINI (520).—Greece, FRIESE (481).—Syria, GARCIA MERCET (519).—Asia Minor, FRIESE (482, 484).—Algeria, FOREL (469), LAMEERE (761).—Egypt, BUYSSON (189).

Lepidoptera. Portugal, MENDES (895).—Spain, NICHOLL (960); PROUT, *Geometrides*, Ent. Rec. xiv, pp. 198–202.—Andalusia, *Rhopalocera*, LANG, Entomologist 1902, pp. 228–231.—Picos de Europa, *Rhopalocera*, NICHOLL, P. ent. Soc. London 1902, p. xxxiv.—Avignon, BROWN, Ent. Rec. xiv,

pp. 311–314.—Piedmont, TUTT, Ent. Rec. xiv, pp. 169–171.—Locarno, CHAPMAN, Ent. Rec. xiv, pp. 214–218.—S. Italy, CANNAVIELLO, Riv. ital. Sci. Nat. xxii, p. 149.—NICHOLL, Bosnia, Montenegro (961).—Roumania, CARADJA, A. von, Die *Microlepidopteren* Rumäniens, Bull. Soc. Bucarest xi, pp. 612–619; HORMUZAKI, Neuere Macrolepidopteren-Funde aus Rumänien, Verh. Ges. Wien lii, pp. 563–567.—Greece, FOUNTAINE (473).—Morea, REBEL (1106).—Algeria, NICHOLL (959).—Palestine, PÜNGELER (1097).—Asia Minor, PÜNGELER (1096, 1099).—KORB, Ararat (733).

Diptera. Portugal, TAVARES (1358).—Corsica, Dipterocecidia, HOUARD (624).—Italy, BEZZI (105).—Egypt, LAVERAN (776).—Syria, CROPPER (294).

Aphaniptera. Italy, on *Mus*, TIRABOSCHI (1375).

Hemiptera. REUTER (1142).—Spain, REUTER (1141).

Coccidæ, Italy, GUERCIO (571).—Algeria, COCKERELL, Ent. Mag. xxxviii, p. 86.

Perlidæ. Spain, BOLIVAR (123); KLAPÁLEK (714); NAVÁS (943).

Neuroptera. NAVÁS (941, 942); NAVÁS, *Orthetrum*, Bol. Soc. espan. ii, pp. 69–71; *Diplax*, id. t. c. pp. 132–135.—Granada, McLACHLAN, Ent. Mag. xxxviii, p. 33.—McLACHLAN, *Odonata*, Ent. Mag. xxxviii, pp. 148 150.—McLACHLAN, *Planipennia*, Ent. Mag. xxxviii, p. 129.—KLAPÁLEK, Bosnia (713).—BRAUNER, *Odonata*, Kherson and Crimea (152).—Algeria, *Termitidæ*, DESNEUX (319).—Algeria, *Odonata*, SELYS LONGCHAMPS, Ann. Soc. ent. Belgique xlvi, p. 430.

Orthoptera. Spain, BOLIVAR (122).—VERHOEFF, Greece, *Dermapt.* (1405).—WERNER, Greece (1486).—FINOT, Cephalonia (439).—BOLIVAR, Marocco (126).—BOLIVAR, Rio de Oro, N. Africa (124).—VOSSELER, N. Africa (1429).—FINOT, Algeria (438).—KRAUSS, Sahara (738).

Collembola. Sicily, BÖRNER (139, 140).

(h.) *Caucasus* and *West* and *Central Asia*, including *Arabia* [see also (a.) and (b.)]: for Tibet see 6.

Insecta. RÜBSAAMEN, W. Asia, galls (1175).

Coleoptera. Caucasus, LUZE (842), SEMENOW (1251).—BECKMAN, Daghestan, Rev. Russe Ent. ii, pp. 108–111 (in Russian).—PIC, Sinai, Arabia (1042).—BRENSKE, Persia (165).—REITTER, Persia (1129).—GLASOUNOW, Alexander mts. (544).—Transcaspian, TSCHITSCHÉRINE (1389), SEMENOW (1246).—Central Asia, JAKOWLEFF (648), GLASUNOW (543), SEMENOW (1249, 1250).

Hymenoptera. W. Asia, KOKOUYEW (720).—Sea of Aral, RUZSKY (1182).—SEMENOW, Central Asia (1248).

Lepidoptera. MEYRICK, Aden (911), GRUM-GRSHIMAILO (568).—PÜNGELER, Central Asia (1098).

Hemiptera. Persia, MELICHAR (892), RUSIECKA (1179).

4. AFRICA (TROPICAL & SOUTH). For North Africa, see 3 (g.): for Comoro and Aldabra Ids., see 5.

The regions of Continental Africa, KOLBE (726).

Insecta. DISTANT (332), JOHNSTON (660), MARSHALL and others (868).

Coleoptera. ALLUAUD (17), ARROW (34), BELON (84), BOILEAU (117, 120), BOURGEOIS (144), BRENSKE (164), FAIRMAIRE (416), FLEUTIAUX (444, 447, 448, 449, 452), GESTRO (526), GROUVELLE (562), HINTZ (606, 608), JAKOWLEFF (643), KAESEBERG (664), KERREMANS (676, 677), LAMEERE

(759), LESNE, Ivory Coast, Bull. Mus. Paris vii, p. 396; LÉVEILLÉ (809), LEWIS (812), MARCHAND (859), MARSHALL (869), MOSER (932, 933), OHAUS (974), OLIVIER (975), OLSOUFIEW (978), D'ORBIGNY (979), PÉRINGUEY (1008), PIC (1033, 1034, 1047, 1053, 1059), PREISS (1089), RÉGIMBART (1112), SCHENKLING (1198), SCHUBERT (1221), SCHWARZ (1227, 1233), SPAETH (1319, 1321), WATERHOUSE (1461), WEISE (1476, 1482).

Hymenoptera. ANDRÉ (22), BINGHAM (108), BRAUNS (153, 154, 155), BUYSSON (190), FRIESE (486), HABERMEHL (575), MAYR (878), MOCSÁRY (919, 920), SZÉPLIGETI (1351).

Lepidoptera. AURIVILLIUS (45, 47); BARRETT, Ent. Mag. xxxviii, pp. 123–129; BUTLER (185, 186), CANNAVIELLO (210), DISTANT (338), DRUCE (351, 352), FAWCETT (428), HAMPSON (576), PAGENSTECHER (996), ROTHSCHILD (1172), SHARPE (1259, 1260, 1261, 1262), WARREN (1446).

Diptera. GILES (538), GRÜNBERG (569), KERTESZ (678), RICARDO (1151).

Hemiptera. DISTANT (333, 334, 336, 337, 339), KIRKALDY (706, 708, 709), KIRKALDY & EDWARDS (712), MELICHAR (892), REUTER (1143), SCHOUTEDEN (1211).

Coccidæ. COCKERELL (259, 262, 263, 265), COCKERELL, Ent. Mag. xxxviii, p. 86; KING (691).

Anoplura, NEUMANN (949).

Termitidæ. SJÖSTEDT (1276, 1278, 1279).

Neuroptera. MCLACHLAN (882).

Mallophaga. Abyssinia, NEUMANN, Arch. parasit. vi, p. 294.

Orthoptera. BURR (180), KIRBY (697, 698, 699, 700, 701, 703), SJÖSTEDT (1274), VERHOEFF (1404, 1405).

5. MADAGASCAR, including RÉUNION, ALDABRA ISLDS., etc.

Insecta. Aldabra Ids., VOELTZKOW (1427).

Coleoptera. ALLUAUD (13, 14, 16, 17, 18), BOILEAU (121), BOURGEOIS (144), FAIRMAIRE, incl. Mauritius, Mayotte, Seychelles (411); FAIRMAIRE (412, 413, 415, 418, 422, 423), FLEUTIAUX (448, 453), FLEUTIAUX, Mascarene Ids. (450), GROUVELLE (564), JACOBY, Mauritius (642); KERREMANS, Mauritius (677); KOLBE, Aldabra Ids. (725), LEWIS (812), MOSER (933), PIC (1033, 1046, 1059), PIC, Mauritius (1043); SCHENKLING (1198), SCHWARZ (1227), TSCHITSCHÉRINE (1388).

Lepidoptera. DRUCE (351), WARREN, incl. Comoro Ids. (1446).

Diptera. LAVERAN (782), RICARDO (1151), Réunion, BLANCHARD (114).

Hemiptera. DISTANT (337), KIRKALDY (709), MELICHAR (892), KIRKALDY, Réunion (706).

Termitidæ. SJÖSTEDT (1276).

Orthoptera. BURR (180), FINOT (437).

6. TROPICAL and EASTERN ASIA, with JAPAN.

For outskirts see also 3 (a.), (g.), (h.). Arabia, see 3 (h.).

N.B. In this division every paper that touches on India or Japan is pointed out by means of these names.

Insecta. WASMANN, India and Ceylon (1450); WASMANN, Ceylon, Deutsche ent. Zeitschr. 1902, pp. 79, 80.

Coleoptera. AURIVILLIUS (46); BERNHAUER, Ceylon (99); BOILEAU, India (117); BOILEAU, incl. India (119); BOILEAU (120), BOURGEOIS, Japan (147); BOURGEOIS, India (148, 149); BRENSKE, incl. India (164); CSIKI, Ceylon (295); FAIRMAIRE, Chitral (414); FAIRMAIRE, Yunnan (419, 420); FAIRMAIRE, China (421); FAUVEL, incl. India (426); FLEUTIAUX, Indo-China (446); FLEUTIAUX, India (449, 451); FLEUTIAUX, Japan (454);

GESTRO, Tonkin (526); GESTRO, Ceylon (527); GROUVELLE, Japan (563); GROUVELLE, Ceylon (565); HORN, Tonkin (620); JORDAN, Ceylon (662); LESNE, N. and W. China (796); LESNE, Ceylon (797); LESNE, Tonkin (800); LESNE, Japan, Bull. Mus. Paris vii, p. 335; RÉGIMBART, Japan, t. c. pp. 336, 337; LÉVEILLÉ, Ceylon (807); LEWIS, incl. India (812); MEYER-DARCIS, China (904); MEYER-DARCIS, Tonkin (905); MOSER, China (933); OHAUS, Tonkin (973); OLIVIER, Ceylon (975); OLIVIER, Japan (977); PIC, China, Tonkin (1021); PIC, India, China (1026); PIC, India (1031); PIC, Japan (1048, 1049); PIC, Singapore (1051); RÉGIMBART, Ceylon (1111); SCHENKLING, Bhutan (1199); SCHENKLING, Ceylon (1197); SCHENKLING, incl. India (1198); SCHILSKY, Japan (1200); SCHWARZ, incl. India (1227, 1232); SEMENOW, China and Mongolia (1252); SHARP, Shan States (1257); TSCHITSCHÉRINE, Japan (1384); WEISE, incl. India (1477); WEISE, Assam and Tonkin (1479); WEISE, Tonkin (1484).

Bukhara, see Palæarctic.

Hymenoptera. BUYSSON, China (189); CAMERON, India, Ceylon (198); CAMERON, Assam (199); CAMERON, Maldives and Laccadives (200); CAMERON, India (201, 202, 204, 206, 208); CAMERON, India and Japan (203); FOREL, India and Ceylon (463, 464); FOREL, India, Burma (468); KONOW, Tonkin (731); NURSE, India (966, 967, 968); SZÉPLIGETI (1351); VACHAL, INDIA (1401).

Lepidoptera. DUDGEON, N. India (363); EHRMANN, China (388); FRUHSTORFER, Tonkin, etc. (498); FRUHSTORFER (499, 500, 502); FRUHSTORFER, Tonkin, Siam (501); GRUM-GRSHIMAILO, W. China, Mongolia (568); HAMPSON, India, Ceylon, Tibet, etc. (577); JOANNIS, Tonkin (656); MEYRICK, Maldive and Laccadive Ids. (906); MOORE, India, etc. (925); NICÉVILLE, incl. Japan, India (957); NICÉVILLE, Hongkong (958); RHÉ-PHILIPE, India (1149); SWINHOE, India, Perak (1344); SWINHOE (1345); SWINHOE, incl. India (1346, 1347); SWINHOE, Singapore (1348); SWINHOE, incl. Japan (1349); WARREN, Chitral (1445).

Diptera. GILES, India (538); LAVERAN, Cochin China and Annam (777); LAVERAN, Yunnan (778); LAVERAN, Cambodia (779); RICARDO, India (1151); THEOBALD, India (1363).

Hemiptera. BREDDIN, India, Burma (158); BUCKTON (177); CSIKI, Japan (297); DISTANT, India, Siam (334); DISTANT, India, Ceylon, Burma (331); DISTANT, incl. India (335); DISTANT, incl. India, Ceylon (336); DISTANT, China, Malay Peninsula (337); JACOBI, Tonkin (635); JAKOWLEFF, Mongolia (652); JAKOWLEFF, Korea (655); KIRKALDY, incl. India, China, etc. (706); KIRKALDY (707); KIRKALDY, Burma (709); KIRKALDY, India, Ceylon (710); KIRKALDY & EDWARDS, incl. India (712); MARTIN, Yunnan (872); MATSUMURA, Japan (873); MELICHAR, incl. India (892); MELICHAR, China (894).

Coccidæ. Ceylon, GREEN (553); KUWANA, Japan (747).

Trichoptera. MORTON, India (931).

Odonata. LAIDLAW (752, 753); LAIDLAW, Maldives (754).

Orthoptera. ADELUNG, W. China, Japan (2); BOLIVAR, India (125); BURR, incl. India and Japan (180); BURR, Ceylon (181); FINOT, India (437); REHN, Japan and Korea (1125); SEMENOW, Korea, Askold Is. (1247).

7. ASIATIC ARCHIPELAGO, including PAPUA. (For islands beyond Papua see 2. Insular.)

N.B. In this division, 7, when the name of an island, or islands, is mentioned this indicates that the paper refers *only* thereto.

Insecta. KARAWAEW (665); SHELFORD and others, Borneo (1263).—The work of L. BIRÓ in New Guinea, CSIKI, Rov. Lapok ix, pp. 137–141.

Coleoptera. BOILEAU, Sumatra (117, 120); BOILEAU (119); BOURGEOIS, Sumatra (144); BRENSKE, Sumatra (164); CSIKI, New Guinea (296, 297); FAUVEL (426); FLEUTIAUX, Sumatra (447); FLEUTIAUX, Java (449); FLEUTIAUX, Borneo (452); GESTRO, Borneo, New Guinea (526); GESTRO, Borneo (528); HELLER, New Guinea (586); JAKOWLEFF (646); KERREMANS, Borneo (677); LAMEERE, Celebes (757); LEWIS (812); LÉVEILLÉ, Sumatra (809); MOSER, Tenimber (933); PIC, Manilla (1025); PIC, N. Guinea, Borneo (1044); PIC, Java, New Guinea (1051, 1052); RITSEMA, Sumatra (1158); SCHENKLING, Sumatra (1195, 1196, 1197); SCHENKLING, New Guinea (1198); SCHENKLING (1199), SCHWARZ (1227), SCHWARZ (1232, 1233), SENNA (1254); SHARP, Borneo (1257); WEISE (1477).

Hymenoptera. CAMERON, Borneo (198, 201, 203, 204, 205); EMERY, N. Guinea (394); FOREL, Key Is. (467); SZÉPLIGETI (1351, 1352).

Lepidoptera. DRUCE (352); DRUCE, New Guinea (351); NICÉVILLE (957); FRUHSTORFER (499, 500, 502); FRUHSTORFER, Borneo (505); FUCHS, Sumatra (508); HAMPSON (577); HELLER, New Guinea (587); MEYRICK, New Guinea (907); SNELLEN, Kangean Ids. (1310); SNELLEN (1311); SWINHOE (1345, 1346, 1349); SWINHOE, Java, Borneo (1344, 1347); SWINHOE, Borneo, Lombok (1348); WARREN (1445).

Diptera. LUDLOW, Philippines (835); RICARDO, Borneo (1151); SPEISER, New Guinea (1324).

Hemiptera. BREDDIN (158, 160, 161); BREDDIN, Borneo (157); BREDDIN, Celebes (156); BUCKTON, Java (177); DISTANT (335, 336); DISTANT, Borneo (337); KIRKALDY (706); KIRKALDY, Java (709); KIRKALDY, Borneo (710); KIRKALDY, Pulo-Laut. (711); KIRKALDY & EDWARDS (712); MARTIN, Borneo (872); MELICHAR (892).

Odonata. KRÜGER, Sumatra etc. (741).

Orthoptera. BOLIVAR, New Guinea (127); BURR (180, 182); REHN, Sumatra (1119); VERHOEFF (1404).

8. AUSTRALIA and TASMANIA. (For New Zealand see 2. Insular.)

Coleoptera. BLACKBURN (111, 112), CSIKI (296), FLEUTIAUX (449), GROUVELLE (562), LEA (783–785), OLIVIER (975), SCHENKLING (1197), SCHWARZ (1227, 1228, 1233, 1234), SLOANE (1293, 1294), TSCHITSCHÉRINE (1385), WEISE (1477).

Hymenoptera. ANDRÉ (23), FOREL (465), SZÉPLIGETI (1352).

Lepidoptera. DRUCE (352), LOWER (830–832), LUCAS (834), MEYRICK (907, 909, 913), MEYRICK & LOWER (914), SWINHOE (1344–1447, 1349), TURNER (1391, 1392), WARREN (1445), WATERHOUSE (1463).

Diptera. GILES (538), SPEISER (1323, 1324).

Hemiptera. DISTANT (335, 337), FROGGATT (492), HORVÁTH (623), KIRKALDY (706, 707, 709), MELICHAR (892).

Coccidæ. GREEN (554) and Ent. Mag. xxxviii, p. 284.

Mallophaga. LE SOUEF (802, 803), LE SOUEF & BULLEN (804, 805).

Orthoptera. TEPPER (1360).

9. NORTH AMERICA. Bahamas and Bermudas, see Antilles.

Distribution of injurious insects in United States, BANKS (66).

Diffusion in North America, WEBSTER (1466).—Changes in fauna, WEBSTER, Canad. Ent. xxxiv, pp. 76–78.

Insecta. SNOW, Lake Michigan (1314), BRUES (169).—Pike's Peak on snow, CAUDELL (216), COCKERELL (256), FLETCHER (443), GODMAN (545). —Canada, various lists in Rep. ent. Soc. Ontario xxxii.—Adirondack Mts.,

MacGillivray & Houghton, Ent. News Philad. xiii, pp. 247–253.—Mt. Washington, Alpine, Slosson, Ent. News Philad. xiii, pp. 4–9, and t. c. pp. 319–321.—California, limits of divisions, Blaisdell, Ent. News Philad. xiii, pp. 173–175, Van Dyke, t. c. pp. 199–202.—New Mexico, Cockerell, Psyche ix, pp. 346, 347.

Coleoptera. Blaisdell (113), Brues (170), Dury (366), Fall (424), Hopkins (616, 617), Horn (621), Joutel (663), Kerremans (677), Leng (793).—Leng, Louisiana (794).—Leng, New Jersey (795), Lewis (812), Melander (887), Pierce (1064).—Ulke, Columbia (1396), Wasmann (1451), Wickham (1493).—Wickham, Colorado (1494).—Schaeffer, *Cerambycidæ*, Ent. News Philad. xiii, p. 254.—Quebec, *Cassida viridis*, Fyles, Canad. Ent. xxxiv, p. 273.—Massachusetts, Hood, Ent. News Philad. xiii, p. 83.—Pennsylvania, Bradley, Ent. News Philad. xiii, p. 23.—Cuyahoga, Bubna, Ohio Natural. ii, pp. 193–197.—Utah, Knaus, Ent. News Philad. xiii, p. 115 etc.—N. Carolina, *Cicendelidæ*, Harris, Canad. Ent. xxxiv, p. 217.—New Mexico, Fall, Psyche ix, p. 203.—Cockerell, Psyche ix, pp. 378–380.—Schwarz, Florida, P. ent. Soc. Washington v, p. 39.—Schwarz, *Exochomus plagiatus*, P. ent. Soc. Washington v, p. 40.

Hymenoptera. Ashmead (39, 40, 41, 43), Ashmead, Alaska (38), Bradley (151), Cameron (207), Cockerell (248–255), Cockerell & Atkins (272), Crawford (291, 292), Felt (429), Forel (470), Fowler, California (475), Gillette (539), Harrington (582); Ottawa, *Sphegoidea*, Harrington (583), Mayr (878), Melander & Brues (890), Robertson (1159–1164), Titus (1377), Titus, Colorado (1378), Viereck (1414–1420), Wheeler (1489–1491).—Ashmead, Canad. Ent. xxxiv, p. 231.—New England, *Formicidæ*, King, Psyche ix, p. 367.

Lepidoptera. Beutenmüller (103), Busck (183, 184), Bird (110), Dyar, Catalogue (367), Dyar (368, 369, 374, 375, 379, 380), Grote (561), Holland (610), Kearfott (667), Ottolengui (990, 991), Poling (1075), Skinner (1280, 1282, 1283), Skinner, Alaska (1281), Smith (1296, 1299, 1300, 1301).—Lower California, cf. Centr. Amer., Weeks (1473).—Skinner, *Hesperiidæ*, Ent. News Philad. xiii, p. 183.—Skinner, *Myscelia*, t. c. p. 321.—California, immigrant butterflies, Rivers, Bull. S. Calif. Ac. i, p. 90.—S. Manitoba, Heath, Canad. Ent. xxxiv, pp. 33–36.—New Hampshire, *Bombycidæ*, Goodhue, Ent. News Philad. xiii, pp. 284–290.—Indiana, *Anæa*, Tallant, Canad. Ent. xxxiv, p. 44.—New Mexico, *Bembecia*, Cockerell, Ent. News Philad. xiii, p. 100.—Florida, Comstock, Ent. News Philad. xiii, p. 77.

Diptera. Coquillett (282–287a), Brues (171), Giles (538), Hine (604, 605), Johnson (657, 658), Long (826), Melander (885, 889).—Maine, *Tipulidæ*, Banks, Ent. News Philad. xiii, p. 308.—Ludlow, *Culex*, J. N. York Ent. Soc. x, p. 131.

Aphaniptera. Rothschild (1173).

Hemiptera. Ball (54–61), Buckton (177), Bueno (178), Heidemann (585), Kirkaldy (706, 707), Melichar (892), Osborn (983), Osborn & Ball (984).—Wood's Holl, Mass., Montgomerey, Ent. News Philad. xiii, pp. 12, 13.

Psyllidæ. Mally (851, 852).

Aphidæ. Cockerell (257), Sirrine (1273).

Coccidæ. Cockerell (259, 260, 270, 271), Ehrhorn (387), King (693, 695, 696), King, British N. Am. (694), Kotinsky (734), Kuwana (750), Osborn (982), Sanders (1186).—Massachusetts, King, Canad. Ent. xxxiv, pp. 59–63.—Ohio, Webster & Burgess, Bull. U. S. Dep. Agric. Ent. No. 37, pp. 109, 113.

Neuroptera. Banks (65).

Perlidæ. Banks (62).

Embiidæ. Melander (886).

Odonata. Hine (603), Needham (946), Williamson (1498–1499b).—

WADSWORTH, Maine, Ent. News Philad. xiii, p. 246.—HINE, Sandusky, Ohio Natural. i, p. 94.—Magdalen Ids., WILLIAMSON, Ent. News Philad. xiii, pp. 144–146.

Thysanoptera. HINDS (602).

Mallophaga. CARRIKER, Nebraska (215), KELLOGG & CHAPMAN (670), OSBORN (980).

Orthoptera. CAUDELL, Arizona (217), CAUDELL (219, 220, 221), HANCOCK (578), REHN (1120, 1121, 1122, 1124, 1126), SCUDDER (1238), WALKER (1435), WALKER, Ontario (1436).—SEISS, Ent. News Philad. xiii, p. 95.—New Jersey and Pennsylvania, REHN, Ent. News Philad. xiii, pp. 309–316.

Collembola. BANKS (63), FOLSOM (456, 457), FOLSOM, Alaska, *Aptera* (455).

10. CENTRAL AMERICA (MEXICO to PANAMA incl.).

Insecta. GODMAN (545).—*Apidæ* and *Coccidæ*, COCKERELL, Entomologist 1902, pp. 177, 178.

Coleoptera. ARROW (35), JACOBY (641), KERREMANS (677), OHAUS (972), ROSMINI (1168), SCHUBERT (1222), SCHWARZ (1227).

Hymenoptera. ASHMEAD (42), CAMERON (207), EMERY (395), FOREL, Coco Is. Costa Rica (467), KOHL (719), SZÉPLIGETI (1351).—ASHMEAD, Canad. Ent. xxxiv, p. 231.

Lepidoptera. DOGNIN (343, 344, 345), DRUCE (351), OTTOLENGUI (990), SCHAUS (1193, 1194).—WEEKS, Lower California (1473).

Diptera. COQUILLETT (282–287), MELANDER (885).

Hemiptera. BALL (57), BUCKTON (177), KIRKALDY (706), MELICHAR (892), OSBORN & BALL (984).

Coccidæ. COCKERELL (259, 261, 266, 267).

Embiidæ. MELANDER (886).

Termites. WASMANN, Cocos Is. (1450).

Trichodectes. OSBORN (980).

Orthoptera. CAUDELL (218), HANCOCK (578).

11. ANTILLES, including BERMUDAS, BAHAMAS, BARBADOS.

Insecta. GODMAN (545).—Bermudas, VERRILL (1410a).

Coleoptera. FAUVEL (426), FLEUTIAUX, Haity (447); GROUVELLE (566), GROUVELLE & LÉVEILLE (567), OLIVIER (976), JACOBY (641).—Barbados, UYTTENBOOGAART (1400).

Hymenoptera. List of *Apidæ*, FRIESE (483).—FOREL (467).

Lepidoptera. SCHAUS (1193).

Diptera. COQUILLETT, Porto Rico, Cuba (285); MELANDER (885), SPEISER, Cuba (1323).

Hemiptera. BALL (60), KIRKALDY, Jamaica (708), MELICHAR (892).

Coccidæ. MAXWELL-LEFROY (876).

Orthoptera. HANCOCK (578).

12. SOUTH AMERICA, including TRINIDAD.

Insecta. GODMAN (545).—WASMANN, *Coleoptera*, *Aphidæ*, *Termitidæ* (1451).

Coleoptera. ARROW (35), AURIVILLIUS (46), BAER (53), BELON (81, 83, 85), BOILEAU (117, 120), BOUCOMONT (141, 142), CSIKI (298), FAIRMAIRE (417), FAUVEL (426), FLEUTIAUX (447), GROUVELLE & LÉVEILLÉ (567), HORN (621), JACOBY (641), KERREMANS (677), LAMEERE (757, 758, 760), LÉVEILLÉ (808), LEWIS (812), OHAUS (972), PIC (1022, 1023, 1024, 1029,

1031, 1041, 1056, 1057, 1058, 1060), PIC, Patagonia (1036), ROSMINI (1168), SCHENKLING (1198), SCHWARZ (1227, 1229, 1230, 1231, 1233), SPAETH (1320), UYTTENBOOGAART (1400), WASMANN (1452), WEISE (1480, 1483).—Talcahuano Chili, DELFIN, Revist. chilena iv, pp. 8–14, 19.

Hymenoptera. ANDRÉ (21), CAMERON (207), CRESSON (293), DUCKE (353-362), EMERY (395, 397), FOREL (467), FOX (478), FRIESE (482, 485), KOHL (719), KONOW (728, 730), MANTERO (854), MOCSÁRY (919), RÜBSAAMEN (1178), SCHROTTKY (1216, 1217, 1218), SZÉPLIGETI (1351, 1352).—REED, Revist. chilena iv, p. 85.

Lepidoptera. DOGNIN (343, 344, 345, 346), DRUCE (351), GROTE (561), MABILLE (849), MENGEL (897), SCHAUS (1193), SCHROTTKY, Argentina (1220), THIEME (1368, 1369), WEEKS (1470, 1471, 1472, 1473).—KAYE, British Guiana, Tr. City London Soc. 1902, pp. 48–60.

Diptera. GILES (538), KERTÉSZ (679, 680), MELANDER (885), NEVEU-LEMAIRE (952, 953), RICARDO (1151), SCHNABL, Cape Horn (1206), SCHROTTKY (1219), SIMOND & LAVERAN (1270), SPEISER (1324), THERESE VON BAYERN (1370).

Hemiptera. BERG, Chili (88), BREDDIN (162), BUCKTON (177), DISTANT (334, 336, 337), KIRKALDY (706, 708, 709), KIRKALDY & EDWARDS (712), MELICHAR (892), REED, Chili (1109), REUTER (1143), THERESE VON BAYERN, KUHLGATZ & MELICHAR (1370).

Coccidæ. COCKERELL (260, 268), GIARD, Chili (533).

Neuroptera. VAN DER WEELE (1474).

Odonata. CALVERT (194).

Orthoptera. BORELLI (135), BURR (180), BRUNER (174), KIRBY (702), VERHOEFF (1405).

Collembola. CARPENTER, Tierra del Fuego (211).

PALÆO-ENTOMOLOGY.

Coleoptera.

Pleistocene *Carabus*, study of numerous species, LAPOUGE (774).

Lampra gautieri, Tertiary lignites of Menat, BRUYANT, Rev. Sci. Bourbonnais xv, p. 63, n. sp.

Diptera.

Mochlonyx sepultus Loew, characters, MEUNIER (898).

Lophyrophorus n. g. *Xylophagidæ*, p. 397, for *L. flabellatus*, n. sp., in amber, MEUNIER, Ann. Sci. nat. xvi.

Bolbomyia lævi, in amber, MEUNIER, Ann. Soc. Bruxelles xxvi, p. 96, n. sp.

Palæohilarimorpha n. g. *Leptidæ*, for *P. bifurcata*, n. sp., in amber, MEUNIER, Ann. Sci. nat. xvi, p. 400.

Palæoparamesia n. g. for *P. proosti*, n. sp., in amber, MEUNIER, p. 98, Ann. Soc. Bruxelles xxvi.

Palæoedalia n. g. *Empidæ* for *P. samlandica*, n. sp., in amber, MEUNIER, Ann. Soc. Bruxelles xxvi, p. 101.

Hoclovera eocenica, in amber, MEUNIER, Ann. Sci. nat. xvi, p. 402, n. sp.

Palæopipiza n. g. *Syrphidæ*, for *P. xenos*, n. sp., in amber, MEUNIER, Ann. Soc. Bruxelles xxvi, p. 103.

Sphyracephala breviata, in amber, MEUNIER, Ann. Sci. nat. xvi, p. 404, n. sp.

Hemiptera.

Eugereon bœckingi revised, HANDLIRSCH (579).

Palæontina vidali, Kimmeridge, Spain, MEUNIER, Mem. Ac. Barcelona iv, No. 18, p. 10, pl. figg. 3–5, n. sp.

Neuroptera.

Homoioptera gigantea, Commentary, AGNUS, Bull. Soc. ent. France 1902, p. 259, pl. i, n. sp.

III. SYSTEMATIC.

N.B.—The reference numbers collected under the headings of the various groups refer to "Titles" on pp. 5–80, and are intended to give, in each case, a complete list of all memoirs containing anything of importance in connection with the group.

Article *Arthropoda*, LANKESTER, Encycl. Brit. xxv, pp. 689–701.
Article *Insects*, SHARP, Encycl. Brit. xxix, pp. 498–504.
Development of mouth parts, homologies, KELLOGG (668).
Microthorax, VERHOEFF (1404), SILVESTRI (1269).
List of Insects and specimens caught by Trap-lantern, SLINGERLAND, Bull. Cornell exp. Stat. 202, pp. 228–241.

(A.) *COLEOPTERA.*

Wing of *Coleoptera*, KEMPERS (674).
Suture of elytra, ALLUAUD (15).
Styles of female, WANDOLLECK (1441).
The maxillary lobes of larvæ, EICHELBAUM (390).
Coleoptera, metamorphosis ; *Fodiometabola*, BRUNELLI, Riv. ital. Sci. Nat. xxii, pp. 100–106.
Physiology of metamorphosis in various forms, BERLESE, Riv. Patol. Veg. ix, pp. 291–318.
Protected and edible *Coleoptera* in S. Africa, MARSHALL & POULTON (868).
Coleoptera as mimics, SHELFORD, P. Zool. Soc. London 1902 ii, pp. 237–252, pl. xix.

CICINDELIDÆ.

[Cf. ALLUAUD (13), FLEUTIAUX (446, 453, 454), HORN (620, 621), LENG (793–795), MITCHELL (918).]

C. W. LENG has revised the N. American *Cicindelidæ*, Tr. Amer. ent. Soc. xxxv, pp. 93, 186, plates i–iv ; the new varieties and the synonymy of this paper are not recorded below, but only the new species.
Cicindelidæ of Louisiana, LENG, J. N. York Ent. Soc. x, pp. 131–136.
New Jersey *Cicindelidæ*, LENG, t. c. pp. 236–240.
Brief notes of three species at Perak, RIDLEY (1153).

Cicindela equestris varr. n. *soa*, *osa*, *sahy*, ALLUAUD, Ann. Soc. ent. France 1902, p. 637 ; *C. trilunaris* var. n. *aldabrica*, KOLBE, Abh. Senckenb. Ges. xxvi, p. 571 ; *C. dunedinensis*=(*wakefieldi* Bates), LEWIS, Tr. N. Zealand Inst. xxxiv, p. 203 ; *C. rectilatera*, habits, MITCHELL, P. ent. Soc. Washington v, p. 109.
C. grandidieri, p. 638, *antatsima*, p. 639, *zaza*, p. 640, Madagascar, ALLUAUD, Ann. Soc. ent. France 1902 ; *C. robusta*, *bowditchi*, p. 124, *bellissima*, p. 142, *knausii*, p. 166, N. America, LENG, Tr. Amer. ent. Soc. xxxv : n. spp.

Collyris tonkinensis, Tonkin, FLEUTIAUX, Ann. Soc. ent. France 1902, p. 570; *C. resplendens*, p. 66, *auripennis*, p. 67, *fruhstorferi*, p. 68, *signata*, p. 69, *pseudosignata*, *bicolor*, p. 70, Tonkin, HORN, Deutsche ent. Zeitschr. 1902 : n. spp.

Ctenostoma (*Procephalus*) *germaini*, Bolivia, HORN, t. c. p. 372, n. sp.

Euryoda triumphalis, Tonkin, HORN, t. c. p. 75, n. sp.

Omus; notes on the species, variation, and localities, with table of forms, HORN, t. c. pp. 376–396.

O. intermedius, Mariposa Co., California, LENG, Tr. Amer. ent. Soc. xxxv, p. 104, n. sp.

Peridexia, the species, with *P. fulvipes australis*, subsp. n., ALLUAUD, Ann. Soc. ent. France 1902, p. 642.

Pogonostoma angustum, p. 301, *violaceum*, p. 302, Madagascar, FLEUTIAUX, Bull. Soc. ent. France 1902, n. spp.

Prepusa and allies, taxonomy, HORN, Deutsche ent. Zeitschr. 1902, pp. 232, 233.

Tetracha carolina, habits, MITCHELL, P. ent. Soc. Washington v, p. 108.

Therates fruhstorferi, *angustatus*, p. 72, *clavicornis*, *tonkinensis*, p. 73, *rugifer*, p. 74, Tonkin, HORN, Deutsche ent. Zeitschr. 1902, n. spp.

CARABIDÆ.

[Cf. ALLUAUD (14), APFELBECK (31, 32), BAER (53), BEDEL (79), BLAISDELL (113), BOILEAU (121), BORN (136), BROUN (632), BRUES (169), CHOBAUT (236), DANIEL (303–305), FAIRMAIRE (420, 423), FALL (424), GANGLBAUER (736), GLASUNOW (543, 544), HOLDHAUS (609), LAPOUGE (773, 774), LEWIS (813), MARSHALL (868), MEYER-DARCIS (904), PEYERIMHOFF (1018, 1019), PIC (1028), POCOCK (1073), PORTA (1082), REITTER (1130, 1132–1134), RYBINSKI (1183), SAINTE-CLAIRE DEVILLE (1184, 1185), SEMENOW (1244, 1246), SLOANE (1293, 1294), STIERLIN (1334), TSCHITSCHÉRINE (1384–1390), VODOZ (1424), WASMANN (1450).]

TSCHITSCHÉRINE reviews in a critical manner the taxonomy and synonymy of Australian *Platysmatini*, Horæ Soc. ent. Ross. xxxv, pp. 502, 534.

Cupesidæ referred to *Caraboidea*, PEYERIMHOFF, Bull. Soc. ent. France 1902, p. 206.

Abacops subg. n. of *Platysma*, for *Abax rugipennis* Dej., TSCHITSCHÉRINE, Rev. Russe Ent. ii, p. 280.

Abax beckenhaupti var. n. *carnicus*, GANGLBAUER, Verh. Ges. Wien lii, p. 104.

Amara (*Phanerodonta*) *murgabica*, Transcaspian, TSCHITSCHÉRINE, Rev. Russe Ent. vi, p. 71, n. sp.

Anillus affabilis, Texas, BRUES, Amer. Natural. xxxvi, p. 366, n. sp.

Anophthalmus fabiani, habitat etc., VIRÉ & ALZONA, Bull. Mus. Paris vii, pp. 344–346 and Boll. Natural. xxii, p. 74.

Aptinus acutangulus, characters, APFELBECK, Munchen. Kol. Zeitschr. i, p. 100.

Bembidium, structure of upper surface of head, BLAISDELL, P. Ac. Philad. liv, pp. 70–79; *B. decorum* var. n. *subconvexum*, DANIEL, Munchen. Kol. Zeitschr. i, p. 102; *B. nitidulum* and *dalmatinum*, variation, MÜLLER, Munchen. Kol. Zeitschr. i, p. 114; *B. fasciolatum*, *tibiale* and allies discussed, with varr. n.; *B. redtenbacheri* n. n. for *affine* Redt. nec Say, p. 22, DANIEL, Munchen. Kol. Zeitschr. i, pp. 5–37; *B. distinctum*, *oblongum*, *milleri*, are valid species, characters, APFELBECK, Munchen. Kol. Zeitschr. i, pp. 96, 97.

B. longipes, p. 29, Europe, *B. scythicum*, Turkestan, p. 33, *bactrianum*, Buchara, p. 35, DANIEL, Munchen. Kol. Zeitschr. i; *B.* (*Peryphus*) *bodemeyeri*, Asia Minor, DANIEL & DANIEL, Munchen. Kol. Zeitschr. i,

p. 101; *B.* (*Notaphus*) *rumelicum*, *B.* (*Peryphus*) *rhodopense*, p. 66, *pindicum*, p. 67, *ætolicum*, *B.* (*Testediolum*) *vranense*, *reiseri*, p. 68, *B.* (*Trepanes*) *serbicum*, p. 69, Balkan peninsula, APFELBECK, Munchen. Kol. Zeitschr. i; *B. obscuripenne*, *humboldtensis*, p. 74, *vandykei*, p. 75, *falsum*, *suspectum*, p. 76, *fuchsii*, p. 77, *concinnum*, p. 78, N. America, BLAISDELL, P. Ac. Philad. liv : n. spp.

Bothriopterus angustatus, note, PIC, Echange xvii, p. 3.

Brachynus bagdatensis, Bagdad, PIC, t. c. p. 25, n. sp.

Calosoma abbreviatum and Peruvian allies, variation etc., BAER, Bull. Soc. ent. France 1902, pp. 83–85.

C. (*Charmosta*) *irregularis*, E. Siberia, REITTER, Wien. ent. Zeit. xxi, p. 185; *C. petri*, Transcaspian, SEMENOW, Rev. Russe Ent. ii, p. 84 : n. spp.

Carabus; varieties of European, LAPOUGE, Echange xvii, pp. 22 etc., etc.; *Carabus*, phylogeny, LAPOUGE (773); *Carabus*, study of pleistocene, with *C. nemoralis* var. n. *malacopterus*, p. 555, *violaceus* var. n. *orcinus*, p. 558, *C. arietinus* var.? n., p. 560, LAPOUGE, Bull. Soc. Sci. Med. Ouest France xi; *C. croaticus* var. n. *zepcensis*, REITTER, Wien. ent. Zeit. xxi, p. 92; *C. lefebvrei* var. n. *leonii*, REITTER, t. c. p. 81; *C. auratus*, variation in dimensions, PORTA, Bull. Soc. ent. Ital. xxxiv, pp. 61–103; *C. scheidleri*, variation, APFELBECK, Munchen. Kol. Zeitschr. i, p. 95; *C. auronitens vindobonensis*, note, REITTER, Wien. ent. Zeit. xxi, p. 93; *C. violaceus muellerianus*, n. subsp., BORN, Verh. Ges. Wien lii, p. 74.

C. longicornis, Chin-Kiang, FAIRMAIRE, Bull. Soc. ent. France 1902, pp. 266, 316, n. sp.

Clibanarius cf. *Idiochroma*.

Colpodes mutans, *janthinus*, Madagascar, FAIRMAIRE, Natural. xxiv, p. 286, n. spp.

Coptolabrus, descriptions and figures, *C. pustulifer* var. n. *borni*, p. 407, f. 4, MEYER-DARCIS, Mt. Schweiz. ent. Ges. x.

C. semenowi, p. 406, pl. f. 3, *incertus*, f. 8. p. 408, China, MEYER-DARCIS, t. c., n. spp.

Cychrus; notes on characters and taxonomy, VAN DYKE, J. N. York Ent. Soc. x, p. 55; *C. punctipennis*, pl. i, f. 1, REITTER, Wien. ent. Zeit. xxi.

Cyphosoma; taxonomy, p. 511, synonymy of the species, p. 512, TSCHITSCHÉRINE, Horae Soc. ent. Ross. xxxv.

Cyrtotelus n. g. for *Feronia* (*Argutor*) *ferruginea*, *trivialis*, TSCHITSCHÉRINE, Rev. Russe Ent. ii, p. 28.

Darodilia longula, Australia, TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxv, p. 509, n. sp.

Dinoscaris subg. n. cf. *Storthodontus*.

Dromius uralensis, Orenburg, SEMENOW, Horæ Soc. ent. Ross. xxxv, p. 253, n. sp.

Dyschirius unipunctatus, S. California, FALL, p. 207, Pap. Calif. Ac. viii, n. sp.

Eosteropus subg. n. of *Platysma*, q. v.

Euthenarus? *cilicollis*, p. 176, *E. huttoni*, p. 177, Auckland Ids., BROUN, Tr. N. Zealand Inst. xxxiv, n. spp.

Feronia (*Argutor*) *ferruginea* and *trivialis*, cf. *Cyrtotelus*.

Graphipterus variegatus, stridulation, POCOCK, Ann. Nat. Hist. x, pp. 154–156, cut.

Harpalus punctatulus, *puncticollis* and allies, pp. 585–592, synonymy, variation, characters, *minimus* Motsch. = (*amœnulus*, Reitter), p. 595, TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxv.

H. (*Megalophonus*) *phœnix*, p. 584, *H.* (*Ophonus*) *sulcifer*, p. 586, Syria, *H.* (*Artabus*) *petri*, S. Russia, p. 596, TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxv, n. spp.

Heterosoma attenuatum, Madagascar, FAIRMAIRE, Bull. Soc. ent. France 1902, p. 224, n. sp.

Homalosoma ; name restricted to Madagascar forms, TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxv, p. 520.

Idiochroma n. g. for *Clibanarius* Des Goz., BEDEL, Cat. rais. Col. Nord Afrique, p. 216.

Lebia trimaculata var. n. *subscutellaris*, REITTER, Wien. ent. Zeit. xxi, p. 192.

Licinus astrabadensis, Persia, REITTER, t. c. p. 186, n. sp.

Lionychus orientalis, Asia Minor, DANIEL & DANIEL, Munchen. Kol. Zeitschr. i, p. 103, n. sp.

Mecodema crenaticolle Redt. = (*lineatum* Broun), LEWIS, Tr. N. Zealand Inst. xxxiv, p. 203.

M. bullatum, *infimate*, N. Zealand, LEWIS, t. c. p. 202, n. spp.

Morphnos besti, Victoria, SLOANE, P. Linn. Soc. N. S. Wales xxvi, p. 672, n. sp.

Nebria psammophila varr. n. *subalpina*, p. 479, *oreophila*, *humerosa*, p. 480, *transcaspica*, p. 481, *N. limbigera* varr. n. *alaiensis*, p. 482, *kandshutica*, p. 483, GLASUNOW, Horæ Soc. ent. Ross. xxxv.

N. reitteri, Carpathians, RYBINSKI, Bull. Ac. Cracovie 1902, p. 10 ; *N. velebiticola*, Dalmatia, REITTER, Wien. ent. Zeit. xxi, p. 191 ; *N. kozlowi*, p. 484, *ambigua*, p. 487, *grumi*, p. 488, Russia, GLASUNOW, Horæ Soc. Ent. Ross. xxxv : n. spp.

Neopterostichus n. g. for *Trichosternus* of New Zealand, TSCHITSCHÉRINE, t. c. p. 521.

Notiophilus obscurus, S. California, FALL, p. 207, Pap. Calif. Ac. viii, n. sp.

Notonomus; revision, SLOANE, P. Linn. Soc. N. S. Wales xxvii, pp. 252–325.

N. frenchi, p. 261, *kosciuskianus*, p. 267, *rainbowi*, p. 268, *muelleri*, p. 272, *macoyi*, *besti*, p. 273, *howitti*, p. 275, *bakewelli*, p. 276, *fletcheri*, p. 277, *strzeleckianus*, p. 278, *froggatti*, *bassi*, p. 280, *angustibasis*, p. 283, *excisipennis*, p. 285, *sydneyensis*, p. 288, *leai*, p. 291, *jervisensis*, *liragerus*, p. 294, *queenslandicus*, p. 296, *latibasis*, p. 298, *rugosicollis*, p. 304, *discorimosus*, p. 305, *victoriensis*, p. 311, *colossus*, p. 314, *spenceri*, p. 317, *opacistriatis*, p. 319, *kershawi*, p. 320, Australia, SLOANE, t. c., n. spp.

Nurus, cf. *Pachymelas*.

Ocys ; table of palæarctic, REITTER, Wien. ent. Zeit. xxi, pp. 203–208.

O. pseudopaphius, Tauria, p. 204, *arisi*, Turkestan, p. 205, *leonhardi*, Herzegowina, p. 208, id. t. c., n. spp.

Omocycla subg. n. of *Trichosternus*, for *obscuripennis* Mach., TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxv.

Omophron, ♂ characters, HAYWARD, Psyche ix, p. 304.

Omphreus apfelbecki = (*sequensi* Reitt.), APFELBECK, Munchen. Kol. Zeitschr. i, p. 98.

Ophonus cribricollis, *azureus*, distinguished, *O. fallax* = (*suturifer* Reitt.), APFELBECK, t. c. p. 99 ; *O. suturifer* and *fallax*, distinguished, REITTER, Wien. ent. Zeit. xxi, p. 221 ; *O. puncticollis* var. n. *parcepunctatus*, REITTER, t. c. p. 192.

O. ferrugatus, Algeria, REITTER, t. c. p. 191, n. sp.

Orthogonius ; larva, habits, WASMANN, Zool. Jahrb. Syst. xvii, pp. 142–148, pls. iv & v.

O. termiticola, Perak, WASMANN, t. c. p. 141, n. sp.

Pachymelas subg. n. of *Nurus* for *niger* and *curtus*, TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxv, p. 517.

Pereus and *Abacopereus* ; synonymy, variation and characters of Corsican, VODOZ, Bull. Soc. ent. France 1902, pp. 145–148.

Pioprosopus æmulus, *discrepans*, Madagascar, TSCHITSCHÉRINE, Rev. Russe Ent. ii, p. 40, n. spp.

Platyderus languidus, var. n. *descendens*, BEDEL, Cat. rais. Col. Nord Afrique, p. 211.

P. filicornis, p. 210, *insignitus*, p. 211, N. Africa, BEDEL, t. c., n. spp.

Platysma: subg. n., cf. *Abacops*; *P.*; species and subspecies of the Western Alps, characters and localities, SAINTE-CLAIRE DEVILLE, Ann. Soc. ent. France 1902, pp. 588–619; *P.* (*Haptoderus*) *amoenum* =(*escaleræ* Tsch.), *lagaroides* Reitt. =(*quadraticolle* Chaud.), *P.* (*Pterostichus*) *mirum* =(*regulare* Motsch.), *flavofemoratum* =(*gestroi* Tsch.), *pinguis* and *flavofemoratus*, distinguished, *P. crurale* n. n. for *femoratum* Motsch. nec Dej., *P. vernale*=(*degorsi* Croiss.), TSCHITSCHÉRINE, Rev. Russe Ent. ii, pp. 103–105; *P.* (*Argutor*) *gyrosum* Motsch. redescribed, TSCHITSCHÉRINE, t. c. p. 166.

P. (*Pterostichus*) *ixion*, p. 494, *rhanis*, p. 497, *P.* (*Eosteropus* subg. n.) *creperum*, p. 499, Japan, TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxv, n. spp.

Pogonus lævibasis, Turkestan, REITTER, Wien. ent. Zeit. xxi, p. 137; *Pogonus lævibasis* referred to *Bembidium*, REITTER, t. c. p. 222 : n. spp.

Polyhirma bennettii, Cape Colony, MARSHALL, Tr. ent. Soc. London 1902, p. 547, n. sp.

Pterostichus aratrix var. n. *perlidaghensis*, REITTER, Wien. ent. Zeit. xxi, p. 186; *P. ignitus*, cf. *Xenion*.

Pterostichus inermis, S. California, FALL, p. 211, Pap. Calif. Ac. viii, n. sp.

Schizogenius seticollis, p. 209, *validus*, *litigiosus*, p. 210, S. California, FALL, t. c., n. spp.

Storthodontus (*Dinoscanis* subg. n.) *gallienii*, p. 123, *detriei*, p. 124, *S. sakalava*, p. 125, Madagascar, ALLUAUD, Bull. Soc. ent. France 1902; *S. camuseti*, p. 125, *ambreanus*, p. 126, *bresseti*, p. 127, Madagascar, BOILEAU, Bull. Soc. ent. France 1902 : n. spp.

Tanythrix ticinensis, Switzerland, STIERLIN, Mt. Schweiz. ent. Ges. x, p. 425, n. sp.

Trechus subnotatus, the races, *tenuilimbatus* subsp. n., HOLDHAUS, Verh. Ges. Wien 195–199; *T. fontinalis*, pl. ii, fig. 1, RYBINSKI, Bull. Ac. Cracovie 1902; *T. leonhardi*, pl. i, fig. 2, REITTER, Wien. ent. Zeit. xxi.

T. (*Anophthalmus*) *fagniezi*, Marseilles, CHOBAUT, Bull. Soc. ent. France 1902, p. 88; *T. validipes*, p. 62, *priapus*, p. 64, *majusculus*, p. 65, Bosnia, K. DANIEL, Munchen. Kol. Zeitschr. i; *T. carpaticus*, Czerna Hora, RYBINSKI, Bull. Ac. Cracovie 1902, p. 11, pl. ii, fig. 2; *T. osmanilis*, Asia Minor, DANIEL & DANIEL, Munchen. Kol. Zeitschr. i, p. 103; *T.* (*Anophthalmus*) *cailloli*, Alpes maritimes, SAINTE-CLAIRE-DEVILLE, Ann. Soc. ent. France lxxi, p. 704; *T. pomonæ*, S. California, FALL, p. 211, Pap. Calif. Ac. viii : n. spp.

Trichosternus; restricted to certain Australian forms, *T. vigorsi*, etc., synonymy, p. 522, table and characters, pp. 523–534: cf. also *Neo pterostichus*, and *Omocycla*, TSCHITSCHÉRINE, Horæ Soc. ent. Ross. xxxv.

Xenion n. g. for *Pterostichus ignitus* Kr., TSCHITSCHÉRINE, Rev. Russe Ent. ii, p. 1.

HALIPLIDÆ, DYTISCIDÆ.

Haliplidæ: vacant.

Agabus (*Platambus*) *maculatus* var. n. *aterrima*, SAHLBERG, Medd. Soc. Faun. Fenn. xxvi, p. 71.

Apator kessleri, habits, SEMENOW, Rev. Russe Ent. ii, p. 135.

Cœlambus pedalis, *femoratus*, S. California, FALL, p. 212, Pap. Calif. Ac. viii, n. spp.

Copelatus subdeficiens, Cameroons, RÉGIMBART, Ent. Tidskr. xxiii, p. 295 ; *C. horni*, Ceylon, RÉGIMBART, Ann. Soc. ent. France 1902, p. 469 : n. spp.

Cybister tripunctatus subsp. n. *aldabricus*, KOLBE, Abh. Senckenb. Ges. xxvi, p. 572.

Laccophilus horni, Ceylon, RÉGIMBART, Ann. Soc. ent. France 1902, p. 468, n. sp.

GYRINIDÆ.

The genera of *Gyrinidæ*, with lists of species, RÉGIMBART, in Wytsman genera insectorum i.

Larva from Pondicherry, and nymph of *Orect. villosus*, LESNE, pp. 85–88, Bull. Soc. ent. France 1902.

Orectogyrus sjostedti, masculinus, Cameroons, RÉGIMBART, Ent. Tidskr. xxiii, p. 297, n. spp.

HYDROPHILIDÆ.

[Cf. FALL (424), RÉGIMBART (1111, 1112).]

Berosus salinus, S. California, FALL, p. 215, Pap. Calif. Ac. viii, n. sp.

Chætarthria minor, S. California, FALL, p. 216, t. c., n. sp.

Creniphilus elegans, S. California, FALL, p. 218, t. c., n. sp.

Cryptopleurum ferrugineum Motsch., characters, RÉGIMBART, Ann. Soc. ent. France 1902, p. 475.

Cyclonotum horni, Ceylon, RÉGIMBART, t. c. p. 474, n. sp.

Helochares lentus and *densus*, queried, RÉGIMBART, t. c. p. 473.

Hydræna ; notes on species of France, PIC, pp. 76–78, Echange xvii.

Hydrophilus piceus, habits, POUJADE, Bull. Soc. ent. France 1902, pp. 206, 219, 238; *H. pollens* Sh. referred to *Dibolocelus*, RÉGIMBART, Ann. Soc. ent. France 1901, p. 665.

H. horni, elongatus, Ceylon, RÉGIMBART, op. cit. 1902, p. 471, n. spp.

Ochthebius costipennis, p. 214, *wickhami*, p. 213, S. California, FALL, Pap. Calif. Ac. viii, n. spp.

Philhydrus conjunctus, S. California, FALL, p. 217, t. c., n. sp.

Sternolophus brachyacanthus, Ceylon, RÉGIMBART, Ann. Soc. ent. France 1902, p. 472, n. sp.

Tropisternus salsamentus, S. California, FALL, p. 214, Pap. Calif. Ac. viii, n. sp.

STAPHYLINIDÆ.

[Cf. BERNHAUER (97–99), BLACKBURN (111), BRUES (169, 170), EICHELBAUM (389), FALL (424), FAUCONNET & VITURAT (425), FAUVEL (426, 427), GANGLBAUER (736), LEINBERG (791), LUZE (839–845), PETRI (1013), PEYERIMHOFF (1017), REITTER (1132), RYBINSKI (1183), SCHUBERT (1221, 1222), WASMANN (1451, 1452, 1454, 1458, 1459, 1460).]

Catalogue of *Staphylinidæ* of N. Africa, Azores, Madeira and Canaries, FAUVEL, Rev. Ent. franc. xxi, pp. 45–187.

Varieties, structural etc., EICHELBAUM, Allg. Zeitschr. Ent. vii, pp. 150–153.

For synonymical and taxonomical remarks on BERNHAUER'S (99) *Staphylinidæ* of Ceylon vide FAUVEL, Rev. Ent. franc. xxi, pp. 40–43.

Termitophilous Staphylinidæ in S. America, SILVESTRI, Boll. Mus. Torino 1902, No. 419, pp. 26–28.

Achenium maroccanum, N. Africa, FAUVEL, Rev. Ent. franc. xxi, p. 182, n. sp.
Actobius formosus, S. California, FALL, p. 221, Pap. Calif. Ac. viii, n. sp.
Aleochara algarum =(*helgolandica* Wasm.), BERNHAUER, Verh. Ges. Wien lii, p. 696.
A. (*Polystoma*) *helgolandica*, Germany, WASMANN, Deutsche ent. Zeitschr. 1902, p. 16; *A. opacicollis*, Baikal, BERNHAUER, Verh. Ges. Wien lii, p. 695, n. sp.
Anacyptus (*Microcyptus*) *goeldii*, Brazil, with Termites, WASMANN, Tijdschr. Ent. xlv, p. 98, pl. ix, fig. 3, n. sp.
Ancœus exiguus var. n. *piceus*, FAUVEL, Rev. Ent. franc. xxi, p. 27.
A. circumductus, Sumatra, *incisus*, N. Guinea, FAUVEL, t. c. p. 26, n. spp.
Anepius n. g. *Proteinini*, p. 29, for *A. raucus*, *kœbelei*, n. spp., p. 30, Australia, BLACKBURN, Tr. R. Soc. S. Austral. xxvi.
Anthobium heydeni, Afghanistan, p. 704, *transcaucasicum*, Talysch, p. 705, BERNHAUER, Verh. Ges. Wien lii, n. spp.
Anthophagus; revision, LUZE, Verh. Ges. Wien lii, pp. 505–528.
A. (*Phaganthus*) *fauveli*, Sicily, p. 524, *trimaculatus*, Caucasus, p. 527, id., t c., n. spp.
Arpedium fratellum subsp. n. *skalitzkyi*, BERNHAUER, Verh. Ges. Wien lii, p. 703.
A. mixtum, N. Siberia, *major*, Greece, BERNHAUER, p. 702, t. c., n. spp.
Astacops n. g., p. 61, for *Omalium merkli* Epp., and *A. mehadiensis*, n. sp., Hungary, p. 62, BERNHAUER, Munchen. Kol. Zeitschr. i.
Astenus kraatzi, Ceylon, BERNHAUER, Deutsche ent. Zeitschr. 1902, p. 36, n. sp.
Astilbus alutaceus, Turkestan, BERNHAUER, Munchen. Kol. Zeitschr. i, p. 54, n. sp.
Atheta islandica =(*smolkai* Ryb.), BERNHAUER, Verh. Ges. Wien lii, p. 696.
A. (*Dimetrota*) *munsteri*, Norway, BERNHAUER, Munchen. Kol. Zeitschr. i, p. 55; *A.* (*Oreostiba*) *smolkai*, Carpathians, RYBINSKI, Bull. Ac. Cracovie, p. 11, pl. ii, fig. 3; *A. æthiopica*, N. E. Africa, FAUVEL, Rev. Ent. franc. xxi, p. 183; *A. horni*, Ceylon, BERNHAUER, Deutsche ent. Zeitschr. 1902, p. 21 : n. spp.
Baptolinus punctiventris, S. California, FALL, p. 221, Pap. Calif. Ac. viii, n. sp.
Barronica, cf. *Leucocraspedum*.
Barygnathus n. g. near *Philonthus*, for *B. opacus*, n. sp., Ceylon, BERNHAUER, Deutsche ent. Zeitschr. 1902, p. 31.
Belonuchus nalandensis, Ceylon, BERNHAUER, t. c. p. 30, n. sp.
Bledius bosnicus, Sarajevo, BERNHAUER, Verh. Ges. Wien lii, p. 700; *B. fiorii*, Italy, BERNHAUER, Munchen. Kol. Zeitschr. i, p. 60; *B.* (*Belidus*) *magniceps*, Transcaspian, REITTER, Wien. ent. Zeit. xxi, p. 186; *B. rugosicollis*, Ceylon, BERNHAUER, Deutsche ent. Zeitschr. 1902, p. 43; *B. cowleyi*, *pontilis*, Australia, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, p. 22; *B. deceptivus*, p. 227, *relictus*, p. 228, *rusticus*, p. 229, *clarus*, p. 228, S. California, FALL, Pap. Calif. Ac. viii : n. spp.
Bolitobiini of Italy, ZODDA, Riv. ital. Sci. Nat. xxii, pp. 86 etc.
Bolitobius variegatus, Asia Minor, BERNHAUER, Verh. Ges. Wien lii, p. 698; *B. copulatus*, East Siberia, LUZE, Verh. Ges. Wien lii, p. 110 : n. spp.
Cafius horni, p. 28, *ceylonicus*, p. 29, Ceylon, BERNHAUER, Deutsche ent. Zeitschr. 1902, n. spp.
Cephaloplectini and *Pygostenini*, convergence, WASMANN, Verh. Deutsch. zool. Ges. pp. 91–93.
Cilea amabilis Lea, referred to *Tachyporus*, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, p. 19.
Conosoma; revision of palæarctic, LUZE, Verh. Ges. Wien lii, pp. 19–39.

C. obtusum, Caucasus, LUZE, t. c. p. 168; *C. clavicorne*, Daghestan, p. 28, *suturale*, Transcaspian, p. 29, *apfelbecki*, Bosnia, p. 33, LUZE, t. c.; *C. termitophilum*, *convexiusculum*, Brazil, *heathi*, California, WASMANN, Tijdschr. Ent. xlv, p. 99 : n. spp.

Conurus antennarius, Ceylon, BERNHAUER, Deutsche ent. Zeitschr. 1902, p. 25; *C. subpubescens*, Mexico, SCHUBERT, Deutsche ent. Zeitschr. 1902, p. 410 : n. spp.

Cryptobium semirufum, Ceylon, BERNHAUER, Deutsche ent. Zeitschr. 1902, p. 32, n. sp.

Dictyon pumilio, characters, position, LUZE, Verh. Ges. Wien lii, p. 18.

Diplopsis n. g. near *Thoracophorus*, p. 33, for *D. multicostata*, *alternans*, p. 34, *læviuscula*, p. 35, Bahia, n. spp., FAUVEL, Rev. Ent. franc. xxi.

Ecitopora laticollis, Texas, BRUES, Amer. Natural. xxxvi, p. 368, n. sp.

Ecitoxenia brevipes, Texas, BRUES, Ent. News Philad. xiii, p. 185, pl. ix, figg. 1, 2, n. sp.

Espeson crassulus, Antilles, p. 35, *microphthalmus*, *nitens*, S. America, p. 36, *novæ-guineæ*, New Guinea, *mexicanus*, Mexico, *euplectoides*, Guadeloupe, p. 37, FAUVEL, Rev. Ent. franc. xxi, n. spp.

Eudectus kulczynskii, Tatra Mts., RYBINSKI, Bull. Ac. Cracovie 1902, p. 11, pl. ii, fig. 4, n. sp.

Euphonus n. g. near *Scimbalium*, p. 181, for *E. pallidus*, n. sp., p. 182, Algeria, FAUVEL, Rev. Ent. franc. xxi.

Eupiestus miriceps, p. 27, *callosus*, *longicornis*, p. 28, Sumatra, *angulatus*, Sikkim, *ocularis*, Java, p. 29, *rhinoceros*, Sumatra, *sikkimi*, Darjeeling, p. 30, FAUVEL, t. c., n. spp.

Eupsenius n. g. *Cephaloplectini*, p. 5, for *E. clavicornis*, n. sp., S. America, p. 6, WASMANN, Boll. Mus. Torino 1902, No. 427.

Falagria cirrosa, Algeria, FAUVEL, Rev. Ent. franc. xxi, p. 184, n. sp.

Glenus; habits, WASMANN (1460).

Glyptoma sculptum, *sordidum*, Australia, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, p. 26, n. spp.

Gnypeta elegans, Ceylon, BERNHAUER, Deutsche ent. Zeitschr. 1902, p. 22, n. sp.

Heterothops carbonatus, S. California, FALL, p. 220, Pap. Calif. Ac. viii, n. sp.

Homalium tasmanicum, Tasmania, p. 27, *morrisi*, S. Australia, p. 28, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, n. spp.

Hypocyptus; revision, LUZE, Verh. Ges. Wien lii, pp. 171–186.

H. imitator, Marocco, *tarsalis*, France, p. 180, *angularis*, Marocco, p. 184, LUZE, t. c.; *H. squamipennis*, Algeria, FAUVEL, Rev. Ent. franc. xxi, p. 183 : n. spp.

Ilyobates brevicornis, Germany, WASMANN, Deutsche ent. Zeitschr. 1902, p. 62 [cf. *Stenusa*], n. sp.

Lathrobium semirufulum var. n. *macropterum*, BERNHAUER, Munchen. Kol. Zeitschr. i, p. 58; *L. atripalpe*, note on, SHARP, Ent. Mag. xxxviii, p. 88.

L. taxi, Hungary, BERNHAUER, Munchen. Kol. Zeitschr. i, p. 58; *L. rodti*, Caucasus, BERNHAUER, Verh. Ges. Wien lii, p. 700; *L. oviceps*, Canaries, FAUVEL, Rev. Ent. franc. xxi, p. 181 : n. spp.

Leptochirus quadridens var. n. *uniformis*, p. 9, *antilope* var. n. *nigripennis*, *javanicus* var. n. *nigricollis*, *minutus* var. n. *inermis*, p. 10, *bipunctatus* var. n. *nigrita*, p. 13, *maxillosus* var. n. *collaris*, *anthracinus*, p. 17, FAUVEL, Rev. Ent. franc. xxi.

L. (*Priochirus*) *galeatus*, Sumatra, *combustus*, Sikkim, p. 10, *comes*, p. 11, *socius*, Sumatra, *ceylanensis*, Ceylon, *sulcifer*, Sumbawa, p. 12, *micrognathus*, E. India, p. 13, *taurus*, *heterodon*, *sinuatus*, p. 14, *simplex*, *politiventris*, p. 15, N. Guinea, *L. sharpi*, Mexico, *læviventris*, p. 16, *arcifer*, *truncatus*, p. 17, *L.* (*P.*) *parvicollis*, Colombia, *centralis*,

Guatemala, p. 18, *dohrni*, *piestoides*, Sumatra, p. 19, *aspericollis*, Java, p. 20, *simoni*, Ceylon, *raffrayi*, Penang, p. 21, FAUVEL, t. c., n. spp.

Leptorus californicus, p. 224, *longipennis*, p. 225, S. California, FALL, Pap. Calif. Ac. viii, n. sp.

Lesteva nova, Turkestan, BERNHAUER, Munchen. Kol. Zeitschr. i, p. 60, n. sp.

Leucocraspedum =(*Barronica*), BLACKBURN, Tr. R. Soc. S. Austral. xxvi, p. 17.

L. validum, p. 17, *lugens*, *elegantulum*, p. 18, Australia, BLACKBURN, t. c., n. spp.

Lispinodes heteroderes, Java, p. 30, *rugosus*, Sumatra, *seriatus*, Burma, p. 31, *bisulcatus*, Sumatra, p. 32, FAUVEL, Rev. Ent. franc. xxi, n. spp.

Lispinus sulcipennis, Queensland, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, p. 27, n. sp.

Lomechusa angusta, S. California, FALL, p. 219, Pap. Calif. Ac. viii, n. sp.

Medon robustus, p. 33, *fortepunctatus*, *minutissimus*, p. 35, Ceylon, BERNHAUER, Deutsche ent. Zeitschr. 1902, n. spp.

Megarthrus chobauti, Algeria, FAUVEL, Rev. Ent. franc. xxi, p. 179, n. sp.

Micropeplus sikkimi, p. 8, *vulcanus*, p. 9, India, FAUVEL, t. c., n. spp.

Mycetoporus heeri Luze, queried as=*æqualis* Thoms., p. 697, *M. ignidorsum* =(*nobilis* Luze), *M. punctipennis* =(*ganglbaueri* Luze), p. 698, BERNHAUER, Verh. Ges. Wien lii.

M. imperialis, Hungary, BERNHAUER, Munchen. Kol. Zeitschr. i, p. 56; *M. zeithammeri*, Sarajevo, BERNHAUER, Verh. Ges. Wien lii, p. 697 : n. spp.

Myrmedonia semirufa, p. 18, *opacipennis*, p. 19, *gracilicornis*, p. 20, Ceylon, BERNHAUER, Deutsche ent. Zeitschr. 1902, n. spp.

Œdichirus rufotestaceus, Ceylon, BERNHAUER, t. c. p. 39, n. sp.

Œophronistus n. g. near *Osorius*, p. 20, for *Œ. australicus*, n. sp., Victoria, p. 21, BLACKBURN, Tr. R. Soc. S. Austral. xxvi.

Omalium italicum, N. Italy, BERNHAUER, Verh. Ges. Wien lii, p. 704, n. sp.

Orus fraternus, *montanus*, p. 223, *femoratus*, p. 224, S. California, FALL, Pap. Calif. Ac. viii, n. spp.

Oxysoma oberthuri, habits, ESCHERICH, Biol. Centrbl. xxii, pp. 640–649.

Oxypoda angusticollis, Constantine, FAUVEL, Rev. Ent. franc. xxi, p. 185, n. sp.

Oxytelus wattsensis, p. 23, *flavior*, p. 24, *parumpunctatus*, p. 25, Australia, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, n. spp.

Pœderus ceylonicus, *breviceps*, p. 37, *horni*, p. 38, Ceylon, BERNHAUER, Deutsche ent. Zeitschr. 1902, n. spp.

Perinthus, affinities, WASMANN, Boll. Mus. Torino 1902, No. 427, p. 1.

P. silvestrii, p. 1, *crassicornis*, p. 2, S. America, id., t. c., n. spp.

Philonthus varius var. n. *oligostigma*, LEINBERG, Medd. Soc. Faun. Fenn. xxvi, p. 79; *P. dimidiatus* varr. n. *apicalis*, *unicolor*, LEINBERG, t. c. p. 184; *P. ustulatus* =(*ornatipennis* Reitt.), BERNHAUER, Verh. Ges. Wien lii, p. 699.

P. coracion, Alpes-Maritimes, PEYERIMHOFF, Bull. Soc. ent. France 1902, p. 246; *P. princeps*, p. 56, *anguliceps*, p. 57, Turkestan, BERNHAUER, Munchen. Kol. Zeitschr. i; *P. reinecki*, p. 405, *marginellus*, p. 406, Natal, SCHUBERT, Deutsche ent. Zeitschr. 1902; *P. curtipennis*, p. 26, *asiaticus*, p. 27, *oculatus*, p. 28, Ceylon, BERNHAUER, Deutsche ent. Zeitschr. 1902 : n. spp.

Phlœonomus monilicornis subsp. n. *bosnicus*, BERNHAUER, Verh. Ges. Wien lii, p. 701.

Phylodrepa devillei, Alpes maritimes, BERNHAUER, t. c., n. sp.

Piestus capricornis var. n. *muticus*, FAUVEL, Rev. Ent. franc. xxi, p. 22.

P. heterocephalus, p. 22, *filicornis*, *pygialis*, p. 23, *puncticollis*, *nigrator*, *gounellei*, p. 24, *wasmanni*, p. 25, S. America, FAUVEL, t. c., n. spp.

Pinophilus fauveli, Natal, SCHUBERT, Deutsche ent. Zeitschr. 1902, p. 408; *P. ferrugineus*, *funestus*, Ceylon, BERNHAUER, Deutsche ent. Zeitschr. 1902, p. 40 : n. spp.

Piochardia escherichi, Algeria, FAUVEL, Rev. Ent. franc. xxi, p. 184, n. sp.

Polylobus acceptus and *notus* Oll. referred to *Gyrophæna*, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, p. 16.

Pseudocalea n. g. for *P. detracta*, n. sp., Europe, LUZE, Verh. Ges. Wien lii, p. 304.

Pseudopsis detrita, p. 226, *minuta*, p. 227, S. California, FALL, Pap. Calif. Ac. viii, n. spp.

Quedius umbrinus var. n. *tetrastigma*, LEINBERG, Medd. Soc. Faun. Fenn. xxvi, p. 79.

Q. decoratus, Transsilvania, PETRI, Verh. Ges. Wien lii, p. 153; *Q. lederi*, Baikal, BERNHAUER, Verh. Ges. Wien lii, p. 699 : n. spp.

Scopæus armiger, S. California, FALL, p. 225, Pap. Calif. Ac. viii, n. sp.

Siagonium indicum, Sikkim, FAUVEL, Rev. Ent. franc. xxi, p. 21, n. sp.

Sipalia (*Geostiba*) *solarii*, S. Italy, BERNHAUER, Verh. Ges. Wien lii, p. 696, n. sp.

Stenus cordaticollis, Finland, LEINBERG, Medd. Soc. Faun. Fenn. xxvi, p. 187; *S. lysholmi*, Norway, *rufomaculatus*, Turkestan, BERNHAUER, Munchen. Kol. Zeitschr. i, p. 59; *S. hypsidromus*, Carniola, GANGLBAUER, Verh. Ges. Wien lii, p. 104; *S. ceylonicus*, p. 41, *arachnipes*, p. 42, Ceylon, BERNHAUER, Deutsche ent. Zeitschr. 1902 : n. sp.

Stenusa rubra =(*Ilyobates brevicornis* Wasm.), BERNHAUER, Verh. Ges. Wien lii, p. 696.

Stilicus occiduus, S. California, FALL, p. 225, Pap. Calif. Ac. viii, n. sp.

Tachinomorphus ceylonicus, Ceylon, BERNHAUER, Deutsche ent. Zeitschr. 1902, p. 24, n. sp.

Tachinus sahlbergi =(*furcatus* Luze=*luzei* Bernh.), *T. bicuspidatus* = (*absconditus* Luze), BERNHAUER, Verh. Ges. Wien lii, p. 697; *T. luzei* ♂, BERNHAUER, Munchen. Kol. Zeitschr. i, p. 56; *T. novitius*, characters, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, p. 19.

Tachyporinæ; tabulation of palæarctic genera, LUZE, Verh. Ges. Wien lii, pp. 192–194.

Tachyusa cordicollis, Ceylon, BERNHAUER, Deutsche ent. Zeitschr. 1902, p. 23, n. sp.

Tamotus Schauf. is *Staphylinidæ*, characters, FAUVEL, Rev. Ent. franc. xxi, p. 38.

Termitogaster texana, Texas, BRUES, Ent. News Philad. xiii, p. 186, pl. ix, figg. 3–5, n. sp.

Termitonannus n. g. *Oligotina*, p. 2, for *T. schmalzi*, *silvestrii*, *major*, n. spp., S. America, p. 3, WASMANN, Boll. Mus. Torino 1902, No. 427, n. spp.

Termitophya n. g. near *Xenogaster*, p. 95, for *T. heyeri*, n. sp., with Termites in Rio Grande do Sul, p. 97, pl. ix, f. 1, WASMANN, Tijdschr. Ent. xlv.

Termitopsenius n. g. *Cephaloplectini*, p. 4, for *T. limulus*, n. sp., S. America, p. 5, WASMANN, Boll. Mus. Torino 1902, No. 427.

Thinobius klimai, Austria, BERNHAUER, Verh. Ges. Wien lii, p. 700; *T. ocularis*, N. Africa, FAUVEL, Rev. Ent. franc. xxi, p. 179 : n. spp.

Thoracophorus brevicristatus var. n. *deletus*, p. 32, *T. crenicollis* referred to *Espeson*, p. 35, FAUVEL, Rev. Ent. franc. xxi.

T. heyeri, Brazil, WASMANN, Tijdschr. Ent. xlv, p. 101, n. sp.

Triacrus superbus, habits, larva, WASMANN (1460).

Trogophlœus bodemeyeri, Asia Minor, BERNHAUER, Verh. Ges. Wien lii, p. 701; *T. macropterus*, Biskra, FAUVEL, Rev. Ent. franc. xxi, p. 180; *T. ceylonicus*, p. 44, *planicollis*, p. 45, Ceylon, BERNHAUER, Deutsche ent. Zeitschr. 1902 : n. spp.

Typhlocyptus revised, LUZE, Verh. Ges. Wien lii, pp. 186, 187.

Typhlopasilia kaufmanni, pl. i, f. 3, REITTER, Wien. ent. Zeit. xxi.

Xantholinus phœnicopterus = (*olliffi* Lea), BLACKBURN, Tr. R. Soc. S. Austral. xxvi, p. 20.
Xenogaster inflata, habits etc., WASMANN, Tijdschr. Ent. xlv, p. 97.

PSELAPHIDÆ.

[Cf. GANGLBAUER (516), HOLDHAUS (609), MÜLLER (936), PIC (1027), REITTER (1128).]

Bythinus apfelbecki =(*czernohorskyi* Reitt.), MÜLLER, Munchen. Kol. Zeitschr. i, p. 69.
B. anabates, Tyrol, HOLDHAUS, Verh. Ges. Wien lii, p. 201 ; *B.* (*Tychobythinus*?) *latifrons*, Dalmatia, MÜLLER, Munchen. Kol. Zeitschr. i, p. 70 ; *B. subsolidus*, p. 2, pl. i, f. 5, *leonhardi*, p. 3, f. 6, Herzegowina, REITTER, Wien. ent. Zeit. xxi ; *B. raveli*, Naples, PIC, Echange xvii, p. 17, ?n. sp. : n. spp.
Espeson, referred to *Staphylinidæ*, q.v., FAUVEL, Rev. Ent. franc. xxi, p. 35.
Jubus decipiens, habits, WASMANN, Boll. Mus. Torino 1902, No. 427, p. 6.
Euplectus (*Plectophlœus*) *corniculatus*, Herzegowina, REITTER, Wien. ent. Zeit. xxi, p. 4, pl. i, f. 7, n. sp.
Machœrites czernohorskyi, Herzegowina, REITTER, t. c. p. 1, pl. i, f. 4, n. sp.
Pygoxyon zellichi, Dalmatia, GANGLBAUER, Verh. Ges. Wien lii, p. 49, n. sp.
Reichenbachia breiti, Vienna, p. 199, *kleinschi*, Styria, p. 200, HOLDHAUS, Verh. Ges. Wien lii, n. spp.
Tamotus Schauf. referred to *Staphylinidæ*, FAUVEL, Rev. Ent. franc. xxi, p. 38.

PAUSSIDÆ.

[Cf. FAIRMAIRE (418), GESTRO (526), WASMANN (1450).]

Arthropterus feæ, Guinea, GESTRO, Bull. Soc. ent. Ital. xxxiv, p. 33, n. sp.
Paussus dama =(*frondosicornis* Fairm.), GESTRO, t. c. p. 36.
P. fissifrons, Madagascar, FAIRMAIRE, Bull. Soc. ent. France 1902, p. 224 ; *P. horni*, Ceylon, WASMANN, Zool. Jahrb. Syst. xvii, p. 154, pl. v, f. 6 : n. spp.

SCYDMÆNIDÆ.

Cyrtoscydmus apulicus, Italy, PIC, Echange xvii, p. 23 [second time], n. sp.
Euconnus (*Napochus*) *termitophilus*, Brazil, with Termites, WASMANN, Tijdschr. Ent. xlv, p. 102, pl. ix, f. 4, n. sp.
Neuraphes (*Pararaphes*) *frigidus*, Tyrol, HOLDHAUS, Verh. Ges. Wien lii, p. 202, n. sp.

SILPHIDÆ.

[Cf. BLACKBURN (112), BREIT (163), FALL (424), GANGLBAUER (515), HOLDHAUS (609), HOLMGREN (613), MELANDER (887), REITTER (1135), RYBINSKI (1183), SAINTE-CLAIRE-DEVILLE (1185), WEBER (1464), WICKHAM (1493).]

Agathidium virile, S. California, FALL, p. 219, Pap. Calif. Ac. viii, n. sp.
Aphaobius paganettii, larva, WEBER, Allg. Zeitschr. Ent. vii, p. 17.
Bathyscia (*Aphaobius*) *paganettii*, p. 45, *B. curzolensis*, p. 47, Dalmatia, GANGLBAUER, Verh. Ges. Wien lii, n. spp.
Choleva spinipennis ♂, GANGLBAUER, Verh. Ges. Wien lii, p. 210.
Choleva magnifica, Czerna Hora, RYBINSKI, Bull. Ac. Cracovie 1902, p. 11, pl. ii, fig. 5, n. sp.

Clambus simsoni, *tasmani*, p. 288, *tierensis*, p. 289, Tasmania, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, n. spp.
Colon liebecki, Colorado, WICKHAM, Canad. Ent. xxxiv, p. 181, n. sp.
Leonhardia reitteri, Bosnia, BREIT, Soc. ent. xvii, p. 89 ; fully described, REITTER, Wien. ent. Zeit. xxi, p. 223 : n. sp.
Leonhardia hilfi, pl. i, fig. 8, REITTER, Wien. ent. Zeit. xxi, ? n. sp.
Liodes rugosa and allies, pp. 202–206, *scita*, p. 207, HOLDHAUS, Verh. Ges. Wien lii.
L. brandisi, Bosnia, p. 235, *ganglbaueri*, Tyrol, p. 206, id., t. c., n. spp.
Necrophorus rautenbergi=(*vestigator* var. *degener* Carr.), Bull. Soc. ent. France 1902, p. 12.
Pholeuonopsis sequensi, Bosnia, REITTER, Wien. ent. Zeit. xxi, p. 223, n. sp.
Ptomaphagus texanus, N. America, MELANDER, Psyche ix, p. 329, n. sp.
Silpha atrata, *subrotundata*, BAILEY, Ent. Mag. xxxviii, pp. 238, 239.
Silpha coloradensis, Colorado, WICKHAM, Canad. Ent. xxxiv, p. 180, n. sp.
Troglodromus bucheti, variation, *pœnitens*, *carboneli*, varr. n., SAINTE-CLAIRE-DEVILLE, Ann. Soc. ent. France lxxi, p. 708.

HISTERIDÆ.

[Cf. FALL (424), LEWIS (812), PEYERIMHOFF (1020), WASMANN (1458).]

Acritus volitans, S. California, FALL, p. 238, Pap. Calif. Ac. viii, n. sp.
Apobletes prostratus, p. 223, *feriatus*, p. 224, Dutch Timor, *rubrofemoratus*, Malabar, *fœrsterii*, Sumatra, p. 225, LEWIS, Ann. Nat. Hist. x, n. spp.
Bacanius termitophilus, Spain, WASMANN, Deutsche ent. Zeitschr. 1902, p. 16, n. sp.
Coptostethus n. g. cf. *Coptotrophis*.
Coptotrophis n. g. (*Coptostethus* on p. 273, changed, p. 519) type *Tryponœus proboscideus* F., LEWIS, Ann. Nat. Hist. x.
Eblisia nairii, Malabar, *pagana*, Tongking, p. 229, *infans*, Sumatra, p. 230, LEWIS, t. c., n. spp.
Eretmotus major, p. 265, *sinuaticollis*, p. 266, *cæsariensis*, p. 267, Algeria, LEWIS, t. c., n. spp.
Exosternus n. g. near *Pachycrœrus*, p. 233, for *E. manicatus*, *aratus*, n. spp., Africa, p. 234, LEWIS, t. c.
Hister mundulus, p. 238, *tetricus*, p. 239, Sumatra, LEWIS, t. c. ; *H. simplicipes*, S. California, FALL, p. 235, Pap. Calif. Ac. viii : n. spp.
Megalocrœrus gen. n. near *Pachycrœrus*, for *M. rubricatus*, n. sp., Brazil, LEWIS, Ann. Nat. Hist. x, p. 231.
Notodoma saturum, Tongking, p. 267, *nigrum*, Sumatra, p. 268, LEWIS, t. c., n. spp.
Omalodes foveipennis, Espirito Santo, LEWIS, t. c. p. 237, n. sp.
Oxysternus maximus, larva, PEYERIMHOFF, Ann. Soc. ent. France lxxi, p. 710.
Pachycrœrus prasinus, p. 231, *ellipsodes*, p. 232, Trop. Africa, LEWIS, Ann. Nat. Hist. x, n. spp.
Phelister conquisitus, p. 235, *hospes*, New York, *foveicollis*, Pará, p. 236, LEWIS, t. c., n. spp.
Phoxonotus lectus, Peru, LEWIS, t. c. p. 270, n. sp.
Platysoma scalptum, p. 226, *thugnaum*, Malabar, *vicinale*, Guinea, p. 227, *obliquum*, Madagascar, p. 228, LEWIS, t. c., n. spp.
Reninus turritus, Pará, LEWIS, t. c., p. 271, n. sp.
Saprinus liticolus, p. 236, *consobrinus*, p. 237, S. California, FALL, Pap. Calif. Ac. viii, n. spp.

Stenotrophis n. g. for *Pachycrœrus cavifrons*, LEWIS, Ann. Nat. Hist. x, p. 233.
Teretriosoma prasinum, Goyaz, LEWIS, t. c. p. 275, n. sp.
Teretrius marshalli, p. 276, *quadristriatus*, Mashonaland, *indus*, India, p. 277, *distinctus*, Algoa Bay, p. 278, LEWIS, t. c., n. spp.
Trypeticus grounellei, *silvicola*, note, LEWIS, t. c. p. 275.
Tryponœus cornifrons, *bellator*, Brazil, LEWIS, t. c. p. 272, n. sp.
Xylonœus n. g. for part of *Tryponœus*, type *bifidus* Lew., with *X. immarginatus*, n. sp., Brazil, LEWIS, t. c. p. 274.
Ulkeus intricatus, note, BRUES, Amer. Natural. xxxvi, p. 368.

PHALACRIDÆ.

Eustilbus notabilis, S. California, FALL, p. 230, Pap. Calif. Ac. viii, n. sp.
Litocrus plagiatus, p. 289, *lautus*, *sparsus*, p. 290, *perparvus*, p. 291, *obscuricollis*, p. 292, *baccæformis*, p. 293, Australia, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, n. spp.
Micromerus ; queried, BLACKBURN, t. c. p. 293.
Parasemus adumbratus, p. 296, *pallidus*, p. 297, N. S. Wales, BLACKBURN, t. c., n. spp.
Phalacrinns compressus, *umbratus*, p. 297, *navicularis*, p. 298, Australia, BLACKBURN, t. c., n. spp.

NITIDULIDÆ and MONOTOMIDÆ.

[Cf. BLACKBURN (112), GROUVELLE (562, 563, 565, 566, 567).]

Æthinodes and allies, characters, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, p. 307, n. sp.
Brachypeplus olliffi, p. 302, *wattsensis*, p. 303, *cowleyi*, *kœbelei*, p. 304, *barronensis*, p. 305, *kemblensis*, p. 306, Australia, BLACKBURN, t. c., n. spp.
Camptodes foreli, Venezuela, GROUVELLE, Ann. Soc. ent. France 1902, p. 463, n. sp.
Carpophilus (*Endomerus*) *vitraci*, Guadeloupe, GROUVELLE, t. c. p. 756, n. sp.
Cateretes (*Cercus*) *bipustulatus*, *pedicularius*, varr. n., LEINBERG, Medd. Soc. Faun. Fenn. xxvi, pp. 185–187.
Cryptarcha obscurior, Victoria, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, p. 310, n. sp.
Cryptorœa dalmasi, Venezuela, GROUVELLE, Ann. Soc. ent. France 1902, p. 462, n. sp.
Epuræa harmandi, Japan, GROUVELLE, Bull. Mus. Paris viii, p. 16, n. sp.
Europs zonatus, p. 765, *fallax*, p. 766, Antilles, GROUVELLE, Ann. Soc. ent. France lxxi, n. spp.
Haptoneura ocularis and *tetragonus*, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, p. 306.
Macrostola straminea var. n. *vitraci*, GROUVELLE, Ann. Soc. ent. France lxxi, p. 756.
Macroura concolor Macl. = (*nigra* Reitt. = *baileyi* Black.), BLACKBURN, Tr. R. Soc. S. Austral. xxvi, p. 309.
M. bicalcarata, p. 309, *inermis*, p. 310, Queensland, id., t.c., n. spp.
Mimemodes koebelei, Queensland, BLACKBURN, t. c. p. 311, n. sp.
Neopallodes harmandi, Japan, GROUVELLE, Bull. Mus. Paris viii, p. 17, n. sp.
Notobrachypterus lutescens, *crassiusculus*, p. 299, *pauxillus*, p. 300, Australia, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, n. spp.

Pallodes bouvieri, Japan, GROUVELLE, Bull. Mus. Paris vii, p. 16, n. sp.
Pria ceylonica, Haputala, GROUVELLE, Ann. Soc. ent. France 1902, p. 482, n. sp.
Pseudocamptodes blackburni, Australia, GROUVELLE, Ann. Soc. ent. Belgique xlvi, p. 184, n. sp.
Rhizophagus grandis, larva, WEBER, Allg. Zeitschr. Ent. vii, pp. 108–110, cuts.

TROGOSITIDÆ.

[Cf. BLACKBURN (112), LÉVEILLÉ (567, 807–809), PEYERIMHOFF (1020).]

Ancyrona horni, Ceylon, LÉVEILLÉ, Ann. Soc. ent. France 1902, p. 480; *A. bouchardi*, p. 197, *soror*, Sumatra, *plana*, Ivory Coast, p. 198, LÉVEILLÉ, Bull. Soc. ent. France 1902 : n. spp.
Leperina moniliata ?, characters, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, p. 313.
Nemosomia landesi, larva, PEYERIMHOFF, Ann. Soc. ent. France lxxi, p. 713.
N. pujoli, Brazil, LÉVEILLÉ, Bull. Soc. ent. France 1902, p. 118, n. sp.
Peltonyxa invalida, N. S. Wales, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, p. 312, n. sp.
Tenebroides donckieri, p. 118, *jatahyensis*, p. 119, Brazil, LÉVEILLÉ, Bull. Soc. ent. France 1902; *T. bugnioni*, Colombia, LÉVEILLÉ, Ann. Soc. ent. France 1902, p. 462 : n. spp.
Trogosita virescens, habits, HOPKINS, Bull. U. S. Dep. Agric. Ent., No. 32, p. 15.

COLYDIIDÆ.

[Cf. BLACKBURN (112), GROUVELLE (562, 564–567).]

Ablabus blackburni, Australia, GROUVELLE, Ann. Soc. ent. Belgique, xlvi, p. 184, n. sp.
Bupala bovilli, p. 317, *dentata*, p. 318, Australia, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, n. spp.
Catolæmus multimaculatus, Guadeloupe, GROUVELLE, Ann. Soc. ent. France lxxi, p. 759, n. sp.
Cebia foveolata, Ceylon, GROUVELLE, t. c. p. 482, n. sp.
Cerylon hirtum, Congo, GROUVELLE, Ann. Soc. ent. Belgique xlvi, p. 186; *C. bicolor*, Ceylon, GROUVELLE, Ann. Soc. ent. France 1902, p. 483 : n. spp.
Colydodes bostrychoides, Guadeloupe, GROUVELLE, t. c. p. 759, n. sp.
Diplotoma madagascariense, Madagascar, GROUVELLE, Bull. Soc. ent. France 1902, p. 97, n. sp.
Ditoma; review of Australian, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, pp. 313–315.
Eba cerylonoides in Australia, Blackburn, t. c. p. 318.
Endophlœus fairmairei, Madagascar, GROUVELLE, Bull. Soc. ent. France 1902, p. 96, n. sp.
Lemnis lherminieri, Guadeloupe, GROUVELLE, Ann. Soc. ent. France lxxi, p. 760, n. sp.
Meryx areolata and *illota* queried as *rugosa*, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, p. 318.
Neotrichus guadalupensis, Antilles, GROUVELLE, Ann. Soc. ent. France lxxi, p. 758, n. sp.
Penthelispa infima, Martinique, GROUVELLE, t. c. p. 464, n. sp.
Philothermus guadalupensis, Antilles, GROUVELLE, t. c. p. 761, n. sp.
Phormesa thoracica, *grouvellei*, Australia, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, p. 316, n. spp.

Pubala n. g. near *Cicones*, for *P. squamifera*, n. sp., Congo, GROUVELLE, Ann. Soc. ent. Belgique xlvi, p. 185.
Rechodes planidorsis, Madagascar, GROUVELLE, Bull. Soc. ent. France 1902, p. 96, n. sp.
Sparactus (*Illestus*) *productus* Reitt. = (*costatus* Blackb.), BLACKBURN, Tr. R. Soc. S. Austral. xxvi, p. 316.

CUCUJIDÆ.

[Cf. GROUVELLE (562, 565–567), PEYERIMHOFF (1020).]

Note on the larvæ, PEYERIMHOFF, Ann. Soc. ent. France lxxi, pp. 717, 718.

Dryocora howittii Pasc. = (*Adelostella punctatum* Broun), LEWIS, Tr. N. Zealand Inst. xxxiv, p. 203.
Emporius horni, Ceylon, GROUVELLE, Ann. Soc. ent. France 1902, p. 484, n. sp.
Inopeplus præustus, larva, PEYERIMHOFF, Ann. Soc. ent. France lxxi, p. 715.
Læmophlæus multipunctatus, p. 186, *L.* (*Microbrontes*) *blackburni*, p. 187, *L. regularis*, p. 188, *arrowi*, p. 189, Australia, GROUVELLE, Ann. Soc. ent. Belgique xlvi; *L. dufani*, Guadeloupe, GROUVELLE, Ann. Soc. ent. France lxxi, p. 763 : n. spp.
Lathropus costatus, Guadeloupe, GROUVELLE, t. c. p. 764, n. sp.
Parabrontes setiger Broun = (*picturatus* Sharp), LEWIS, Tr. N. Zealand Inst. xxxiv, p. 204.
Platamus dufani, Guadeloupe, GROUVELLE, Ann. Soc. ent. France lxxi, p. 761, n. sp.
Telephanus guadalupensis, Antilles, GROUVELLE, t. c. p. 762, n. sp.

CRYPTOPHAGIDÆ.

[Cf. GROUVELLE (565, 566), POPPIUS (1078), SEMENOW (1244), SHARP (545).]

Cryptophagus plagiatus, Lapland, POPPIUS, Medd. Soc. Faun. Fenn. xxvi, p. 189, n. sp.
Diphyllus minutus, Ceylon, GROUVELLE, Ann. Soc. ent. France 1902, p. 485, n. sp.
Euderopus chætophorus, Panama, SHARP, Biol. Centr.-Amer. Col. ii, pt. 1, p. 625, pl. xvii, f. 25, n. sp.
Anobocœlus n. g. *Biphyllinæ*, for *A. optatus*, p. 625, *championi*, p. 626, pl. xviii, f. 26, n. spp., Centr.-America, SHARP, t. c.
Gonicoelus affinis, Colombia, GROUVELLE, Ann. Soc. ent. France 1902, p. 465, n. sp.
Hapalips guadalupensis, Antilles, GROUVELLE, Ann. Soc. ent. France lxxi, p. 768, n. sp.
Leucohimatium jakolewi, Eupatoria, SEMENOW, Horæ Soc. ent. Ross. xxxv, characters, REITTER, Wien. ent. Zeit. xxi, p. 222 : n. sp.
Loberina n. g., *Telmatophilini*, for *L. taprobanæ*, n. sp., Ceylon, GROUVELLE, Ann. Soc. ent. France 1902, p. 485.
Loberus vitraci, Guadeloupe, GROUVELLE, t. c. p. 767, n. sp.

LATHRIDIIDÆ.

[Cf. BELON (86), REITTER (1128), SHARP (545), WASMANN (1450).]

The genera, with lists of species, BELON in Wytsman genera insectorum, 40 pp., 1 pl.
Discolominæ and *Lathridiidæ*, relations, SHARP, Biol. Centr.-Amer. Col. ii, pt. i, p. 630.

Adistemia watsoni, pl. xix, fig. 5, SHARP, t. c.
Belonia unicostata, pl. xix, fig. 6, SHARP, t. c.
Cartodere bicostata, *watsoni*, *falliana*, note, REITTER, Wien. ent. Zeit. xxi, p. 136.
C. falliana, Mexico, SHARP, Biol. Centr.-Amer. Col. ii, pt. i, p. 633, pl. xix, fig. 4, n. sp.
Coluocera fleischeri, Metkovic, REITTER, Wien. ent. Zeit. i, 5, n. sp.
Coninomus muticus, Panama, SHARP, Biol. Centr.-Amer. Col. ii, pt. i, p. 631, n. sp.
Corticaria humilis, Guatemala, SHARP, t. c. p. 634, pl. xix, fig. 7, n. sp.
Enicmus guatemalenus, Centr. America, SHARP, t. c. p. 632, n. sp.
Evolocera n. g. for *E. championi*, n. sp., Guatemala, pl. xix, fig. 2, SHARP, t. c.
Fallia n. g. *Discolominæ*, p. 629, for *F. synthetica*, pl. xix, fig. 3, *minor*, p. 630, *punctulata*, p. 631, n. spp., Central America, SHARP, t. c.
Holoparamecus (*Calyptobium*) *horni*, Ceylon, WASMANN, Zool. Jahrb. Syst. xvii, p. 156; *H. pumilus*, *brosciformis*, pl. xix, fig. 1, p. 627, *constrictus*, p. 628, Centr. America, SHARP, Biol. Centr.-Amer. Col. ii, pt. 1, n. spp.
Latridius bergrothi, in old hat at Wimereux, GIARD, Bull. Soc. ent. France 1902, p. 258; distribution, HUBENTHAL, Deutsche ent. Zeitschr. 1902, p. 275.
Melanophthalma (*Corticarina*) *centralis*, pl. xix, fig. 8, p. 636, *duplicata*, *M. subfusca*, p. 636, *M.* (*Cortilena*) *remota*, *inornata*, *placida*, p. 637, Centr. America, SHARP, Biol. Centr.-Amer. Col. ii, pt. 1, n. spp.

MYCETOPHAGIDÆ (= TRITOMIDÆ).

[Cf. GROUVELLE (565–567), SHARP (545).]

Berginus maindroni, Ceylon, GROUVELLE, Ann. Soc. ent. France 1902, p. 486; *B. punctatolineatus*, Martinique, GROUVELLE, t. c. p. 465; *B. vitraci*, Guadeloupe, GROUVELLE, t. c. p. 769 : n. spp.
Catopius n. g., p. 641, for *C. irregularis*, n. sp., Centr. America, pl. xix, fig. 12, p. 642, SHARP, Biol. Centr.-Amer. Col. ii, pt. i.
Litargus taprobanæ, Ceylon, GROUVELLE, Ann. Soc. ent. France 1902, p. 486; *L. mærens*, Centr. America, SHARP, Biol. Centr.-Amer. Col. ii, pt. i, p. 639, n. sp.
Tilargus debilis, p. 640, *granulatus*, *complicatus*, pl. xix, fig. 11, p. 641, Centr. America, SHARP, t. c., n. spp.
Triphyllus perfectus, Centr. America, SHARP, t. c. p. 638, pl. xix, fig. 9, n. sp.

DERMESTIDÆ and THORICTIDÆ.

[Cf. SHARP (545), STIERLIN (1334).]

Apsectus hystrix, p. 668, *centralis*, *obscurus*, *minutus*, p. 669, Centr. America, SHARP, Biol. Centr.-Amer. Col. ii, pt. i, n. spp.
Caccoleptus n. g. p. 649, near *Trogoderma*, for *C. rotundus*, pl. xix, fig. 16, *anistomoides*, p. 650, n. spp., Centr. America, SHARP, t. c.
Cryptorhopalum septemsignatum, pl. xix, fig. 19, *bisignatum*, *posticatum*, p. 653, *instabile*, *dubium*, p. 654, *flammulatum*, *germanum*, pl. xix, fig. 20, p. 655, *argutum*, *bicolor*, p. 656, *divisum*, *subfasciatum*, fig. 21, p. 657, *guatemalenum*, *teapense*, *appendiculatum*, p. 658, *celatum*, *cribriceps*, *laterale*, p. 659, *incanum*, *robustum*, p. 660, *gravidum*, *ventanense*, *funestum*, p. 661, *misellum*, *subtile*, *sordidum*, p. 662, *brevicolle*, *chontalense*, *ochraceum*, p. 663, *globuloide*, *cyphonoide*,

mordelloide, p. 664, *ducale*, *equisoleæ*, pl. xix, fig. 23, p. 665, *discedens*, *amulæ*, *vestitum*, p. 666, *fraternum*, *vicinum*, *pedestre*, fig. 25, p. 667, Centr. America, SHARP, t. c., n. spp.

Dermestes luganensis, Lugano, STIERLIN, Mt. Schweiz. ent. Ges. x, p. 425, n. sp.

Eucnocerus n. g. near *Trogoderma*, p. 648, for *E. dispar*, pl. xix, fig. 15, *anthrenoides*, Mexico, p. 649, n. spp., SHARP, Biol. Centr.-Amer. Col. ii, pt. i.

Genattus n. g. near *Attagenus*, for *G. æqualis*, n. sp., Mexico, pl. xix, fig. 13, SHARP, t. c. p. 646.

Hemirhopalum n. g. for *H. clythræforme*, *bicolor*, p. 651, *buprestoide*, pl. xix, fig. 17, *hadrotomoide*, fig. 18, p. 652, n. spp., Centr. America, SHARP, t. c.

Megatoma innotata, Lapland, PIC, Echange xvii, p. 48, n. sp.

Trogoderma trizonatum, variation, PIC, Rev. Sci. Bourbonnais xv, p. 143.

T. filipes, *celatum*, pl. xix, fig. 14, p. 647, *gravidum*, p. 648, Centr. America, SHARP, Biol. Centr.-Amer. Col. ii, pt. i, n. spp.

Thorictus lethierryi var. n. *lameerei*, WASMANN, Ann. Soc. ent. Belgique xlvi, p. 159; *T. foreli*, habits, ESCHERICH, Biol. Centrbl. xxii, pp. 649–654.

BYRRHIDÆ.

[Cf. GANGLBAUER (517, 518, 736), MÜNSTER (937), SHARP (545, 1257).]

Arctobyrrhus n. g. near *Simplocaria*, p. 90, for *A. dovrensis*, n. sp., Norway, p. 91, MÜNSTER, Verh. Ges. Wien lii.

Aspidophorus. See *Sphindidæ*.

Byrrhus; characters of European with synonymy and varr. n., GANGLBAUER, Munchen. Kol. Zeitschr. i, pp. 37–46.

Caccothryptus n. g. *Limnichini*, for *C. compactus*, n. sp., Borneo, SHARP, Ent. Mag. xxxviii, p. 63.

Carpathobyrrhulus n. g. for *Pedilophorus transsilvanicus* Suffr., GANGLBAUER, Verh. Ges. Wien lii, p. 92.

Chelonarium zapotense, pl. xx, fig. 7, p. 686, *hyphydroide*, *errans*, *chiriquense*, p. 687, Centr. America, SHARP, Biol. Centr.-Amer. Col. ii, pt. i, n. spp.

Curimopsis subg. n. of *Syncalypta*, p. 50, with *S.* (*C.*) *oblonga*, n. sp., Portugal, GANGLBAUER, Munchen. Kol. Zeitschr. i.

Curimus; revision of European, GANGLBAUER, Munchen. Kol. Zeitschr. i, pp. 46–50.

Cyphonichus n. g. *Limnichinæ*, for *C. panamensis*, p. 680, *mollis*, *vestitus*, pl. xx, fig. 3, *misellus*, p. 681, Centr. America, n. spp., p. 679, *olibroides*, *celatus*, SHARP, Biol. Centr.-Amer. Col. ii, pt. i; *C. orientalis*, Borneo, SHARP, Ent. Mag. xxxviii, p. 63, n. sp.

Ersachus referred to *Parnidæ*, q. v., SHARP, Biol. Centr.-Amer. Col. ii, pt. i, p. 683.

Eulimnichus ephistemus, p. 673, *sublævis*, *læticulus*, p. 674, *optatus*, *plebeius*, p. 675, *sordidus*, *guatemalicus*, *confertus*, p. 676, *admirandus*, pl. xx, fig. 1, p. 677, Centr. America, SHARP, t. c., n. spp.

Euthryptus n. g. *Limnichinæ*, for *E. orbiculatus*, pl. xx, fig. 4, *trigonalis*, fig. 5, Guatemala, n. spp., SHARP, t. c. p. 682.

Lamprobyrrhulus subg. n. cf. *Pedilophorus*.

Lasiomorychus subg. of *Morychus* for *apfelbecki* Reitt., GANGLBAUER, Verh. Ges. Wien lii, p. 93.

Limnichoderus curtulus, *indiscretus*, Centr. America, SHARP, Biol. Centr.-Amer. Col. ii, pt. i, n. spp.

Mandersia n. g. near *Physemus*, for *M. scymnoides*, n. sp., Shan States, SHARP, Ent. Mag. xxxviii, p. 62.

Morychus ; consists of three subgenn., *Morychus*, *Arctobyrrhus* and *Lasiomorychus* subg. n., GANGLBAUER, Verh. Ges. Wien lii, p. 93.
Nosodendron mexicanum, p. 670, *subtile*, *championi*, pl. xix, fig. 26, p. 671, *chiriquense*, *derasum*, *politum*. p. 672, *latifrons*, p. 673, Centr. America, SHARP, Biol. Centr.-Amer. Col. ii, pt. i, n. spp.
Pedilophorus, divided into 3 subgenn., the following 2 new, *Lamprobyrrhulus* for *nitidus* and *metallicus*, *Trichobyrrhulus* for *rufipes*, *variolosus* etc., GANGLBAUER, Verh. Ges. Wien lii.
Phalacrichus n. g. *Limnichinæ*, p. 678, for *P. atomarius*, n. sp., Mexico, pl. xx, fig. 2, p. 679, SHARP, Biol. Centr.-Amer. Col. ii, pt. i.
Syncalypta ; revision of European, GANGLBAUER, Munchen. Kol. Zeitschr. i, pp. 50–52.
S. cyclolepidia, Norway, MÜNSTER, Verh. Ges. Wien lii, p. 87 ; *S. carniolica*, S. Austria, GANGLBAUER, Verh. Ges. Wien lii, p. 105 : n. spp.
Trichobyrrhulus subg. n. cf. *Pedilophorus*.

PARNIDÆ.

[Cf. FAIRMAIRE (411), FALL (424), GROUVELLE (562, 564, 567), SHARP (545).]

Dryops frater, S. America, GROUVELLE, Ann. Soc. ent. France 1902, p. 466, n. sp.
Elmidola pinguis, *striolata*, p. 343, *lateritia*, p. 344, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, n. spp.
Elmis fuligineus, Madagascar, FAIRMAIRE, t. c. p. 343, n. sp.
Ersachus erichsonianus, pl. xx, fig. 6, p. 683, *lugubris*, *mexicanus*, p. 684, Centr. America, SHARP, Biol. Centr.-Amer. Col. ii, pt. i, n. spp.
Helmis illustris, Congo, GROUVELLE, Ann. Soc. ent. Belgique xlvi, p. 190, n. sp.
Limnius lineicollis, p. 344, *bothrideres*, p. 345, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, n. spp.
Pachyelmis interstitialis, Madagascar, FAIRMAIRE, t. c. p. 344, n. spp.
Phanocerus bugnioni, Colombia, GROUVELLE, Ann. Soc. ent. France 1902, p. 466, n. sp.
Sostea madagascariensis, Madagascar, GROUVELLE, Bull. Soc. ent. France 1902, p. 98, n. sp.
Stenelmis nubifer, S. California, FALL, p. 238, Pap. Calif. Ac. viii, n. sp.

GEORYSSIDÆ.

Georyssus fairmairei, *perrieri*, Madagascar, ALLUAUD, Bull. Soc. ent. France 1902, p. 270 ; *G. horni*, Ceylon, GROUVELLE, Ann. Soc. ent. France 1902, p. 487 : n. spp.

LUCANIDÆ.

[Cf. BOILEAU (117–120), JAKOWLEFF (646), LEWIS (813), MEYER-DARCIS (905), REITTER (1129), RITSEMA (1158), WATERHOUSE (660), WEBER (1465), XAMBEU (1507).]

Metamorphoses of European *Lucanidæ*, XAMBEU, C.R. Ass. franc. 1901, pt. ii, pp. 588–614.

Aegus pygmæus, Borneo, JAKOWLEFF, Rev. Russe Ent. ii, p. 35 ; *A. gestroi*, Borneo, *rosselianus*, Louisiade Arch., p. 287, *beauchenei*, Tonkin, p. 288, *lausbergei* Sumbawa, p. 302, *rotundatus*, Adonara, *ellipticus*,

New Hanover, p. 304, *parvus*, China, p. 320, BOILEAU, Bull. Soc. ent. France 1902 : n. spp.

Cardanus costatus, Sumatra, RITSEMA, Notes Leyden Mus. xxiii, p. 229, n. sp.

Dorcus derelictus, *rudis*, synonymy, pp. 58, 59, *D. ratiocinativus* ♂ ♀, pl. i, figg. 2, 3, p. 59, BOILEAU, Mem. Soc. ent. Belgique ix.

Figulus caviceps, Burma, BOILEAU, Naturaliste xxiv, p. 205, n. sp.

Gnaphaloryx cinereus, Sikkim, BOILEAU, Bull. Soc. ent. France 1902, p. 321, n. sp.

Homoderus mellyi, variation, var. n. *polyodontus*, p. 52, BOILEAU, Mem. Soc. ent. Belgique ix, pl. ii, figg. 5–9.

H. bellicosus, Congo, BOILEAU, t. c. p. 36, pl. ii, fig. 4 and Naturaliste xxiv, p. 204 ; *H. johnstoni*, Uganda, WATERHOUSE, in Johnston, Uganda Protectorate i, p. 460 : n. spp.

Lissotes acmenus, New Zealand, LEWIS, Tr. N. Zealand Inst. xxxiv, p. 203, n. sp.

Metopodontus candezei, Malabar, BOILEAU, Mem. Soc. ent. Belgique ix, p. 34, pl. i, fig. 1 and Naturaliste xxiv, p. 203, n. sp.

Neolucanus latus, Burma, BOILEAU, Naturaliste xxiv, p. 204, n. sp.

Nigidius elongatus, Burma, BOILEAU, t. c. p. 204, n. sp.

Odontolabis lacordairei ♂, ♀, pl. i, figg. 6, 8, p. 38, BOILEAU, Mem. Soc. ent. Belgique ix.

O. gestroi, Burma, *spectabilis*, Sumatra, BOILEAU, Naturaliste xxiv, p. 204 ; *O. spectabilis*, Sumatra, BOILEAU, Mem. Soc. ent. Belgique ix, p. 39, pl. i, figg. 7, 9 ; *O. fruhstorferi*, Tonkin, MEYER-DARCIS, Mt. Schweiz. ent. Ges. x, p. 410, pl. i : n. spp.

Prosopocœlus forceps ♀, BOILEAU, Mem. Soc. ent. Belgique ix, p. 56, pl. ii, fig. 3 ; *P. congoanus*, pl. i, fig. 5, p. 33, BOILEAU, t. c.

P. feai, Burma, BOILEAU, Naturaliste xxiv, p. 204, n. sp.

Rhœtus westwoodi ♀, BOILEAU, Mem. Soc. ent. Belgique ix, p. 47, pl. ii, fig. 1.

R. parryi, hab. ?, id., t. c., pl. ii, fig. 2, p. 49, n. sp.

Sclerostomus rotundatus, Brazil, BOILEAU, t. c. p. 43, pl. i, fig. 4, and Naturaliste xxiv, p. 204, n. sp.

Synodendron persicum, Kopet-Dagh, REITTER, Wien. ent. Zeit. xxi, p. 81, n. sp.

PASSALIDÆ.

[Cf. LANDACRE (769), ROSMINI (1168).]

Neleus festæ, Ecuador, ROSMINI, Boll. Mus. Torino xvii, No. 428, p. 8, n. sp.

Passalus cornutus, external structure, LANDACRE (769).

Paxillisomus camerani, Ecuador, ROSMINI, Boll. Mus. Torino xvii, No. 428, p. 4, n. sp.

Petrejus henrici, Ecuador, ROSMINI, t. c. p. 6, n. sp.

Pticopus borellii, Nicaragua, ROSMINI, t. c. p. 10, n. sp.

Spurius conradi, Ecuador, ROSMINI, t. c. p. 2, n. sp.

Tetraracus nobilii, Ecuador, ROSMINI, t. c. p. 5, n. sp.

SCARABÆIDÆ.

[Cf. ALLUAUD (18), ARROW (34, 35), BEDEL (78), BOUCOMONT (141–143), BRENSKE (164, 165), DANIEL (302), DURY (366), FAIRMAIRE (421), FALL (424), GRIFFINI (555), JAKOWLEFF (647–649), LALOY (755), MAINARDI (850), MARCHAND (859), MÜLLER (935), OHAUS (972–974), D'ORBIGNY (979), PÉRINGUEY (1008), REITTER (1130, 1131), SEMENOW (1249, 1252), WASMANN (1450, 1451). See also *Cetoniini*, p. 132.]

Classification of Lamellicorns, division into groups, REITTER, Wien. ent. Zeit. xxi, pp. 173–176.
Variation in secondary ♂ characters, GRIFFINI (555).

Coprini.

The stridulation of *Geotrupes*, VERHOEFF (1407).
Brief notes on habits of *Copridæ* in La Plata, LALOY (755).

Aphodius; the subgen. *Agolius* revised, K. DANIEL, Munchen. Kol. Zeitschr. i, pp. 73–95; *A. latipunctus* Gredl. referred to *Ægialia* and distinguished from *sabuleti*, J. DANIEL, Munchen. Kol. Zeitschr. i, p. 53; *A. fœtens*, *fimetarius*, distinctions, EDWARDS, Ent. Rec. xiv, p. 283, cuts; *A. parallelus*, metamorphoses, XAMBEU, Naturaliste xxiv, p. 145.
A. ungulatus, S. California, FALL, p. 254, Pap. Calif. Ac. viii, n. sp.
Atænius rugiceps, Cincinnati, DURY, J. Cincinnati Soc. xx, p. 154, n. sp.
Athyreus villosus, *vavini*, *hemisphæricus*, p. 184, *viridis*, p. 185, Brazil, BOUCOMONT, Bull. Soc. ent. France 1902; *A. villosus*, p. 581, pl. v, figg. 1, 2, *hemisphæricus*, p. 582, figg. 3, 4, *vavini*, p. 583, fig. 5, *viridis*, p. 584, fig. 6, *goyasensis*, p. 585, fig. 7, Brazil, BOUCOMONT, Ann. Soc. ent. France 1902 : n. spp.
Bolboceras sculpturatus, characters, BOUCOMONT, t. c. p. 587, pl. v, fig. 12.
B. peruanus, *baeri*, Peru, BOUCOMONT, Bull. Soc. ent. France 1902, p. 185; *B. baeri*, p. 585, pl. v, figg. 8, 9, *peruanus*, p. 586, figg. 10, 11, Peru, BOUCOMONT, Ann. Soc. ent. France 1902 : n. spp.
Caccobius schreberi varr. n., MÜLLER, Verh. Ges. Wien lii, p. 454.
C. (*Cacconemus*) *crassus*, p. 2, *C.* (*Caccophilus*) *asper*, p. 5, *auberti*, p. 6, *tuberculifer*, p. 7, *tuberifrons*, p. 8, *signaticollis*, p. 9, *schædlei*, p. 10, *humilis*, p. 11, *dybowskii*, p. 12, *biseriatus*, p. 14, *C.* (*Diaglyptus*, subg. n., p. 15), *metasternalis*, p. 15, Africa, D'ORBIGNY, Ann. Soc. ent. France 1902, n. spp.
Chætopisthes heimi, India, WASMANN, Zool. Jahrb. xvii, p. 149, pl. v, fig. 3, n. sp.
Diaglyptus, subg. n., cf. *Caccobius*.
Geotrupidæ; list of species and genera, BOUCOMONT in Wytsman genera insectorum, 20 pp., 1 pl.
Lethrus (*Antholethrus*) *marquardti*, Turkestan, REITTER, Wien. ent. Zeit. xxi, p. 138, n. sp.
Liatongus politicollis, Madagascar, FAIRMAIRE, Natural. xxiv, p. 286, n. sp.
Onthophagus; D'ORBIGNY revises the African, Ann. Soc. ent. France 1902, p. 1–323. We give below the new species—amounting to something like 200—but for the numerous varieties and synonymy we must refer the student to the work itself; *O. punctatus* var. =(*cupreolus* Reitt.), REITTER, Wien. ent. Zeit. xxi, p. 136.
O. nigrescens, p. 21, *montivagus*, p. 22, *simoni*, p. 23, *cribellum*, p. 25, *chlorophanus*, p. 26, *tridentipes*, p. 28, *anomalipes*, p. 29, *bicallifrons*, p. 30, *bidentifrons*, p. 31, *ahenomicans*, p. 32, *asperipennis*, p. 33, *granum*, p. 35, *brevigena*, p. 36, *depilis*, p. 37, *denudatus*, p. 38, *rufulus*, p. 39, *subnudus*, p. 40, *puberulus*, p. 41, *fuscidorsis*, p. 42, *alluaudi*, p. 43, *umbratus*, p. 45, *tricariniger*, p. 47, *nilicola*, p. 49, *birugatus*, p. 50, *rotundibasis*, p. 52, *lobigena*, p. 53, *reticulatus*, p. 55, *semicirculifer*, p. 56, *subplanus*, *flavimargo*, p. 59, *pictisternum*, p. 61, *semisetosus*, p. 63, *glaucus*, *sulcipennis*, p. 64, *cinctifrons*, p. 65, *imberbis*, p. 66, *intermixtus*, p. 68, *lœratus*, p. 69, *cineraceus*, p. 71, *declivicollis*, p. 72, *atronitidus*, p. 74, *dohertyi*, p. 75, *stigmosus*, p. 77, *polystigma*, p. 79, *variatus*, p. 81, *jugicola*, p. 82, *histrio*, p. 84, *discovirens*, p. 86, *subglaber*, p. 88, *picatus*, p. 89, *apiciosus*, p. 92, *comatus*, p. 93, *tonsus*, p. 94, *pauxillus*, p. 97, *atridorsis*, p. 98, *quadrilunatus*, p. 99, *forami-*

nosus, p. 100, *fossifrons*, p. 101, *sanguineus*, p. 102, *tersipennis*, p. 104, *notatus*, p. 105, *lioides*, p. 106, *diadematus*, p. 108, *senegalensis*, p. 109, *pictipodex*, p. 111, *ursinus*, p. 112, *latissimus* (=*exasperatus* Fairm.), *vestitus*, p. 116, *brevipennis*, p. 117, *macrothorax*, p. 119, *teitanicus*, p. 121, *rufonotatus*, p. 122, *fulvocinctus*, p. 123, *parceguttatus*, p. 125, *subhumeralis*, p. 126, *pilicollis*, p. 127, *verrucosus*, p. 128, *hirsutus*, p. 130, *crinitus*, p. 131, *escalerai*, p. 132, *cribripennis*, p. 134, *decolor*, p. 135, *derasus*, p. 136, *erectinasus*, p. 138, *miricornis*, p. 139, *semiaratus*, p. 141, *proteus*, p. 143, *bifossus*, p. 145, *cornicollis*, p. 146, *atropolitus*, p. 148, *semichalcites*, p. 149, *densipilis*, p. 151, *indutus*, p. 152, *rectilamina*, p. 153, *trapezicornis*, p. 154, *aeneopiceus*, p. 156, *leroyi*, p. 157, *lemagneni*, p. 159, *denticulatus*, p. 160, *læviceps*, p. 162, *cyaneoniger*, p. 163, *tripartitus*, p. 164, *coronatus*, p. 165, *fuscivestis*, p. 166, *nigrivestis*, p. 167, *cyanochlorus*, p. 168, *albipodex*, p. 170, *caffrarius*, p. 171, *guillemei*, p. 173, *breviceps*, p. 174, *natalicus*, p. 177, *flexicornis*, p. 178, *bimarginatus*, p. 179, *laminidorsis*, p. 181, *undaticeps*, p. 182, *ahenicollis*, p. 184, *gibbifrons*, p. 185, *rubricatus*, p. 186, *vultuosus*, p. 187, *viridicatus*, p. 188, *ebenicolor*, p. 190, *fasciculiger*, p. 191, *bicavifrons*, p. 192, *rostratus*, p. 194, *schimperi*, p. 195, *scapularis*, p. 197, *gibbidorsis*, p. 198, *dorsuosus*, p. 200, *latigibber*, p. 201, *lævisutura*, p. 204, *asperrimus*, p. 206, *sutiliceps*, p. 207, *micros*, *confluens*, p. 209, *serienotatus*, p. 210, *semiasper*, p. 212, *inæqualis*, p. 213, *cincticollis*, p. 214, *sellatulus*, p. 215, *ochropygus*, p. 216, *inermifrons*, p. 219, *rubenticollis*, p. 220, *flaviclava*, p. 221, *junodi*, p. 223, *æthiopicus*, p. 224, *omostigma*, p. 226, *fritschi*, p. 227, *temporalis*, p. 228, *lamnifer*, p. 229, *taboranus*, p. 231, *excisiceps*, p. 233, *bifidicornis*, p. 235, *ocellifer*, p. 237, *seminitens* (= *semiopacus* Lansb.), p. 238, *quadricallosus*, p. 239, *gonopygus*, p. 240, *O.* (*Phalops*) *lutatus*, p. 244, *lansbergei* (=*rufosignatus* Lansb.), p. 247, *rufatus*, p. 248, *sublævis*, p. 251, *sinuaticeps*, p. 252, *bonhourei*, p. 255, *O.* (*Proagoderus*) *ramosicornis*, p. 259, *violaceus*, p. 261, *euchlorus*, p. 264, *albicapillus*, p. 266, *sexcornutus*, p. 268, *gibbiramus*, p. 270, *furciramus*, p. 272, *nuba*, p. 275, *cavidorsis*, p. 277, *atrosetosus*, p. 279, *tersidorsis*, p. 281, *somalicus*, p. 284, *lallieri*, p. 286, *lancearius*, p. 288, *nigroviolaceus*, p. 291, *incostatus*, p. 292, *aureiceps*, p. 294, *lucasi*, p. 297, *iricolor*, p. 298, *opulentus*, p. 300, *hemicyanus*, p. 303, *O.* (*Diastellopalpus*) *hauseri*, p. 306, *conradti*, p. 308, *tridepressus*, p. 309, *lævibasis*, p. 311, *basilobatus*, p. 313, *pluton*, p. 315, all from Africa, D'ORBIGNY, Ann. Soc. ent. France 1902, n. spp.

Scarabæus sevoistra, Madagascar, ALLUAUD, Bull. Mus. Paris viii, p. 250, n. sp.

Sphæromorphus hospes, Brazil, with Termites, WASMANN, Tijdschr. Ent. xlv, p. 103, pl. ix, fig. 5, n. sp.

Trox borgognoi, Soudan, MARCHAND, Bull. Soc. ouest France (2) ii, p. 332, pl. xiii, fig. 1, n. sp.

Glaphyrini.

Amphicoma cooperi distinguished from *ursina*, FALL, p. 255, Pap. Calif. Ac. viii.

Melolonthini.

BRENSKE completes his monograph of *Serica*, in Berlin. ent. Zeitschr. 1902, pp. 1–82.

Anisonyx ditus, p. 635, *pauperatus*, *elizabethæ*, *smaragdinus*, p. 636, *hilaris*, p. 637, *gemmeus*, p. 638, *proletarius*, p. 639, S. Africa, PÉRINGUEY, Tr. S. African Soc. xii, n. spp.

Antitrochalus abyssinicus, Abyssinia, BRENSKE, Berlin. ent. Zeitschr. 1902, p. 18, n. sp.

Apogonia (*Ceratogonia*) *marshalli*, Mashonaland, *A.* (*Rhynchogonia*, subgen. n.) *acuminata*, East Africa, ARROW, Ann. Nat. Hist. ix, p. 94, n. spp.
Asthenopholis crassus, East Africa, ARROW, t. c. p. 97, n. sp.
Aulacoserica flava, p. 22, *facilis*, *nyansana*, p. 23, *stuhlmanni*, p. 24, Africa, BRENSKE, Berlin. ent. Zeitschr. 1902, n. spp.
Autoserica badia, *loangoana*, p. 5, *adumana*, p. 7, *lata*, p. 9, *malangeana*, *mombassana*, p. 10, *reichenowi*, *warriana*, p. 11, *fluviatica*, *gabonica*, p. 12, *benuensis*. p. 13, Africa, *A. prabangana*, p. 63, *electabilis*, *eclogaria*, p. 64, *atavana*, p. 65, Siam, etc., *weyersi*, Sumatra, p. 66, BRENSKE, Berlin. ent. Zeitschr. 1902, n. spp.
Blikana n. g. near *Harpina*, p. 880, for *B. comosa*, n. sp., Cape Colony, p. 881, PÉRINGUEY, Tr. S. African Soc. xii.
Bizanus n. g. near *Heterochelus*, for *B. caliginosus*, n. sp., Cape Colony, PÉRINGUEY, t. c. p. 797.
Campylotrochalus glabriclypealis, Togo, BRENSKE, Berlin. ent. Zeitschr. 1902, p. 17, n. spp.
Centrasiobia subg. n. for *Polyphylla shestakowi*, Sem., SEMENOW, Rev. Russe Ent. ii, p. 351.
Cephaloserica phthisica, India, BRENSKE, Berlin. ent. Zeitschr. 1902, p. 69, n. sp.
Chasme jucunda, Cape Colony, PÉRINGUEY, Tr. S. African Soc. xii, p. 631, n. sp.
Clitopa capra, Mashonaland, p. 99, *nitidipennis*, East Africa, p. 100, ARROW, Ann. Nat. Hist. ix, n. spp.
Coega n. g. near *Platychelus*, for *C. illota*, n. sp., Cape Colony, PÉRINGUEY, Tr. S. African Soc. xii, p. 823.
Congella n. g. near *Hoplia*, p. 887, for *C. tessellatula*, p. 888, *mashunensis*, *valida*, *nigrita*, p. 889, n. spp., S. Africa, PÉRINGUEY, t. c.
Coronoserica n. g., p. 1, for *C. beata*, n. sp., Africa, p. 2, BRENSKE, Berlin. ent. Zeitschr. 1902.
Cylichnus neglectus, p. 884, *vanus*, p. 885, S. Africa, PÉRINGUEY, Tr. S. African Soc. xii, n. spp.
Cyphochilus testaceipes, *marginalis*, China, FAIRMAIRE, Bull. Soc. ent. France 1902, n. spp.
Cyrtotrochalus opacus, Old Calabar, BRENSKE, Berlin. ent. Zeitschr. 1902, p. 18, n. sp.
Diaclaspus crinitus, East Africa, ARROW, Ann. Nat. Hist. ix, p. 100, n. sp.
Diaplochelus transvaalensis, S. Africa, PÉRINGUEY, Tr. S. African Soc. xii, p. 796, n. sp.
Dichelus expansus, p. 701, *luctuosus*, p. 702, *lucidus*, p. 704, *zuluanus*, p. 706, S. Africa, PÉRINGUEY, t. c., n. spp.
Dicranocnemus natalensis, p. 789, *pulcher*, *hypocrita*, p. 790, *mendicus*, p. 791, S. Africa, PÉRINGUEY, t. c., n. spp.
Empecamenta nigra, Mashonaland, ARROW, Ann. Nat. Hist. ix, p. 95, n. sp.
Eriesthis variegata, cf. *Adoretus*, *Rutelidæ*.
E. pusilla, p. 664, *dubiosa*, p. 667, *hypocrita*, p. 668, *decora*, p. 669, S. Africa, PÉRINGUEY, Tr. S. African Soc. xii, n. spp.
Eulepida mashona, Mashonaland, ARROW, Ann. Nat. Hist. ix, p. 98, n. sp.
Goniaspidius simplex, Cape Colony, PÉRINGUEY, Tr. S. African Soc. xii, p. 787, n. sp.
Gouna n. g. near *Gymnoloma*, p. 861, for *G. alienata*, n. sp., S. Africa, p. 862, and *Gymn. lineata* Burm., PÉRINGUEY, t. c.
Gymnoloma tibialis, p. 851, *perplexa*, p. 852, *ingloriosa*, p. 854, *pusilla*, p. 856, *spuria*, p. 857, Cape Colony, PÉRINGUEY, t. c., n. spp.
Heterochelus natalensis, p. 723, *mimus*, *concinnus*, p. 726, *consanguineus*, p. 727, *consors*, p. 728, *ictericus*, p. 729, *placatus*, *femoralis*, p. 730, *parilis*, p. 732, *adspersus*, *venustus*, p. 734, *pygidialis*, p. 738, *hospes*,

p. 739, *egens*, *amœnulus*, *inops*, p. 740, *egenus*, p. 741, *promontorii*, *tristis*, p. 743, *persimilis*, p. 744, *simulans*, *spurius*, *elegans*, p. 747, *leoninus*, p. 748, *inornatus*, p. 749, *comosus*, *senilis*, p. 750, *fraternus*, p. 752, *optivus*, p. 757, *escourtianus*, p. 758, *ditus*, *insignis*, p. 760, *exactor*, p. 761, *indigens*, p. 762, *incongruens*, p. 763, *fraudulentus*, p. 764, *controversus*, p. 765, *dissidens*, p. 766, *H.* (*Ischnochelus*) *præstabilis*, *puerilis*, p. 767, *parentalis*, p. 768, *emeritus*, p. 769, S. Africa, PÉRINGUEY, t. c., n. spp.

Holoschiza loangoana, *nigrobrunnea*, *gabonensis*, *abyssinica*, Africa, BRENSKE, Berlin. ent. Zeitschr. 1902, p. 21, n. spp.

Hoplia (*Decamera*) *angulata*, Turkestan, REITTER, Wien. ent. Zeit. xxi, p. 138, n. sp.

Hoplochelus rhizotrogoides and allies, note, ARROW, Ann. Nat. Hist. ix, p. 95.

Hoplocnemis spectabilis, *koikoina*, S. Africa, PÉRINGUEY, Tr. S. African Soc. xii, p. 693, n. spp.

Idutywa n. g. for *Monochelus collaris* Burm., etc., PÉRINGUEY, t. c. p. 824.

Inanda n. g., p. 872, for *I. gracilis*, *trivialis*, n. spp., S. Africa, p. 874, and *Peritrichia sulcicollis* Boh., PÉRINGUEY, t. c.

Kareiga n. g. near *Hoplia*, p. 890, for *K. hypocrita*, n. sp., Cape Colony, p. 891, PÉRINGUEY, t. c.

Khoina n. gen. near *Lepitrix*, p. 661, for *K. plumipes*, n. sp., S. Africa, p. 662, PÉRINGUEY, t. c.

Knysna n. g. for *Gymnoloma sulcicollis*, and *Ischnochelus humeralis*, PÉRINGUEY, t. c. p. 857.

Korisaba n. g. near *Pachycnema*, p. 669, for *K. amabilis*, n. sp., Cape Colony, p. 670, PÉRINGUEY, t. c.

Kubousa n. g., *Scelophysides*, p. 799, for *K. venusta*, *gentilis*, p. 801, *elegans*, p. 802, n. spp., S. Africa, and including *Platychelus axillaris* Burm., PÉRINGUEY, t. c.

Lepidoderma albo-hirtum, habits, larva, FROGGATT, Agric. Gaz. N. S. W. xiii, p. 64.

Lepitrix modesta, *namaqua*, p. 656, *hilaris*, p. 657, *ornatella*, *gentilis*, p. 659, S. Africa, PÉRINGUEY, Tr. S. African Soc. xii, n. spp.

Melololontha vulgaris velepitica, n. var., MÜLLER, Verh. Ges. Wien lii, p. 460.

Microplidius n. g. for part of *Microplus*, p. 876, with *M. stabilis*, *cinotatus*, p. 878, *persimilis*, p. 879, *algoensis*, *vulgus*, p. 880, n. spp., S. Africa, PÉRINGUEY, Tr. S. African Soc. xii.

Microserica simlana, India, BRENSKE, Berlin. ent. Zeitschr. 1902, p. 62, n. sp.

Microtrochalus bipunctatus, Mozambique, BRENSKE, t. c. p. 17, n. sp.

Mitrophorus natalensis, *tranvaalensis*, S. Africa, PÉRINGUEY, Tr. S. African Soc. xii, p. 827, n. spp.

Monochelus gratus, p. 833, *simplicipes*, *jucundus*, p. 839, *princeps*, p. 841, *inops*, *gracilis*, p. 843, *lætus*, p. 844, *litigiosus*, *lætulus*, p. 845, *pulvinatus*, p. 846, *funebris*, p. 847, S. Africa, PÉRINGUEY, t. c., n. spp.

Nanaga n. g. near *Harpina*, p. 882, for *N. elegans*, n. sp., Cape Colony, p. 883, PÉRINGUEY, t. c.

Neoserica silvestris, China, p. 61, *N. pavieana*, Cambodia, p. 65, *moffartsi*, Sumatra, p. 67, BRENSKE, Berlin. ent. Zeitschr. 1902, n. spp.

Omocrates mendax, p. 778, *placidus*, p. 779, *modestus*, p. 781, *pauxillus*, p. 782, *placens*, p. 783, *humilis*, *plausibilis*, p. 784, *misellus*, p. 785, S. Africa, PÉRINGUEY, Tr. S. African Soc. xii, n. spp.

Orthoserica fulvastra, Kita, BRENSKE, Berlin. ent. Zeitschr. 1902, p. 1, n. sp.

Outeniqua n. g. for *Gymnoloma festiva* Pér., PÉRINGUEY, Tr. S. African Soc. xii, p. 859.

Pachycnema singularis, p. 680, *mœrens*, p. 685, *namaqua*, p. 686, *saga*, p. 688, S. Africa, PÉRINGUEY, t. c., n. spp.

Pachycnemida n. g. for *P. signatipennis*, Burm., PÉRINGUEY, t. c. p. 689.
Peritrichia grata, p. 643, *saga*, p. 644, *ditissima*, p. 646, *dita*, *plebeia*, p. 647, *nigrovillosa*, *cognata*, *tulbaghina*, p. 649, *dimidiata*, *pulchella*, p. 650, *spuria*, p. 651, *puberula*, *pygidialis*, p. 652, *hybrida*, p. 653, S. Africa, PÉRINGUEY, t. c., n. spp.
Phyllotrochalus montanus, Togo, BRENSKE, Berlin. ent. Zeitschr. 1902, p. 16, n. sp.
Platychelus pugionatus, p. 806, *basalis*, *gentilis*, p. 807, *karrooensis*, *expansus*, p. 809, *unguiculatus*, *hottentotus*, p. 813, *conformis*, p. 814, *retensus*, p. 815, *jucundus*, *excentrus*, p. 818, S. Africa, PÉRINGUEY, Tr. S. African Soc. xii, n. spp.
Polyphylla, subg. n. cf. *Centrasiobia*.
P. persica, Persia, BRENSKE, Stettin Ent. Zeit. 1902, p. 375, n. sp.
Rabula n. g. near *Hoplia*, for *R. morosa*, p. 886, *marqueza*, p. 887, n. spp., S. Africa, PÉRINGUEY, Tr. S. African Soc. xii.
Rhizotrogus solstitialis simplicissimus, n. var., MÜLLER, Ver. Ges. Wien lii, p. 457.
R. grassii, Italy, MAINARDI, Bull. Soc. ent. Ital. xxxiv, p. 105; *R. vicarius*, Algeria, BEDEL, Bull. Soc. ent. France 1902, p. 212; *R.* (*Chionosoma*) *senex*, p. 204, *cazacorum*, p. 205, *astrachanicus*, p. 207, *candidus*, p. 208, *demetrii*, p. 214, *ferganensis*, p. 215, Centr. Asia, SEMENOW, Rev. Russe Ent. ii : n. spp.
Rhynchogonia, subg. n. cf. *Apogonia*.
Serica capensis, S. Africa, BRENSKE, Berlin. ent. Zeitschr. 1903, p. 26, n. sp.
Spathoschiza n. g. near *Schizonycha*, for *S. debilis*, n. sp., Mashonaland, ARROW, Ann. Nat. Hist. ix, p. 96.
Thabina n. g. near *Monochelus*, p. 847, for *T. simplex*, n. sp., Transvaal, p. 848, PÉRINGUEY, Tr. S. African Soc. xii.
Trematodes potanini, China, p. 345, *grandis*, Mongolia, SEMENOW, Rev. Russe Ent. ii, n. spp.
Trochaloserica festiva, E. Africa, BRENSKE, Berlin. ent. Zeitschr. 1902, p. 20, n. sp.

Rutelini.

The *Anomalides* of America, OHAUS, Ent. Zeit. Stettin 1902, pp. 3–57: for the synonymy and notes on characters reference must be made to the memoir; the following list of new species is unsatisfactory as the author sometimes apparently uses "m." to indicate n. sp., and at other times attaches the abbreviation to species that have been described before.

Adoretus melanoleucus Pér. and *decoratus* Arr. are the same as *Eriesthis variegata* Boh. which is an *Adoretus*, ARROW, Ann. Nat. Hist. ix, p. 92.
Adoretus uniformis, p. 91, *ovatus*, *albolepidus*, p. 92, *plumbicollis*, p. 93, Mashonaland, ARROW, t. c.; *A. incongruens*, *fallaciosus*, p. 569, *illitus*, p. 570, *salisburiensis*, p. 571, *ovampoensis*, *mashunus*, p. 573, *fraudulentus*, *inconditus*, p. 575, *zambesianus*, p. 576, *exasperans*, *fraudator*, *latiusculus*, p. 577, *dissidens*, *sebakuensis*, p. 578, *simplex*, p. 579, *bechuanus*, *disparilis*, p. 580, *inglorius*, *simulans*, p. 581, *curtulus*, p. 582, S. Africa, PÉRINGUEY, Tr. S. African Soc. xii : n. spp.
Anisoplia monticola minor n. var., MÜLLER, Verh. Ges. Wien lii, p. 463.
Anomala ustulatipes=(*rufa* Kolbe), *dorsata* and *basalis* variation, ARROW, Ann. Nat. Hist. ix, p. 90.
A. chalcophora, p. 344, *immarginata*, p. 345, Cameroons, OHAUS, Ofv. Ak. Forh. 1902; *A. bohemani* (Fahr.), p. 592, *damara*, *exoleta*, p. 593, *exitialis*, p. 594, *zambesicola*, *repensa*, p. 595, *colluta*, p. 597, *intrusa*, p. 598, *tolerata*, *probativa*, p. 599, *phthysica*, p. 600, *ovampoa*, *dita*,

p. 601, *delagoa*, *parca*, p. 605, *sebakuana*, p. 606, *opacicollis*, p. 607, S. Africa, PÉRINGUEY, Tr. S. African Soc. xii: *A. pernambucana*, p. 13, S. America, *crinicollis*, p. 14, *tolucana*, p. 15, *vespertilio*, p. 16, Mexico, *strigicollis*, p. 18, *columbica*, p. 21, Columbia, *batesi*, p. 22, *mesocnemis*, p. 23, *panamensis*, p. 26, Centr. America, *antis*, Peru, p. 28, *biolleyi*, Costa Rica, p. 30, *cayapo*, Brazil, p. 32, *ladino*, p. 36, *rosenbergi*, p. 37, Columbia, *mimeloides*, Costa Rica, p. 41, *jordani*, Guiana, p. 42, *arrawaka*, Surinam, p. 44, *fulvocostata*, Venezuela, p. 45, OHAUS, Ent. Zeit. Stettin 1902 : n. spp.

Mimela rufoprasina, Cameroons, OHAUS, Ofv. Ak. Forh. 1902, p. 347; *M. specularis*, p. 49, *fruhstorferi*, *opalina*, p. 50, *abdominalis*, p. 51, *xanthorrhœa*, p. 52, *signaticollis*, p. 53, *coxalis*, p. 54, *crocea*, p. 55, Tonkin, OHAUS, Deutsche ent. Zeitschr. 1902 : n. spp.

Nongoma n. g. for *Anomala calcarata* Arr., PÉRINGUEY, Tr. S. African Soc. xii, p. 609.

Parastasia anthracina, p. 56, *fruhstorferi*, p. 57, Tonkin, OHAUS, Deutsche ent. Zeitschr. 1902, n. spp.

Popillia rubromaculata, Cameroons, OHAUS, Ofv. Ak. Forh. 1902, p. 350: *P. eupyga*, Mashonaland, ARROW, Ann. Nat. Hist. ix, p. 90; *P. lætans*, Rhodesia, PÉRINGUEY, Tr. S. African Soc. xii, p. 614 : n. spp.

Strigoderma; synonymy, especially of Nonfried's species, OHAUS, pp. 49, 50, Stettin Ent. Zeit. 1902.

S. tucumana, p. 51, *hænschi*, p. 53, S. America, *nodulosa*, Chiriqui, p. 52, OHAUS, t. c., n. spp.

Tabora n. g. for *Nanopopillia ludificans*, PÉRINGUEY, Tr. S. African Soc. xii, p. 618.

Dynastini.

Brachysiderus paranensis, Brazil, ARROW, Ann. Nat. Hist. x, p. 146, n. sp.

Cyclocephala marginicollis, *lævicauda*, p. 138, *fusciventris*, *acuta*, p. 139, *prolongata*, *discicollis*, p. 140, *sparsa*, p. 141, Centr. America, ARROW, t. c., n. spp.

Dynastes tityus, life-history, CHITTENDEN, Bull. U. S. Dep. Agric. Ent. No. 38, pp. 28–32, pl. ii.

Lycomedes ramosus, Colombia, p. 143, *velutipes*, Ecuador, *hirtipes*, Colombia, p. 144, ARROW, Ann. Nat. Hist. x, n. spp.

Oryctes grypus, metamorphosis, XAMBEU, Naturaliste xxiv, p. 102.

Pentodon, stridulation, JAKOWLEFF, Rev. Russe Ent. ii, pp. 77, 78.

P. bullatus, p. 92, *semiermis*, p. 94, *subcostatus*, p. 95, *parmatus*, p. 97, Centr. Asia, SEMENOW, Rev. Russe ent. ii; *P. devius*, Samarkand, p. 266, *semenowi*, Persia, p. 268, *conjunctus*, Turkestan, p. 269, *memnon*, Algeria, p. 271, *pachypus*, Mardin, p. 272, *persicus*, N. Persia, p. 273, *tardus*, Turkestan, p. 275, *tumidus*, Transcaspian, p. 276, JAKOWLEFF, Horæ Soc. ent. Ross. xxxv : n. spp.

Spodistes batesi, Panama, p. 145, *hopei*, Colombia, p. 146, ARROW, Ann. Nat. Hist. x, n. spp.

Cetoniini.

[Cf. FAIRMAIRE (420, 423), MOSER (932, 933), OLSOUFIEW (978), PREISS (1089), WATERHOUSE (660), REITTER (1131).]

Aplasta pagenstecheri, Abyssinia, PREISS, Jahrb. nassau. Ver. lv, p. 100, pl. i, f. 2, n. sp.

Bothrorrhina rufo-nasuta, Madagascar, FAIRMAIRE, Naturaliste xxiv, p. 286, n. sp.

Brachymacroma rufithorax, sexes, pl. i, figg. 7–7c, p. 109, PREISS, Jahrb. nassau. Ver. lv.

Chromoptilia biobliqua, *multiguttata*, Madagascar, FAIRMAIRE, Naturaliste xxiv, p. 286; *C. nickerli*, Madagascar, MOSER, Berlin. ent. Zeitschr. 1902, p. 284 : n. spp.
Compsocephalus dmitriewi, figure, PREISS, Jahrb. nassau. Ver. i, p. 95, pl. 1 f. 1.
C. dmitriewi, p. 603, *kachowskii*, p. 606, Abyssinia, OLSOUFIEW, Horæ Soc. ent. Ross. xxxv, n. spp.
Dicranorrhina johnstoni (=*D. micans* Kolbe nec Dr.), WATERHOUSE, in Johnston, Uganda Protectorate i, p. 461, n. sp.
Dilochrosis nigra var. n. *bipustulata*, MOSER, Berlin. ent. Zeitschr. 1902, p. 285.
D. parvula, Tenimber, id., l. c., n. sp.
Eccoptocnemis kolbei, Cameroons, KOLBE, Berlin. ent. Zeitschr. 1902, p. 145, n. sp.
Entelesthes similis, E. Africa, MOSER, Berlin. ent. Zeitschr. 1902, p. 283, n. sp.
Erlangeria n. g. near *Somalibia*, for *E. schoana*, n. sp., E. Africa, pl. i, f. 5, PREISS, Jahrb. nassau. Ver. lv, p. 105.
Gnorimus nobilis, habits, NOEL, Naturaliste xxiv, p. 141.
G. albomaculatus, China, MOSER, Berlin. ent. Zeitschr. 1902, p. 286; *G. flavitarsis*, Yunnan, FAIRMAIRE, Bull. Soc. ent. France 1902, p. 267 : n. spp.
Heterosoma suturale, Madagascar, FAIRMAIRE, Naturaliste xxiv, p. 286, n. sp.
Neophœdimus melaleucus, sexes, PLANET, Naturaliste xxiv, p. 7, cuts.
Potosia augustata var. n. *eibesensis*, REITTER, Wien. ent. Zeit. xxi, p. 139.
Somalibia heydeni, Abyssinia, PREISS, pl. i, f. 6, Jahrb. nassau. Ver. lv, p. 106, n. sp.
Systellorrhina kraatzi, p. 101, pl. i, f. 4, *erlangeri*, p. 103, f. 3, Abyssinia, PREISS, t. c., n. spp.
Tmesorrhina viridicyanea, E. Africa, MOSER, Berlin. ent. Zeitschr. 1902, p. 283, n. sp.
Trichius oberthuri, China, MOSER, t. c. p. 286, n. sp.

BUPRESTIDÆ.

[Cf. BRUYANT (176), DESBROCHERS (318), FAIRMAIRE (411, 414, 415, 420), FALL (424), HELLER (586), JAKOWLEFF (643–645), KERREMANS (676, 677), WATERHOUSE (1461).]

The genera tabulated, lists of species, KERREMANS (677).

Acmæodera falli n. n. for *subcyanea* Fall, KERREMANS, Wytsman gen. ins. Buprestidæ, p. 34.
A. pinguis, Madagascar, FAIRMAIRE, Bull. Soc. ent. France 1902, p. 79; *A. amplicollis*, *apicalis*, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 348, *A. iridea*, Mexico, *laticollis*, N. America, p. 28, *mexicana*, Mexico, *distincta*, Colorado, *morosa*, Chili, p. 29, KERREMANS, Wytsman gen. ins. Buprestidæ : n. spp.
Agrilus nigrivestis is ♂, *mephistopheles* ♀, of one species, MAYET, Miscell. ent. x, p. 119.
A. perrieri, *quadraticollis*, p. 349, *frontalis*, *obsoletus*, p. 350, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902; *A. gibbicollis*, p. 241, *illectus*, p. 242, S. California, FALL, Pap. Calif. Ac. viii : n. spp.
Amorphosoma distans, p. 330, *dentifer*, p. 331, Transvaal, WATERHOUSE, Ann. Nat. Hist. x, n. spp.
Ancylocheira marginicollis, Yunnan, FAIRMAIRE, Bull. Soc. ent. France 1902, p. 268, n. sp.
Anthaxia candens in *Prunus*, SYRUTSCHEK, Allg. Zeitschr. Ent. vii, p. 112.

A. gastonis, Algeria, DESBROCHERS, Frelon xi, p. 61, n. sp.
Capnodis costulata, Chitral, FAIRMAIRE, Bull. Soc. ent. France 1902, p. 39, n. sp.
Chrysochroa fulvipes n. n. for *kerremansi* Weyers, KERREMANS, Wytsman gen. ins. Buprestidæ, p. 48.
Corœbus fasciatus, habits, parasites, PERRAUDIÈRE, Bull. Soc. ent. France 1902, p. 251.
Dicerca corrugata, Yunnan, FAIRMAIRE, Bull. Soc. ent. France 1902, p. 268, n. sp.
Discoderes mucoreus, Madagascar, FAIRMAIRE, t. c. p. 80; *D. granulum*, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 350 : n. spp.
Iridotænia wahnesi, New Guinea, HELLER, Ann. Soc. ent. Belgique xlvi, p. 234, n. sp.
Julodis heva, Benguela, KERREMANS, Bull. Soc. ent. France 1902, p. 38; *J. lacteola*, S. Africa, KERREMANS, Wytsman gen. ins. Buprestidæ, p. 12 : n. spp.
Megaloxantha subg. n. of *Chrysochroa*, for *bicolor* Fabr., etc., KERREMANS, t. c. p. 47.
Neojulodis subg. n. of *Julodis*, pp. 6, 13, for *J. picta*, Thunb. etc., KERREMANS, t. c.
Pachyschelus hovanus, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 351, n. sp.
Paracastalia n. g., pp. 17, 22, for *plagiata*, *duvivieri*, KERREMANS, Wytsman gen. ins. Buprestidæ.
Polybothris alluaudi, Madagascar, FAIRMAIRE, Bull. Soc. ent. France 1902, p. 77; *P.* (*Coccinellopsis*) *transversa*, p. 345, *P. inclyta*, *rugosa*, p. 346, *coindardi*, p. 347, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902 : n. spp.
Polycesta læsicollis, Madagascar, FAIRMAIRE, Bull. Soc. ent. France 1902, p. 79, n. sp.
Polycestella n. g., pp. 17, 25, for *Polycesta curta* Kerr., KERREMANS, Wytsman gen. ins. Buprestidæ.
Polycestoides, n. g., pp. 17, 27, for *P. chrysis*, n. sp., Borneo, p. 27, KERREMANS, Wytsman gen. ins. Buprestidæ.
Pseudianthe semistrigosa, Madagascar, FAIRMAIRE, Bull. Soc. ent. France 1902, p. 80, n. sp.
Psiloptera nivicincta, Madagascar, FAIRMAIRE, t. c. p. 78, n. sp.
Ptosima perrieri, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 347, n. sp.
Sphenoptera; revision of African, JAKOWLEFF, Horæ Soc. ent. Ross. xxxv, pp. 279–355; new revision of the subgen. *Deudora*, JAKOWLEFF, t. c. pp. 561–583.
S. (*Chilostetha*) *carinulata*, Kiachta, JAKOWLEFF, Rev. Russe Ent. ii, p. 289; *S.* (*Deudora*) *aucta*, Turkestan, p. 569, *captiosa*, p. 571, *detrita*, p. 572, Transcaucasus, *dives*, Bukhara, p. 573, *improvisa*, Asia Minor, p. 575, *bactriana*, Bukhara, p. 576, *tenax*, Transcaucasus, p. 577, JAKOWLEFF, Horæ Soc. ent. Ross. xxxv; *S. maura*, p. 317, *S.* (*Hoplistura*) *æmula*, p. 321, *annexa*, p. 322, *attenuata*, p. 323, *blanda*, p. 325, *formosa*, p. 327, *gravida*, p. 329, *illucens*, p. 330, *integrata*, p. 332, *orion*, p. 334, *ornatifrons*, p. 335, *remota*, p. 336, *scaura*, p. 338, *latona*, p. 339, *solida*, p. 340, *spicula*, p. 342, *tumida*, p. 343, *valida*, p. 344, *S.* (*Hoplandrocneme*) *adumbrata*, p. 346, *denticauda*, p. 347, *S.* (*chrysoblemma*) *smaragdina*, p. 352, *aureola*, p. 354, Africa, JAKOWLEFF, t. c. : n. spp.
Sponsor irideus, *oblongus*, Mauritius, KERREMANS, Wytsman gen. ins. Buprestidæ, n. sp.
Stenianthe trachydea, Madagascar, FAIRMAIRE, Bull. Soc. ent. France 1902, p. 81, n. sp.

EUCNEMIDÆ and THROSCIDÆ.

[Cf. FLEUTIAUX (445, 450), REITTER (1134), SCHWARZ (1233).]

Aruanus n. g. for *Eumenes chloropterus* Fleut., FLEUTIAUX, Ann. Soc. ent. France 1901, p. 662.
Chropœcilus n. g. for *Pœcilochrus grossicollis* Bonv., FLEUTIAUX, t. c. p. 652.
Eucneminæ and allies, taxonomy, FLEUTIAUX, t. c. pp. 636–664.
Euryptychus = (*Dyscolocerus* Bonv.), FLEUTIAUX, t. c. p. 661.
Feaia singularis Fleut. referred to *Vitellius*, p. 651, *F. emarginata* and *dubia* to *Heterotaxis*, p. 653, FLEUTIAUX, t. c.
Fornax emmerezi, Mauritius, FLEUTIAUX, Bull. Soc. ent. France 1902, p. 193, n. sp.
Fryanus n. g. for *Compsocnemis dohertyi* Fl., FLEUTIAUX, Ann. Soc. ent. France 1901, p. 663.
Hylochares planifrons, N. Guinea, SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 352, n. sp.
Hypocœlus cariniceps, Croatia, p. 208, *simplicifrons*, S. Russia, p. 209, REITTER, Wien. ent. Zeit. xxi; *H. japonicus*, Japan, FLEUTIAUX, Bull. Mus. Paris viii, p. 24 : n. spp.
Lycaon ater, Australia, *brunneipennis*, Borneo, SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 353, n. spp.
Macraulacus = (*Paradiueretus* = *Bathyaulacus*), FLEUTIAUX, Ann. Soc. ent. France 1901, p. 650.
Macroscython n. g. for *Scython gabonensis* Fl., FLEUTIAUX, t. c. p. 657.
Mesogenus tricarinatus, Sumatra, SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 354, n. sp.
Microrhagus africanus, Cameroons, SCHWARZ, t. c. p. 351; *M. ramosus*, Japan, FLEUTIAUX, Bull. Mus. Paris viii, p. 24 : n. spp.
Pachyfornax n. g. for *Profornax crassus* Fleut., FLEUTIAUX, Ann. Soc. ent. France 1901, p. 657.
Phyllocerus = (*Cephalodendron*), FLEUTIAUX, t. c. p. 659.
Pseudodiæretus n. n. for *Diæretus* Bonv., FLEUTIAUX, t. c. p. 650.
Pseudomenes n. n. for *Eumenes bakewelli* Bonv., FLEUTIAUX, t. c. p. 663.
Pseudoscython n. g. for *Scython parvulus* Fleut., FLEUTIAUX, t. c. p. 656.
Rhagomicrus n. g. for *Microrhagus meticulosus* Bonv., FLEUTIAUX, t. c. p. 658.
Scopulifer hamatus, Sumatra, SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 355, n. sp.
Tharops = (*Compsocnemis* Bonv.), FLEUTIAUX, Ann. Soc. ent. France 1901, p. 659.
Throscus laticollis, pl. iii, fig. 1, RYBINSKI, Bull. Ac. Cracovie 1902.
Thylacosternus nigrolimbatus, Brazil, SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 356, n. sp.

ELATERIDÆ.

[Cf. DU BUYSSON (187, 188), FALL (424), FLEUTIAUX (444, 446–452, 454), PIC (1037, 1045), REITTER (1132), RYBINSKI (1183), SCHWARZ (1227–1232, 1234, 1235).]

Achrestus ruficollis, p. 112, *marginicollis*, p. 113, Brazil, FLEUTIAUX, Bull. Soc. ent. France 1902; *A. trilineatus*, Peru, SCHWARZ, Stettin Ent. Zeit. 1902, p. 227; *A. suturalis*, p. 138, *antennalis*, p. 139, *lamellicornis*, p. 140, Peru, SCHWARZ, Deutsche ent. Zeitschr. 1902 : n. spp.
Adelocera rubida, Mona, SCHWARZ, Stettin Ent. Zeit. 1902, p. 195; *A. picta*, Brazil, FLEUTIAUX, Bull. Soc. ent. France 1902, p. 112; *A. gratiosa*, Brazil, *robusta*, Himalaya, FLEUTIAUX, t. c. p. 213 : n. spp.

Aelius rufus, Pondicherry, SCHWARZ, Stettin Ent. Zeit. 1902, p. 223, n. sp.

Aeolus variegatus, Brazil, SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 145; *A. nigrofasciatus*, p. 233, *angustifrons*, p. 234, *sexplagiatus*, p. 235, *sexmaculatus*, p. 236, *parallelus*, p. 238, *signatus*, p. 239, S. America, SCHWARZ, Stettin Ent. Zeit. 1902 : n. spp.

Agonischius fastuosus and *lepidus*, distinguished, *A. fastuosus* varr. n. *cyanescens*, *semirufus*, SCHWARZ, Stettin Ent. Zeit. 1902, p. 302.

A. fruhstorferi, p. 340, *tonkinensis*, p. 341, Tonkin, *vitticollis*, Borneo, p. 342, SCHWARZ, Deutsche ent. Zeitschr. 1902; *A. subopacus*, *candezei*, p. 576, *brunneipennis*, *ruficollis*, p. 577, *confusus*, p. 578, Tonkin, FLEUTIAUX, Ann. Soc. ent. France 1902; *A. rufolaterus*, Borneo, p. 299, *melanoxanthoides*, p. 300, *collaris*, p. 302, Sumatra, *rufangulus*, p. 303, *læsus*, p. 304, *flavofasciatus*, p. 305, Borneo, SCHWARZ, Stettin Ent. Zeit. 1902; *A. apicatus*, Queensland, SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 363 : n. spp.

Agriotes cylindricollis, China, SCHWARZ, Stettin Ent. Zeit. 1902, p. 299, n. sp.

Agrypnus extractus, Cameroons, p. 162, *bartoni*, India, *robustus*, Java, p. 163, *ereptus*, Australia, p. 164, FLEUTIAUX, Bull. Soc. ent. France 1902; *A. permucronatus*, Borneo, SCHWARZ, Stettin Ent. Zeit. 1902, p. 194; *A. modestus*, Sumbawa, SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 305 : n. spp.

Alaotypus n. g., p. 307, near *Euphemus*, for *A. subpectinatus*, p. 308, *aspersus*, p. 309, n. spp., Tonkin, SCHWARZ, Deutsche ent. Zeitschr. 1902.

Alaus velutinus var. n. *bennigseni*, SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 314.

A. assamensis, Assam, p. 204, *angulicollis*, Sumatra, p. 206, *griseofasciatus*, Borneo, p. 207, SCHWARZ, Stettin Ent. Zeit. 1902; *A. fœrsteri*, Sumatra, p. 310, *rectangularis*, Tenimber Isld., p. 311, *constrictus*, Tokolau Isld., p. 312, *sulcicollis*, Shortland Isld., p. 313, SCHWARZ, Deutsche ent. Zeitschr. 1902; *A. variegatus*, p. 114, *subsericeus*, *immaculatus*, p. 115, *victoriæ*, p. 116, Australia, SCHWARZ, Deutsche ent. Zeitschr. 1902 : n. spp.

Anacantha bicostata, Brazil, SCHWARZ, Stettin Ent. Zeit. 1902, p. 196, n. sp.

Anaissus spinipennis, Peru, SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 150, n. sp.

Anchastomorphus minutus, Mexico, SCHWARZ, Stettin Ent. Zeit. 1902, p. 254, n. sp.

Anchastus flavipes, Tenasserim, SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 332; *A. marginicollis*, Guayana, p. 252, *brunneus*, Brazil, p. 253, SCHWARZ, Stettin Ent. Zeit. 1902 : n. spp.

Anoplischius diplotrichus, Ecuador, p. 224, *basalis*, Peru, p. 225, SCHWARZ, Stettin Ent. Zeit. 1902; *A. melanurus*, *femoralis*, Peru, p. 134, *ater*, Brazil, p. 135, *conicipennis*, Peru, p. 136, SCHWARZ, Deutsche ent. Zeitschr. 1902 : n. spp.

Aphanobius cariei, Mauritius, FLEUTIAUX, Bull. Soc. ent. France 1902, p. 194, n. sp.

Arrhaphes cyaneus, p. 256, *plumbeus*, p. 257, *erythrurus*, p. 258, Sumatra, SCHWARZ, Stettin Ent. Zeit. 1902, n. spp.

Athous satanulus, Semipalatinsk, REITTER, Wien. Ent. Zeit. xxi, p. 187; *A. harmandi*, Japan, FLEUTIAUX, Bull. Mus. Paris viii, p. 21 : n. spp.

Atractosomus oertzeni, Ecuador, SCHWARZ, Stettin Ent. Zeit. 1902, p. 227, n. sp.

Campsosternus fruhstorferi, Tonkin, *pubescens*, Borneo, p. 318, *subopacus*, Sumatra, p. 319, SCHWARZ, Deutsche ent. Zeitschr. 1902, n. spp.

Cardiophorus; cf. *Platynychus*; *C. demaisoni*, a valid species, p. 422, *C. melampus* Ill. =(*deflexus* Schauf.), *C. grœllsi*, synonymy, p. 423, *C. mauritanicus*, characters, p. 424, *C. febriens* var. n. *saalensis*, p. 426, *ulcerosus* and *argiolus*, distinguished, p. 433, *getschmanni*, variation, p. 437, *bipunctatus*, varieties, p. 439, Du Buysson, Ann. Soc. ent. France 1902; *C. neotericus* n. n. for *neodeflexus*, Buysson, Bull. Soc. ent. France 1902, p. 228.

C. peyerimhoffi, with var. *ietenensis*, Arabia, p. 426, *C.* (*Perrinellus*) *disgamus*, Tunis, *C. beduinus*, Algeria, p. 431, *gaullei*, Tunis, p. 434, *castillanus*, Spain, p. 435, *pythiæ*, Greece, p. 436, Du Buysson, Ann. Soc. ent. France 1902; *C. leprieuri*, Algeria, Pic, Bull. Soc. ent. France 1902, p. 305; *C. lewisi*, *subaeneus*, Japan, Fleutiaux, Bull. Mus. Paris viii, p. 20; *C. pictipennis*, Pondicherry, p. 333, *alboguttatus*, New Guinea, p. 334, Schwarz, Deutsche ent. Zeitschr. 1902; *C. borneensis*, Borneo, Schwarz, Stettin Ent. Zeit. 1902, p. 259: n. spp.

Cardiorhinus bimaculatus, Ecuador, Schwarz, t. c. p. 295, n. sp.

Cardiotarsus longipennis, Himalaya, Schwarz, t. c. p. 261, n. sp.

Ceroplastus Heyden; the reference is Cat. Col. Eur. 1891, in *Elateridæ*, Heyden, Deutsche ent. Zeitschr. 1902, p. 152; *Ceroplastus* Heyd. = (*Cladocerus* Schwarz), Reitter, Wien. ent. Zeit. xxi, p. 93.

Corymbites amplicollis, metamorphosis, Xambeu, Naturaliste xxiv, p. 189.

C. tenuicornis, Madagascar, Fleutiaux, Bull. Soc. ent. France 1902; *C. motschulskyi*, *japonicus*, p. 22, *lewisi*, p. 23, Japan, Fleutiaux, Bull. Mus. Paris viii; *C. rufiventris*, Assam, Schwarz, Deutsche ent. Zeitschr. 1902, p. 337; *C. subpectinatus*, Queensland, p. 361, *victoriæ*, Australia, p. 362, Schwarz, t. c., n. spp.

Cosmesus parvicollis, Peru, Schwarz, t. c. p. 150; *C. nigerrimus*, Ecuador, Schwarz, Stettin Ent. Zeit. 1902, p. 297: n. spp.

Crepidomenus illinitus, N. S. Wales, Schwarz, t. c. p. 293, n. sp.

Cryptohypnus nitidus, Japan, Fleutiaux, Bull. Mus. Paris viii, p. 19; *C. parvulus*, Tonkin, Fleutiaux, Ann. Soc. ent. France 1902, p. 575: n. spp.

Cyathodera spinipennis, Peru, Schwarz, Deutsche ent. Zeitschr. 1902, p. 133, n. sp.

Cylindroderus limbatus, Peru, p. 127, *testaceus*, Brazil, p. 128, Schwarz, t. c., n. sp.

Dicteniophorus robustus, p. 307, *lineatus*, p. 308, N. S. Wales, Schwarz, Stettin Ent. Zeit. 1902, n. spp.

Dilobitarsus cf. *Elasmosomus*.

D. bituberculatus, p. 299, *mocquerysi*, *cylindricus*, p. 300, *variegatus*, *linearis*, p. 301, Africa, Fleutiaux, Ann. Soc. ent. Belgique xlvi; *D. impressicollis*, Peru, Schwarz, Deutsche ent. Zeitschr. 1902, p. 129: n. spp.

Dioxypterus bennigseni, p. 314, *basalis*, p. 315, New Pomerania, *undulatus*, N. Guinea ?, p. 316, Schwarz, t. c., n. spp.

Diploconus nigerrimus, Tonkin, Fleutiaux, Ann. Soc. ent. France 1902, p. 575; *D. subangulatus*, Sumatra, p. 270, *punctatus*, Borneo, p. 271, *nigrifrons*, New Mecklenburg, p. 272, *lateralis*, Celebes, p. 273, *nitidus*, New Mecklenburg, p. 274, Schwarz, Stettin Ent. Zeit. 1902: n. spp.

Dodecacius n. g. near *Euthysanius*, p. 153, for *D. nigricollis*, *testaceus*, n. spp., Peru, p. 154, Schwarz, Deutsche ent. Zeitschr. 1902.

Elasmosomus n. g. for African *Dilobotarsus*, p. 212, with *E. fasciculatus*, p. 214, *undulatus*, p. 215, *brunneiventris*, p. 217, *parallelus*, p. 218, *linearis*, *humeralis*, p. 219, Cameroons, n. spp., Schwarz, Stettin Ent. Zeit. 1902.

Elater indicus, Madras, Schwarz, t. c. p. 247; *E. discicollis*, p. 322, *ruficollis*, p. 323, *flavobasalis*, p. 324, Tonkin, Schwarz, Deutsche ent. Zeitschr. 1902: n. spp.

Eschatroxus anticus, N. Guinea, SCHWARZ, Stettin Ent. Zeit. 1902, p. 255, n. sp.

Esthesopus biformis, p. 268, *hieroglyphicus*, p. 269, S. America, SCHWARZ, t. c.; *E. apicalis*, Paraguay, *dentatus*, Brazil, SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 149 : n. spp.

Eudactylus latus, Haiti, FLEUTIAUX, Bull. Soc. ent. France 1902, n. sp.

Gastrimargus n. g. *Physodactylini*, p. 309, for *G. schneideri*, n. sp., E. Africa, p. 310, SCHWARZ, Stettin Ent. Zeit. 1902.

Glyphonyx littoralis, p. 578, *montanus*, p. 579, Tonkin, FLEUTIAUX, Ann. Soc. ent. France 1902; *G. dimidiatus*, SCHWARZ, Stettin Ent. Zeit. 1902, p. 306; *G. striatus*, Tonkin, p. 343, *latiusculus*, Sumatra, p. 344, *stephanus*, p. 345, *rotundifrons*, p. 346, Pondicherry, SCHWARZ, Deutsche ent. Zeitschr. 1902 : n. spp.

Hapatesus dubius, Australia, SCHWARZ, t. c. p. 126, n. sp.

Haplotarsus angustulus = (*Limonius turdus* Kies.), DU BUYSSON, Faune gallo-rhénane Elat. p. 281.

Hemicrepidius (*Asaphes*) *tonkinensis*, p. 338, *subpectinatus*, p. 339, Tonkin, SCHWARZ, Deutsche ent. Zeitschr. 1902, n. spp.

Hemiops substriata, Tonkin, FLEUTIAUX, Ann. Soc. ent. France 1902, p. 580, n. sp.

Heteroderes brachmana = (*ancoralis* Schw.), SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 155.

H. annamensis, Annam, SCHWARZ, t. c.; *H. solitus*, Madras, p. 240, *acuminatus*, Transvaal, p. 241, *acutus*, W. Africa, p. 242, *angularis*, p. 243, *juvenilis*, p. 244, *curvatus*, p. 245, *nigrifrons*, p. 246, Madagascar, SCHWARZ, Stettin Ent. Zeit. 1902 : n. spp.

Horistonotus flavidus, S. California, FALL, p. 240, Pap. Calif. Ac. viii; *H. longicollis*, p. 147, *unicolor*, p. 148, Peru, SCHWARZ, Deutsche ent. Zeitschr. 1902; *H. bimaculatus*, p. 262, *flavofasciatus*, p. 263, *suturalis*, p. 264, *nigricollis*, p. 265, *triligatus*, p. 266, *candezei*, p. 267, S. America, SCHWARZ, Stettin Ent. Zeit. 1902 : n. spp.

Hypnoidius pictipennis n. n. for *variegatus* Schw. nec MacLeay, SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 155.

H. parallelus, Darjeeling, SCHWARZ, t. c. p. 332, n. sp.

Ischiodontus fulvicollis, Ecuador, SCHWARZ, Stettin Ent. Zeit. 1902, p. 225, n. sp.

I. nigrovittatus, Peru, *sulcicollis*, Ecuador, SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 137, n. spp.

Isidus letourneuxi, Egypt, PIC, Échange xvii, p. 64, n. sp.

Lacon horni n. n. for *lineatus* Schw. nec Cand., SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 155.

L. setosus, p. 311, *bifasciatus*, p. 312, Madagascar, SCHWARZ, Stettin Ent. Zeit. 1902; *L. oberndorferi*, Madras, p. 197, *turkestanicus*, Buchara, p. 198, *intermedius*, Borneo, p. 199, *scopus*, N. Guinea, p. 200, SCHWARZ, t. c.; *L. longus*, p. 571, *dilatatus*, p. 572, Tonkin, FLEUTIAUX, Ann. Soc. ent. France 1902; *L. gracilentus*, Solomon Ids., SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 306; *L. bimaculatus*, Australia, SCHWARZ, t. c. p. 113 : n. spp.

Ludius cupreus var. n. *hilfi*, REITTER, Wien. ent. Zeit. xxi, p. 6.

L. ganglbaueri, Carpathians, RYBINSKI, Bull. Ac. Cracovie 1902, p. 11, pl. iii, fig. 2; *L. nigropilosus*, Caucasus, p. 288, *holtzi*, Bulghar Dagh, *maculipennis*, China, p. 289, SCHWARZ, Stettin Ent. Zeit. 1902 : n. spp.

Lycoreus; characters, p. 136; *cyclops* Cand. = (*maculipennis* Schw.) *alluaudi* = (*imperialis* Schw.), *corpulentus* = (*orbiculatus* Schw.), p. 137, FLEUTIAUX, Bull. Soc. ent. France 1902.

Megapenthes suturellus, Madagascar, SCHWARZ, Stettin Ent. Zeit. 1902, p. 248; *M. japonicus*, p. 18, *flavus*, p. 19, Japan, FLEUTIAUX, Bull.

Mus. Paris viii; *M. annamensis*, *crassus*, Tonkin, FLEUTIAUX, Ann. Soc. ent. France 1902, p. 574; *M. ruficollis*, Australia, SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 360 : n. spp.

Melanotus harmandi, Japan, FLEUTIAUX, Bull. Mus. Paris viii, p. 21; *M. minutus*, Sumatra, SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 336; *M. cuneolus*, p. 278, *dohrni*, p. 280, Sumatra, *sumbaensis*, Sumbawa, p. 281, *gracilipes*, p. 282, *assamensis*, p. 283, Assam, SCHWARZ, Stettin ent. Zeit. 1902 : n. spp.

Melanoxanthus quadrilineatus, Borneo, p. 249, *dohrni*, Sumatra, p. 250, *pachyderoides*, E. Africa, p. 251, SCHWARZ, Ent. Zeit. Stettin 1902; *M. sanguinicollis*, Pondicherry, p. 325, *plagiellus*, *carinulatus*, p. 326, *sexpustulatus*, p. 327, *discoidalis*, p. 328, Borneo, *subhumeralis*, Sumatra, *geminatus*, Borneo, p. 329, *cuneolus*, p. 330, *similatus*, *eximius*, p. 331, Sumatra and Borneo, SCHWARZ, Deutsche ent. Zeitschr. 1902 : n. spp.

Monocrepidius jobiti, Tonkin, FLEUTIAUX, Ann. Soc. ent. France 1902, p. 573; *M. elongatulus*, Tonkin, p. 320, *marginipennis*, Key Id., p. 321, SCHWARZ, Deutsche ent. Zeitschr. 1902; *M. restinctus*, Guatemala, p. 229, *submaculatus*, p. 230, *laterarius*, p. 231, Ecuador, *dorsalis*, Sumatra, p. 232, SCHWARZ, Stettin Ent. Zeit. 1902; *M. similis*, Sumatra, FLEUTIAUX, Bull. Soc. ent. France 1902, p. 114; *M. vitticollis*, with var. *prosternalis*, p. 117, *rufopilosus*, p. 118, *brunnipes*, p. 119, *sordidus*, p. 120, *ruficollis*, Australia, *emarginatus*, Aru Id., p. 121, *bicolor*, Australia, p. 122, SCHWARZ, Deutsche ent. Zeitschr. 1902; *M. discicollis*, p. 141, *nigriceps*, p. 142, Brazil, *opacus*, Ecuador, p. 143, *rufipennis*, Peru, p. 144; SCHWARZ, t. c. 1902; *M. corymbitoides*, p. 358, *filicornis*, Australia, *depressus*, New Zealand, p. 359, SCHWARZ, t. c. : n. spp.

Nomopleus elongatus, Transvaal, SCHWARZ, Stettin Ent. Zeit. 1902, p. 292, n. sp.

Pantolamprus ruficollis, *angustus*, Congo, FLEUTIAUX, Bull. Soc. ent. France 1902, p. 137; *P. candezei*, *insignis*, p. 115, *rufangulus*, p. 116, Brazil, FLEUTIAUX, t. c. : n. spp.

Paracardiophorus, composition, SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 125.

P. flavobasalis, China, SCHWARZ, Stettin Ent. Zeit. 1902, p. 260; *P. variegatus*, p. 123, *dimidiatus*, p. 124, *moseri*, p. 125, Australia, SCHWARZ, Deutsche ent. Zeitschr. 1902 : n. spp.

Paracosmesus terminatus, Peru, SCHWARZ, t. c. p. 151, n. sp.

Pectocera sulcata, Tonkin, FLEUTIAUX, Ann. Soc. ent. France 1902, p. 573, n. sp.

Pericus niger, Rangoon, SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 306; *P. oberndorferi*, Madras, p. 202, *variegatus*, Burma, p. 203, SCHWARZ, Stettin Ent. Zeit. 1902 : n. spp.

Physorhinus moseri, Peru, SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 146, n. sp.

Piezophyllus benitensis, Africa, p. 225, *borneensis*, Borneo, p. 226, FLEUTIAUX, Bull. Soc. ent. France 1902, n. spp.

Platynychus subg. n. of *Cardiophorus*, for *P. equiseti* etc., DU BUYSSON, Faune gallo-rhen. Elat. p. 329.

Pomachilius unifasciatus, Peru, SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 146, n. sp.

Pristilophus bifoveolatus, Tonga-Tabu, SCHWARZ, Stettin Ent. Zeit. 1902, p. 291, n. sp.

Protelateridæ subfam. n., SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 365.

Psephus nasalis, p. 220, *mesosternalis*, p. 222, Njam-Njam, SCHWARZ, Stettin Ent. Zeit. 1902, n. spp.

Pseudotetralobus n. g. near *Tetralobus*, p. 210, for *P. dohrni*, n. sp., N. Guinea, p. 211, SCHWARZ, t. c.

Psorochroa ; SCHWARZ refers his species of *Amychus* to this, Deutsche ent. Zeitschr. 1902, p. 155.
Pyrophorus basalis, p. 284, *piceus*, p. 285, *submaculatus*, p. 287, Ecuador, SCHWARZ, Stettin Ent. Zeit. 1902, n. spp.
Scelisus laconoides, Tonkin, SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 343, n. sp.
Semiotus jansoni var. n. *bipunctatus*, SCHWARZ, t. c. p. 130 ; *S. convexicollis* var. n. *signatus*, p. 208, *illigeri* var. n. *bifidus*, p. 209, SCHWARZ, Stettin Ent. Zeit. 1902.
S. bifasciatus, Brazil, p. 129, *melanocephalus*, p. 131, *langei*, p. 132, Peru, SCHWARZ, Deutsche ent. Zeitschr. 1902, n. spp.
Sephilus formosanus, Formosa, SCHWARZ, t. c. p. 320, n. sp.
Silesis difficilis, Tonkin, FLEUTIAUX, Ann. Soc. ent. France 1902, p. 579 ; *S. longipennis*, p. 347, *cylindricus*, *luteipennis*, p. 348, India, SCHWARZ, Deutsche ent. Zeitschr. 1902 : n. spp.
Sphænelater n. g. *Protelateridæ*, for *S. nigricornis*, n. sp., New Zealand, SCHWARZ, t. c. p. 365.
Sphenicosomus elongatus, Borneo, p. 275, *niger*, Java, p. 276, *suturalis*, Ceram, p. 277, SCHWARZ, Stettin Ent. Zeit. 1902, n. spp.
Steatoderus conicipennis, Philippines, SCHWARZ, t. c. p. 296, n. sp.
Stenocrepidius n. n. for *Stenopus* Schw., SCHWARZ, Deutsche ent. Zeitschr. 1902, p. 126.
Tetralobus scutellaris, E. Africa, SCHWARZ, Stettin Ent. Zeit. 1902, p. 209, n. sp.
Thaumastiellus n. g., p. 335, *Melanotides* for *T. bisculatus*, n. sp., Tonkin, p. 336, SCHWARZ, Deutsche ent. Zeitschr. 1902.

DASCILLIDÆ.

Eurypogon confusus, S. California, FALL, p. 239, Pap. Calif. Ac. viii, n. sp.

MALACODERMIDÆ (incl. MELYRIDÆ).

[Cf. BOURGEOIS (144–149, 868), FALL (424), GESTRO (526), LEA (784), LUZE (846), OLIVIER (975–977), PIC (1027, 1028, 1030, 1031, 1032, 1037), REITTER (1133, 1134, 1136, 1137).]
Astylus ; notes on proposed n. spp., PIC, Echange xvii, pp. 34–36.
Attalus rosti, Amur, PIC, t. c. p. 25, n. sp.
Balanophorus megalops, N. S. Wales, LEA, P. Linn. Soc. N. S. Wales xxvi, p. 483, n. sp.
Cantharis cogina n. n. for *curtipennis* Reitt., REITTER, Wien. ent. Zeit. xxi, p. 222 ; *C. abdominalis*, metamorphosis, LUZE, Berlin. ent. Zeitschr. 1902, pp. 239–242.
C. taygetanus, Greece, PIC, Echange xvii, p. 63, n. sp. ; *C. rosinæ*, Armenia, PIC, t. c. p. 24 [second time] ; *C. inlateralis*, Siberia, PIC, t. c. p. 55 ; *C. luteolimbatus*, Amurland, *basithorax*, Turkey, PIC, t. c. p. 47 : n. spp.
Carphurus rhytideres, p. 481, *invenustus*, p. 482, Australia, LEA, P. Linn. Soc. N. S. Wales xxvi, n. spp.
Cautires angulatus, sexes and var., BOURGEOIS, Ann. Soc. ent. France lxxi.
C. obtusatus, p. 745, *fairmairei*, p. 746, *circumcinctus*, *dolens*, p. 747, Madagascar, BOURGEOIS, t. c., n. spp.
Cerallus (*Anthodromicus*) *nigropilosus*, Transcaspian, p. 228, *carinulatus*, *fulvipes*, p. 229, Buchara, REITTER, Wien. ent. Zeit. xxi, n. spp.
Cerapheles bythinocerus, Mongolia, REITTER, t. c. p. 188, n. sp.
Cladophorus natalensis, Africa, *tæniatus*, Madagascar, BOURGEOIS, Ann. Soc. ent. France lxxi, p. 744, n. spp.

Collops argutus, S. California, FALL, p. 242, Pap. Calif. Ac. viii, n. sp.
Conderis foersteri, Sumatra, BOURGEOIS, Ann. Soc. ent. France lxxi, p. 749, n. sp.
Danacœa bulgarica, Bulgaria, PIC, Echange xvii, p. 79; *D. posterecta*, Greece, *peyroni*, Syria, *romana*, Italy, PIC, t. c. p. 31; *D major*, Greece, PIC, t. c. p. 56 : n. spp.
Dasytastes insularis, S. California, FALL, p. 251, Pap. Calif. Ac. viii, n. sp.
Dasytes stewarti (=*nigripes*), LEWIS, Tr. N. Zealand Inst. xxxiv, p. 204.
D. clementæ, p. 250, *musculus*, p. 249, S. California, FALL, Pap. Calif. Ac. viii, n. spp.
Dasytiscus (*Haplothryx*) *anatolicus*, Anatolia, p. 209, *gracilitarsis*, Buchara, *sequensi*, Armenia, p. 210, *D. corallipes*, *diluticornis*, Turkestan, p. 211, REITTER, Wien. ent. Zeit. xxi, n. spp.
Dictyopterus (*Eros*) *harmandi*, p. 89, *D.* (*Platycis*) *consobrinus*, p. 90, Japan, BOURGEOIS, Bull. Mus. Paris viii, n. spp.
Drilus latithorax, Asia Minor, PIC, Echange xvii, p. 24, n. sp.
Ebœus rosinæ, Anatolia, PIC, t. c. p. 9, ?n. sp.
Haplocnemus sanctus, *H.* (*Diplambe*) *delagrangei*, PIC, t. c. p. 32, n. spp.
Ichthyurus, list of species, GESTRO, Bull. Soc. ent. Ital. xxxiv, pp. 44–47.
I. shelfordi, Borneo, p. 37, *fruhstorferi*, Tonkin, p. 40, GESTRO, t. c. n. spp.
Listrus definitus, S. California, FALL, p. 248, Pap. Calif. Ac. viii, n. sp.
Luciola, catalogue, OLIVIER, Rev. Sci. Bourbonnais xv, pp. 69–88.
L. candezei, Ceylon, p. 75, *decora*, N. S. Wales, p. 77, *geniculata*, Senegal, p. 79, *mocquerysii*, Gaboon, p. 83, OLIVIER, t. c. n. spp.
Lycocerus mimicus, Mashonaland, BOURGEOIS, Tr. ent. Soc. London 1902, p. 549, p. xviii, figg. 11, 12, n. sp.
Lycus constrictus var. n. *conjunctus*, p. 737, *L. inornatus* var. n. *scapularis*, *L. distanti* ♀, p. 739, *L. dentipes* var. n. *flavoscapularis*, p. 741, *L. congener* var. n. *scutellaris*, p. 742, BOURGEOIS, Ann. Soc. ent. France lxxi.
L. (*Lopholycus*) *amœnus*, p. 737, *L. marshalli*, p. 738, *L.* (*Chlamydolycus*) *poultoni*, p. 739, *L.* (*Merolycus*) *podagricus*, p. 741, *L.* (*Haplolycus*) *agrestis*, p. 742, *conformis*, p. 743, S. Africa, BOURGEOIS, t. c. n. spp.
Lygistopterus (*Adoceta*) *barkeri*, Natal, BOURGEOIS, t. c. p. 750, n. sp.
Malachius atticus, Greece, PIC, Echange xvii, p. 24 [second time]; *M. kraussi*, Anatolia, REITTER, Wien. ent. Zeit. xxi, p. 192; *M. inornatus*, p. 243, *pristinus*, p. 244, *acutipennis*, *directus*, p. 245, *nigrinus*, *prolixicornis*, p. 246, S. California, FALL, Pap. Calif. Ac. viii : n. spp.
Malthinus; notes on palæarctic, BOURGEOIS, Bull. Soc. ent. France 1902, pp. 195–197; *M. seriepunctatus* var. *raveli*, PIC, Echange xvii, p. 25.
M. taygetanus, Greece, PIC, t. c. p. 63; *M. tangerianus*, Tanger, PIC, t. c. p. 18 : n. sp.
Malthodes (*Podistrina*) *bugnioni*, Tunis, PIC, t. c. p. 71, ?n. sp.
Neocarphurus basizonis, N. S. Wales, LEA, P. Linn. Soc. N. S. Wales xxvi, p. 483, n. spp.
Phosphœnus hemipterus ♀, VITURAT, Echange xvii, p. 69.
Photinus pallens (=*melanodactylus* Ol.), OLIVIER, Bull. Soc. ent. France 1902, p. 318.
P. pantoni, Jamaica, id., p. 318, t. c. n. sp.
Plateros (*Planeteros*) *harmandi*, p. 92, *proximus*, p. 93, Himalaya, BOURGEOIS, Bull. Mus. Paris viii, n. spp.
Podabrus luteonotatus, Greece, PIC, Echange xvii, p. 55; *P. marmoratus*, *P.* (*Anolisus*) *eburneus*, Himalaya, BOURGEOIS, Bull. Mus. Paris viii, p. 426 : n. spp.
Podistrina putoni, Splügen, BOURGEOIS, Bull. Soc. ent. France 1902, p. 182; *P. latepallida*, *viturati*, Algeria, PIC, Echange xvii, p. 48; *P. notaticollis*, p. 60, *pygomelas*, p. 62, Algeria, BOURGEOIS, Bull. Soc. ent. France 1902 : n. spp.

Psilocladus variolosus, Japan, OLIVIER, Bull. Mus. Paris viii, p. 188, n. sp.
Pteroptyx n. g. for *Luciola malaccæ* Gorh. and *testacea* Motsch., OLIVIER, Rev. Sci. Bourbonnais xv, p. 72.
Pyractonema harmandi, p. 188, *puerile*, p. 189, Japan, OLIVIER, Bull. Mus. Paris viii, n. spp.
Pyrocœlia umbrosa, Japan, OLIVIER, t. c. p. 189, n. sp.
Rhagonycha beckeri, Sarepta, PIC, Echange xvii, p. 56; *R. amurensis*, Siberia, PIC, t. c. p. 25 : n. spp.
Telephorus obscurus, metamorphoses, XAMBEU, Naturaliste xxiv, p. 69.
Themus harmandi, Himalaya, BOURGEOIS, Bull. Mus. Paris viii, p. 427, n. sp.
Trichoceble immarginata, p. 257, *unguicularis*, p. 258, Asia Minor, *schilskyi*, Transcaucasus, p. 259, *subcoriacea*, Greece, p. 260, REITTER, Wien. ent. Zeit. xxi, n. spp.
Troglops palæstinus, Jerusalem, PIC, Echange xvii, p. 31, n. sp.
Xylobanus alluaudi, p. 748, *fratellus*, p. 749, Madagascar, BOURGEOIS, Ann. Soc. ent. France lxxi; *X. japonicus*, Japan, BOURGEOIS, Bull. Mus. Paris viii, p. 91 : n. spp.

CLERIDÆ.

[Cf. FAIRMAIRE (413, 422), FALL (424), GAHAN & GORHAM (1263), HINTZ (606–608), REITTER (1134), SCHENKLING (1195–1199).]

Abrosius, n. g., p. 315, for *A. cyaneorufus*, n. sp., Madagascar, p. 316, FAIRMAIRE, Bull. Mus. Paris viii.
Antenius n. g. near *Elasmocerus*, for *A. laticlavis*, p. 307, *quadrivittatus*, p. 308, n. spp., Madagascar, FAIRMAIRE, t. c.
Arachnoclerus n. g. for *A. fallaciosus*, n. sp., Madagascar, FAIRMAIRE, t. c. p. 311.
Archalius n. g. near *Tillus*, for *A. densegranatus*, n. sp., Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 534.
Arotes n. g. near *Enoplium*, for *A. albozonatus*, n. sp., Madagascar, FAIRMAIRE, Bull. Mus. Paris viii, p. 316.
Astigmus parvus, Usambara, HINTZ, Deutsche ent. Zeitschr. 1902, p. 188, n. sp.
Aulicus nero, variation, SCHENKLING, Bull. Mus. Paris viii, p. 325.
A.? suturatus, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 562, n. sp.
Axina bifasciata Chevr. (as *Priocera*) = (*Centrimaculata* Sch.), SCHENKLING, Deutsche ent. Zeitschr. 1902, p. 46.
Callimerus tener, Ceylon, SCHENKLING, t. c. p. 157; *C. flavofasciatus*, Siam, SCHENKLING, Bull. Mus. Paris viii, p. 320; *C. macer*, Java, SCHENKLING, Notes Leyden Mus. xxiii, p. 125; *C. catenatus*, Borneo, GORHAM, P. Zool. Soc. London 1902, ii, p. 278, pl. xxiii, fig. 54 : n. spp.
Cardiostichus orientalis, Usambara, HINTZ, Deutsche ent. Zeitschr. 1902, n. sp.
Cephaloclerus basipes, Abyssinia, SCHENKLING, Bull. Mus. Paris viii, p. 330, n. sp.
Ceratocopus n. g. near *Pallenis*, for *C. bicolor*, *ruficollis*, p. 401, *cyaneus*, p. 402, n. spp., S. Africa, HINTZ, Deutsche ent. Zeitschr. 1902.
Cladiscus cyaneus, E. Africa, HINTZ, t. c. p. 177; *C. perrieri*, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 533 : n. spp.
Clerus binodulus, *eximius*, variation, *C. ruficollis* var. n. *nigricollis*, SCHENKLING, Bull. Mus. Paris viii, p. 325; *C. faber* Chevr. a valid species, SCHENKLING, Deutsche ent. Zeitschr. 1902, p. 46.
C. elegantulus, Venezuela, SCHENKLING, p. 325, Bull. Mus. Paris viii, n. sp.

Cylidrus niger var. n. *rufiventris*, SCHENKLING, t. c. p. 317.
C. fulvipennis, New Guinea, SCHENKLING, Deutsche ent. Zeitschr. 1902, p. 157, n. sp.
Cymatodera orangica cf. *Strotocera*.
Damiricus n. g. near *Tillus*, for *D. cribripennis*, n. sp., Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 543.
Dasyceroclerus perspicuus, Sumatra, SCHENKLING, Stettin Ent. Zeit. 1902, p. 368, n. sp.
Dozocolletus brunneus, S. Africa, HINTZ, Deutsche ent. Zeitschr. 1902, p. 397, n. sp.
Eburifera pulchra, Madagascar, SCHENKLING, Bull. Mus. Paris viii, p. 328; *E. sexperlata*, p. 314, *biarcuata*, *tenuecincta*, p. 315, Madagascar, FAIRMAIRE, Bull. Mus. Paris viii; *E. testacea*, *transversa*, *biangulata*, p. 558, *janthina*, *amœna*, *quadrinotata*, p. 559, *rufula*, p. 560, *elegans*, *nigrocaudata*, *tenuesculpta*, p. 561, *dorsata*, p. 562, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902 : n. spp.
Elasmocerus californicus, S. California, FALL, p. 251, Pap. Calif. Ac. viii, n. sp.
Enoploclerus, n. g., p. 398, for *E. schenklingi*, *carbonarius*, p. 399, n. spp., S. Africa, HINTZ, Deutsche ent. Zeitschr. 1902.
Erymanthus cf. *Lissaulicus*.
E. viridescens, Usambara, HINTZ, Deutsche ent. Zeitschr. 1902, p. 187; *E. ampliatus*, S. Africa, HINTZ, t. c. p. 402 : n. spp.
Evenus polyzonus, p. 566, *marginicollis*, p. 567, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, n. spp.
Gyponyx sexmaculatus, p. 184, *weisei*, *punctatus*, p. 185, *flavus*, *rugosus*, p. 186, *miniatus*, p. 187, Usambara, HINTZ, Deutsche ent. Zeitschr. 1902; *G. schenklingi*, p. 397, *brunneopunctatus*, p. 398, S. Africa, HINTZ, t. c. : n. spp.
Ichnea apicicorne Chevr. (as *Pelonium*) = *vitticollis* Gorh., SCHENKLING, Deutsche ent. Zeitschr. 1902, p. 47.
Isocymatodera n. g. near *Eucymatodera*, for *I. kolbei*, n. sp., E. Africa, HINTZ, Deutsche ent. Zeitschr. 1902, p. 179.
Lagenotillus n. g. for *L. alluaudi*, n. sp., Madagascar, and *Pallenis ebenina* Fairm., FAIRMAIRE, Bull. Mus. Paris viii, p. 310.
Lemidia obliquefasciata, *labiata*, *subænea*, variation, LEA, P. Linn. Soc. N. S. Wales xxvi, pp. 484, 485.
L. apicalis, *militaris*, p. 159, *maculata*, p. 160, Australia, SCHENKLING, Deutsche ent. Zeitschr. 1902, n. spp.
Liostylus pictus, p. 312, *analis*, p. 313, Madagascar, FAIRMAIRE, Bull. Mus. Paris viii; *L. myrmecarius*, *quadripartitus*, *bipartitus*, p. 549, *unicolor*, *basalis*, *rufotinctus*, p. 550, *posticalis*, *sellatus*, p. 551, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902 : n. spp.
Lissaulicus dispar referred to *Erymanthus*, FAIRMAIRE, t. c.
L. dispar, Madagascar, SCHENKLING, Bull. Mus. Paris viii, p. 326, n. sp.
Myrmecomœa parumstricta, p. 534, *densaticollis*, *aspericollis*, *tenuecincta*, p. 535, *bicristata*, *bigibbula*, p. 536, *apicata*, *insignita*, *fulvo-sellata*, p. 537, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, n. spp.
Necrobia mumiarum et *glabra* are probably *rufipes*, SCHENKLING, Bull. Mus. Paris viii, p. 333.
Necrobinus laufferi, Spain, REITTER, Wien. ent. Zeit. xxi, p. 213, n. sp.
Ommadius tricolor, Java, SCHENKLING, Deutsche ent. Zeitschr. 1902, p. 158; *O. apicalis*, p. 369, *difficilis*, p. 370, *virescens*, p. 371, *rufofasciatus*, p. 372, Sumatra, SCHENKLING, Stettin Ent. Zeit. 1902 : n. spp.
Opetiopalpus humeralis, with var. *rufipes*, *thoracicus*, Usambara, HINTZ, Deutsche ent. Zeitschr. 1902, n. spp.
Opilo cilicicus, Asia Minor, HINTZ, t. c.; *O. costipennis*, *biguttulus*, p. 313,

anguinus, p. 314, Madagascar, FAIRMAIRE, Bull. Mus. Paris viii; *O. uniformis*, *sanguinipes*, p. 552, *geniculatus*, *strigicollis*, p. 553, *incongruus*, *quadriplagiatus*, p. 554, *grossepunctatus*, *latefasciatus*, p. 555, *transversus*, p. 556, *impressus*, *basicrus*, *trabeatus*, p. 557, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902 : n. spp.

Opilus triangulus, Cochin China, *strigicollis*, Madagascar, SCHENKLING, Bull. Mus. Paris viii, p. 322, n. spp.

Orthopleura photinoides Chevr. referred to *Pelonium*, SCHENKLING, Deutsche ent. Zeitschr. 1902, p. 47.

Orthrius rufotestaceus, *tuberculicollis*, p. 323, *dorsalis*, p. 324, Darjiling, SCHENKLING, Bull. Mus. Paris viii; *O. augusticollis*, Java, SCHENKLING, Notes Leyden Mus. xxiii, p. 126; *O. basalis*, N. S. Wales, SCHENKLING, Deutsche ent. Zeitschr. 1902, p. 157 : n. spp.

Pallenis flavofasciata, *louveli*, cf. *Strotocera*.

P. pectoralis, E. Africa, HINTZ, Deutsche ent. Zeitschr. 1902, p. 178; *P. cuspidata*, p. 317, *crinitifasciata*, p. 318, Madagascar, SCHENKLING, Bull. Mus. Paris viii; *P. semicristata*, *parceguttata*, p. 308, *elegantula*, *augustula*, *hæmatodera*, *armipennis*, p. 309, Madagascar, FAIRMAIRE, Bull. Mus. Paris viii; *P. cyanipennis*, *sexguttata*, p. 538, *hexaspila*, *octoguttata*, p. 539, *semiguttata*, *leucospila*, p. 540, *geminata*, *morosa*, *perrieri*, p. 541, *crinifera*, *rectepilosa*, *polychroa*, p. 542, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902 : n. spp.

Patuleius n. g. near *Orthopleura*, for *P. rufonitens*, p. 567, *terminatus*, *ustulatus*, *ovulum*, p. 568, n. spp., Madagascar, FAIRMAIRE, t. c.

Pelonium togatum and *dilatatum* distinguished, p. 47, *P. conforme* Chevr. =(*centromaculatum* Chevr. = *marginipenne* Chevr.), p. 48, SCHENKLING, Deutsche ent. Zeitschr. 1902.

P. ? *defletum*, Sumatra, SCHENKLING, Notes Leyden Mus. xxiii, p. 129; *P. inæqualicolle*, S. America, SCHENKLING, Bull. Mus. Paris viii, p. 332 : n. spp.

Phlœocopus rugulosus, Usambara, HINTZ, Deutsche ent. Zeitschr. 1902, p. 180; *P. costatus*, Madagascar, SCHENKLING, Bull. Mus. Paris viii, p. 321 : n. spp.

Phœocyclotomus usambaricus, p. 188, *signatus*, *trifasciatus*, p. 189, *papei*, *aurescens*, *impressus*, p. 1901, Usambara, HINTZ, Deutsche ent. Zeitschr. 1902; *P. scaber*, Java, SCHENKLING, Notes Leyden Mus. xxiii, p. 128 : n. spp.

Placocerus trilineatus, Usambara, HINTZ, Deutsche ent. Zeitschr. 1902, p. 191, n. sp.

Plathanocera n. g., p. 329, near *Placocerus*, for *P. uniformis*, n. sp., Ivory Coast, p. 330, SCHENKLING, Bull. Mus. Paris viii.

Platyclerus semirufus, Madagascar, FAIRMAIRE, Bull. Mus. Paris viii, p. 314, n. sp.

Priocera strigicollis, p. 320, *pygmæa*, p. 321, S. America, SCHENKLING, Bull. Mus. Paris viii, n. spp.

Prioclerus n. g. near *Priocera*, p. 179, for *P. varicolor*, *nigrofasciatus*, n. spp., Usambara, p. 180, HINTZ, Deutsche ent. Zeitschr. 1902.

Pseudopallenis splendida, Madagascar, SCHENKLING, Bull. Mus. Paris viii, p. 319, n. sp.

Rhopalocerus, place is in *Corynetides*, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 565.

R. seriatus, p. 565, *nigrofasciatus*, p. 566, Madagascar, id. t. c., n. spp.

Salarium n. g. near *Pelonium*, for *S. mirum*, n. sp., Madagascar, FAIRMAIRE, t. c. p. 532.

Stenocylidrus fastigiatus var. n. *rufipes*, SCHENKLING, Bull. Mus. Paris viii, p. 319.

S. fasciatus, *rufus*, E. Africa, HINTZ, Deutsche ent. Zeitschr. 1902, p. 178; *S. semisuturatus virgulatus*, Madagascar, FAIRMAIRE, Bull. Mus. Paris

viii, p. 312; *S. semirufus*, p. 544, *ruficeps*, p. 545, *obscuratus*, *asperulus*, *externus*, p. 546, *tetradius*, *obliquatus*, p. 547, *variegatus*, *apicatus*, p. 548, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902 : n. spp.

Stenoplium n. g. near *Enoplium*, p. 564, for *S. perrieri*, n. sp., Madagascar, p. 565, FAIRMAIRE, Ann. Soc. ent. France 1902.

Stigmatium tuberculatum, Usambara, HINTZ, Deutsche ent. Zeitschr. 1902, p. 187, n. sp.

Strotocera n. g., p. 123, for *S. grandis*, n. sp., Java, p. 124, and including *Pallenis flavofasciata* Thoms., *Cymatodera orangica* Kuw. and *Pallenis louveli* Spin., SCHENKLING, Notes Leyden Mus. xxiii.

Synellapus n. g. near *Pallenis*, for *S. indigaceus*, n. sp., Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 544.

Tenerus signaticollis variation, SCHENKLING, Deutsche ent. Zeitschr. 1902, p. 111.

T. orientalis, Africa, HINTZ, Deutsche ent. Zeitschr. 1902, p. 192; *T. robustus*, Tonkin, *analis*, Ivory coast, SCHENKLING, Bull. Mus. Paris viii, p. 331; *T. simillimus*, Sumatra, SCHENKLING, Deutsche ent. Zeitschr. 1902, p. 112; *T. lucidus*, p. 373, *brunniceps*, p. 374, Sumatra, SCHENKLING, Stettin Ent. Zeit. 1902; *T. sulcipennis*, Borneo, GAHAN, P. Zool. Soc. London 1902, ii, p. 279; *T. brevipennis*, N. S. Wales, SCHENKLING, Deutsche ent. Zeitschr. 1902, p. 160 : n. spp.

Thaleroenemis picea, Sumatra, SCHENKLING, Stettin Ent. Zeit. 1902, p. 368; *T. basiventris*, N. Guinea, SCHENKLING, Bull. Mus. Paris viii, p. 329 : n. spp.

Thanasimus mutilloides, p. 181, *thoracicus*, *aterrimus*, *weisei*, p. 182, *auratus*, *bifasciatus*, p. 183, *femoralis*, p. 184, E. Africa, WEISE, Deutsche ent. Zeitschr. 1902, n. spp.

Thriocera bohemanni, p. 402, *bifasciata*, *tricolor*, p. 403, S. Africa, HINTZ, Deutsche ent. Zeitschr. 1902, n. spp.

Tillicera soror, Bhutan, SCHENKLING, Notes Leyden Mus. xxiii, p. 127, n. sp.

Tilloclerus aurosus var. n. *rufipes*, SCHENKLING, Bull. Mus. Paris viii, p. 319.

T. griseocaudatus, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 548, n. sp.

Tillus holtzi, Asia Minor, HINTZ, Deutsche ent. Zeitschr. 1902; *T. apicalis*, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 533 : n. spp.

Trichodes apiarius and *alvearius* varr., PIC, Echange xvii, pp. 61, 62; *T. apiarius* var. n. *taygetanus*, HINTZ, Deutsche ent. Zeitschr. 1902, p. 229; *T. crabroniformis* var. n. *humeralis*, MÜLLER, Wien. ent. Zeit. xxi, p. 115.

T. holtzi, Asia Minor, HINTZ, Deutsche ent. Zeitschr. 1902, p. 230, n. sp.

Tricladus alluaudi, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 564, n. sp.

Trogodendron = (*Dyslophocera* Sch.), SCHENKLING, Deutsche ent. Zeitschr. 1902, p. 158.

Tylotosoma n. g., p. 399, near *Pallenis*, for *T. bifasciatum*, n. sp., S. Africa, p. 400, HINTZ, Deutsche ent. Zeitschr. 1902.

Xamerpus fasciolatus, Madagascar, FAIRMAIRE, Bull. Mus. Paris viii, p. 317, n. sp.

Xenoclerus n. g. for *Trogodendron edwardsi* Horn, SCHENKLING, Bull. Mus. Paris viii, p. 327.

CUPESIDÆ and LYMEXYLONIDÆ.

Cupesidæ is a division of *Caraboidea*, wing-structure, PEYERIMHOFF, Bull. Soc. ent. France 1902, p. 206.

Atractocerus termiticola, Brazil, with Termites, WASMANN, Tijdschr. Ent. xlv, p. 104, pl. ix, fig. 6, n. sp.
Cupes varians, Australia, LEA, P. Linn. Soc. N. S. Wales xxvi, pp. 485 and 513, n. sp.
Omma; wing, taxonomy, PEYERIMHOFF, Bull. Soc. ent. France 1902, p. 330, cuts.

PTINIDÆ.

[Cf. FALL (424), LESNE (797), PIC (1022, 1023, 1024, 1026, 1029, 1031, 1032, 1036, 1040, 1049, 1057, 1058), REITTER (1133).]

Bruchoptinus ivanensis, Bosnia, REITTER, Wien. ent. Zeit. xxi, p. 193, n. sp.
Cathorama brasiliensis, *convexa*, S. America, PIC, Naturaliste xxiv, p. 68, n. spp.
Dasytanobium n. g. near *Xyletinus*, for *D. inæquale*, n. sp., Brazil, PIC, Echange xvii, p. 23 [second time].
Ernobius normandi and *pruinosus* distinguished, PIC, Bull. Soc. ent. France 1902, p. 250.
E. reitteri, Smyrna, *pallidipennis*, *theryi*, *obscuriventris*, *impressithorax*, Algeria, PIC, Echange xvii, p. 79, n. spp.
Eurostus frigidus=(*anemophilus* Chob.), PIC, Bull. Soc. ent. France 1902, p. 93.
E. helveticus, Saas, PIC, Echange xvii, p. 18, n. sp.
Gastrallus cucullatus, Ceylon, LESNE, Ann. Soc. ent. France 1902, p. 478, n. sp.
Gibboxyletinus; characters, table of species, PIC, Ann. Soc. ent. Belgique xlvi, pp. 132, 133.
Hedobia (*Ptinomorphus*) *harmandi*, Japan, PIC, Bull. Mus. Paris vii, p. 343, n. sp.
Hemiptychus luteotectus, *palliatus*, *integer*, S. California, FALL, p. 253, Pap. Calif. Ac. viii, n. spp.
Mezium gracilicorne, Congo, PIC, Bull. Soc. ent. France 1902, p. 139, n. sp.
Niptomezium n. g. for *N. patagonicum*, *sparsepilosum*, n. spp., Patagonia, PIC, Echange xvii, p. 50.
Polycaon megalops, S. California, FALL, p. 254, Pap. Calif. Ac. viii, n. sp., p. 254.
Priotoma argentifera, Brazil, PIC, Naturaliste xxiv, p. 21, n. sp.
Ptinus (*Eutaphrus*) *atticus*, Greece, PIC, Echange xvii, p. 32; *P. cephalotes*, Malabar, PIC, t. c. p. 1; *P. silvestrii*, Patagonia, PIC, t. c. p. 49 : n. spp.
Thaptor pubescens, *suturalis*, *rufescens*, S. America, PIC, Naturaliste xxiv, p. 55; *T. metallicus*, *theresæ*, Peru, PIC, Echange xvii, p. 31 : n. spp.
Theca batnensis, Algeria, *rufescens*, Greece, PIC, t. c. p. 80, n. spp.
Trichodesma venusta, Ceylon, LESNE, Ann. Soc. ent. France 1902; *T. donckieri*, p. 408, *notatipennis*, *robustior*, *bahiensis*, *obliterata*, *latissima*, *fasciculata*, p. 409, Brazil, PIC, Ann. Soc. ent. Belgique xlvi : n. spp.
Xyletinus duranti, *discoidalis*, *brasiliensis*, p. 17, *denticollis*, *gounellei*, *maximus*, *nitidior*, *nitidithorax*, *inermicollis*, p. 18, Brazil, PIC, Ann. Soc. ent. Belgique xlvi; *X. distincte-vestitus*, Brazil, PIC, Naturaliste xxiv, p. 21; *X. bahiensis*, *subglaber*, p. 130, *distincticollis*, p. 131, Brazil, PIC, Ann. Soc. ent. Belgique xlvi : n. spp.
Xystrophorus n. n. for *X. horni*, n. sp., Ceylon, LESNE, Ann. Soc. ent. France 1902, p. 476.

Bostrychidæ.

[Cf. Lesne (796, 797, 800).]

Synopsis of palæarctic *Bostrychides* completed, Lesne, Abeille xxx, pp. 103–136.

Calophagus n. g., p. 108, for *C. pekinensis*, n. sp., China, p. 109, Lesne, Abeille xxx.

Heterarthron batillum, Tonkin, Lesne, Bull. Soc. ent. France 1902, p. 223, n. sp.

Sinoxylon tignarium, W. China, Lesne, Abeille xxx, p. 116, n. sp.

Xylomedes n. g. for *Apate carbonnieri* etc., Lesne, t. c. p. 119.

Sphindidæ, Cioidæ.

Aspidophorus confusus, Transcaucasus, Reitter, Wien. ent. Zeit. xxi, p. 139, n. sp.

Cis zoufali, Bosnia, Reitter, Wien. ent. Zeit. xxi, p. 6, n. sp.

Tenebrionidæ.

[Cf. Apfelbeck (30), Blackburn (112), Dury (366), Fairmaire (411, 416, 417, 421, 423), Fall (424), Kolbe (725), Reitter (1132, 1133, 1134), Schneider (1209), Stierlin (1334).]

Acropteron pallicrus, Peru, Fairmaire, Bull. Soc. ent. France 1902, p. 150, n. sp.

Alphitobius? cinctellus, Madagascar, Fairmaire, Ann. Soc. ent. France 1902, p. 331, n. sp.

Amarygmus tarsatus, Madagascar, Fairmaire, t. c. p. 337, n. sp.

Arthrodosis puncticollis, Buchara, Reitter, Wien. ent. Zeit. xxi, p. 214, n. sp.

Asbolius n. g. near *Asphaltesthes*, p. 134, for *A. quadricollis* n. sp., Benguela, p. 135, Fairmaire, Bull. Soc. ent. France 1902.

Asphaltesthes septemcostatus, Benguela, Fairmaire, t. c. p. 134, n. sp.

Callimaria granulata, Madagascar, Fairmaire, Ann. Soc. ent. France 1902, p. 335, n. sp.

Camaria perrieri, p. 334, *blapoides*, *cottæ*, p. 335, Madagascar, Fairmaire, t. c., n. spp.

Cedrosius n. g. near *Derosphærus*, for *C. calosomoides*, n. sp., Madagascar, Fairmaire, t. c. p. 332.

Chalcopterus arthuri, Queensland, Blackburn, Tr. R. Soc. S. Austral. xxvi, p. 319, n. sp.

Chemolanus læviceps, Madagascar, Fairmaire, Ann. Soc. ent. France 1902, p. 333, n. sp.

Cœlolophus longipennis, China, Fairmaire, Bull. Soc. ent. France 1902, p. 318, n. sp.

Crypticus (*Seriscius*) *cameroni*, Malta, Reitter, Wien. ent. Zeit. xxi, p. 194, n. sp.

Damatris retrogranatus, Madagascar, Fairmaire, Ann. Soc. ent. France 1902, p. 332, n. sp.

Dendarus latissimus, Tessin, Stierlin, Mt. Schweiz. ent. Ges. x, p. 426, n. sp.

Dischizillus n. n. for *Schizillus* Wasm. nec Horn, Wasmann, Deutsche ent. Zeitschr. 1902, p. 244.

Epeurycaulus n. g. *Opatrinorum*, for *E. aldabricus*, n. sp., Aldabra islands, Kolbe, Abh. Senckenb. Ges. xxvi, p. 579.

Eusattus difficilis, *convexus*, distinguished, Fall, Pap. Calif. Ac. viii, p. 256.

Evaniosomus castanescens, Peru, FAIRMAIRE, Bull. Soc. ent. France 1902, p. 148, n. sp.
Gonocephalum peregrinum, Aldabra islands, KOLBE, Abh. Senckenb. Ges. xxvi, p. 576, n. sp.
Helops (*Stenomax*) *pindicus*, Greece, APFELBECK, Wiss. Mitt. Bosnien viii, p. 465 ; *H. zolotarewi*, Taschkent, REITTER, Wien. ent. Zeit. xxi, p. 190 : n. spp.
Hyperchalca humbloti Fairm. as *Nesogena* =(*N. fuscoænea* Fairm.), FAIRMAIRE, Ann. Soc. ent. France 1902, p. 338.
H. rudicollis, Madagascar, FAIRMAIRE, t. c. p. 337, n. sp.
Hypophlœus rugosus, Cincinnati, DURY, J. Cincinnati Soc. xx, p. 171, [in corrigenda said to be ? *Lyphia ficicola*], n. sp.
Icaria cottæ, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 347, n. sp.
Læna byzantina, Constantinople, APFELBECK, Wiss. Mitt. Bosnien viii, p. 466 ; *L. auliensis*, Turkestan, REITTER, Wien. ent. Zeit. xxi, p. 190 : n. spp.
Melanocratus ovoideus, p. 329, *neuter*, *convexicollis*, p. 330, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, n. spp.
Osdara hovana, *brevipes*, Madagascar, t. c., n. spp.
Palorus quadricollis, Madagascar, FAIRMAIRE, t. c. p. 331, n. sp.
Pedinus ætolicus, *peristericus*, p. 464, *balcanicus*, p. 465, Turkey and Greece, APFELBECK, Wiss. Mitt. Bosnien viii, n. spp.
Phaleria reyi, *cava*, varr., SCHNEIDER, Wien. ent. Zeit. xxi, pp. 11, 12.
P. ligurica, Bordighera, SCHNEIDER, t. c. p. 10, n. sp.
Phygoscotus n. n. for *Spheniscus* Kirby nec Brisson, SCHULZ, Berlin. ent. Zeitschr. 1902, p. 134.
Pilobalia bærii, Peru, FAIRMAIRE, Bull. Soc. ent. France 1902, p. 149, n. sp.
Praocis peruana, *nervosa*, p. 149, *vagecostata*, p. 150, Peru, FAIRMAIRE, t. c., n. spp.
Pseudocamaria attenuata, p. 333, *oblongula*, p. 334, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, n. spp.
Pseudogena purpurina, *bitincta*, *inæqualis*, Madagascar, FAIRMAIRE, Naturaliste xxiv, p. 287, n. spp.
Selinus abacoides, p. 328, *punctipennis*, p. 329, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, n. spp.
Sphærocaulus perrieri, Madagascar, FAIRMAIRE, t. c., n. sp.
Stira dorsocostata, Benguela, FAIRMAIRE, Bull. Soc. ent. France 1902, p. 135, n. sp.
Strongylium denticolle ♀, FAIRMAIRE, t. c. p. 150.
S. ænescens, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 339, n. spp.
Suarezius ovipennis, Madagascar, FAIRMAIRE, t. c. p. 336, n. sp.
Udebra fimbriatus Mén. (as *Erodius*) =(*hauseri* Reitt.), REITTER, Wien. ent. Zeit. xxi, p. 222.
Zophohelops n. n. for *Euryhelops* Reitter, D. E. Z. 1901, p. 214, REITTER, t. c. p. 221.

CISTELIDÆ.

Gonodera delagrangei Fairm. referred to *Hymenalia*, PIC, Echange xvii, p. 68.
Diastanus n. g. near *Nesotaurus*, for *D. nitidiventris*, n. sp., Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 338.
Viriathus n. g. "*Cistelida vraies*," for *V. strigipennis*, n. sp., Madagascar, FAIRMAIRE, t. c. p. 239.

ANTHICIDÆ, PEDILIDÆ.

[Cf. FAIRMAIRE (411), FALL (424), PIC (1025–1027, 1029, 1031–1033, 1035–1037, 1039, 1040, 1042–1047, 1051–1053, 1055, 1056), SEMENOW (1244).]

Anthicus bussignyi var. n. *subinnotatus*, PIC, Termes. Fuzetek xxv, p. 408; *A. oceanicus* var. n. *francoisi*, PIC, Bull. Soc. ent. France 1902, p. 40; *A. tenuipes* var. n. *saturatus*, PIC, t. c. p. 186; *A.* (*Microhoria*) *tumidipes* var. *jurjurensis*, PIC, Echange xvii, p. 24.

A. peragalloi, S. France, PIC, t. c. p. 64; *A. doderoi*, Sardinia, PIC, t. c. p. 19; *A. syrensis*, Cyclades, PIC, t. c. p. 41; *A. subnitidus*, Aulie-Ata, p. 9, *grandiceps*, Krasnowosk, *korbi*, Kasikoporan, p. 10, PIC, t. c.; *A. peyerimhoffi*, Sinai, *petræus*, Edom, PIC, Bull. Soc. ent. France 1902, p. 187; *A.* (? *Stenidius*) *magniceps*, Rhodesia, PIC, Rev. Ent. franc. xxi, p. 4; *A. pulicarius*, *conjunctus*, p. 336, *obconiceps*, p. 337, Madagascar, PIC, Bull. Soc. ent. France 1902; *A. grandicollis*, p. 645, *manillanus*, *robusticollis*, p. 646, *binotatus*, p. 647, Manilla, PIC, Ann. Soc. ent. France 1902; *A. biroi*, *robustus*, Java, p. 408, *singaporensis*, Singapore, *csikii*, p. 409, *semirugosus*, p. 410, New Guinea, PIC, Termes. Fuzetek xxv; *A.* (*Ichyropalpus*) *tenax*, Brazil, PIC, Echange xvii, p. 24 [second time]; *A. peruvianus*, *A.* (*Lappus*) *baeri*, Peru, PIC, t. c. p. 31; *A. patagonicus*, Santa-Cruz, PIC, t. c. p. 50 : n. spp.

Formicomus infasciatus, Ivory Coast, PIC, Bull. Soc. ent. France 1902, p. 40; *F. semicupreus*, Congo, PIC, t. c. p. 139; *F.* (*Antelephilus*) *inhumeralis*, *F. subrobustus*, p. 644, *bæri*, p. 645, Manilla, PIC, Ann. Soc. ent. France 1902; *F. bataviensis*, Java, p. 405, *biroi*, New Guinea, p. 406, PIC, Termes. Fuzetek xxv : n. spp.

Hylobænus n. g. for *Phytobænus notaticollis*, PIC, Echange xvii, p. 33, and Wytsman gen. ins. *Hylophilidæ*, p. 3.

Hylophilidæ: genera and lists of species, PIC, Wytsman gen. ins., 13 pp., 1 pl.

Hylophilus æquinoctalis ? var. *innotatus*, PIC, Bull. Soc. zool. France xv, p. 20.

H. discoidalis, Malabar, *versabilis*, Rhodesia, *ultimus*, Madagascar, PIC, Echange xvii, p. 34; *Hylophilus* (*Olotelus*) *africanus*, W. Africa, *H.* (*Aderus*) *francoisi*, p. 19, *H. metallicus*, New Hebrides, *H.* (*Elonus*) *goyasensis*, *H.* (*Olotelus*) *semipruinosus*, p. 20, *H.* (*Emelinus*) *rugosicollis*, *H.* (? *Sandytes*) *longicornis*, *H.* (? *Pseudariotus*) *robustus*, *arcuatipes*, p. 21, *subcrassipes*, *H.* (? *Aderus*) *venezuelensis*, p. 22, S. America, PIC, Bull. Soc. zool. France xv; *H. curticornis*, New Guinea, *trimaculatus*, Borneo, PIC, Bull. Soc. ent. France 1902, p. 227; *H. horvathi*, *subopacus*, p. 522, *maculibasis*, *brevithorax*, *sinuatus*, *neoguineensis*, *csikii*, *biroi*, *robustipes*, p. 523, *pallidulus*, *sulcicollis*, p. 524, New Guinea, *bisinuatus*, *bataviensis*, Java, p. 523, PIC, Termes. Fuzetek xxv : n. spp.

Macratria impressicollis, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 341; *M. alluaudi*, *laterufa*, Madagascar, PIC, Bull. Soc. ent. France 1902, p. 335; *M. cariei*, Mauritius, PIC, t. c. p. 191; *M. maxina*, Brazil, PIC, Naturaliste xxiv, p. 21 : n. spp.

Mecynotarsus caroli, Madagascar, PIC, Bull. Soc. ent. France 1902, p. 336; *M. humeralis*, p. 643, *bæri*, p. 644, Manilla, PIC, Ann. Soc. ent. France 1902; *M. francoisi*, New Hebrides, PIC, Bull. Soc. ent. France 1902, p. 39 : n. spp.

Micreuglenes subg. n. of *Hylophilus*, PIC, Wytsman gen. ins. Hylophilidæ, p. 4.

Notoxus 4-*maculatus* v. *bangi*, PIC, Echange xvii, p. 1.

N. caudatus, S. California, FALL, p. 257, Pap. Calif. Ac. viii, n. sp.

Octhenomus notatus, Ivory coast, PIC, Bull. Soc. ent. France 1902, p. 40;

O. impressiceps, Madagascar, Pic, t. c. p. 337; *O. baeri*, Manilla, Pic, Ann. Soc. ent. France 1902, p. 647 : n. spp.

Pedilus; synopsis of species, Semenow, Horæ Soc. ent. Ross. xxxv, pp. 261–265.

P. canescens, p. 258, *serricornis*, p. 260, Caucasus, id. t. c., n. spp.

Phytobœnus indicus, Malabar, Pic, Echange xvii, p. 2, n. sp.

Pseudoleptaleus horvathi, New Guinea, Pic, Termes. Fuzetek xxv, p. 407; *P. camelus*, Brazil, Pic, Naturaliste xxiv, p. 21 : n. spp.

Scraptia (*Canifa*) *subparallela*, p. 334, *S. alluaudi*, *S.* (*Trotommideomorpha* subg. n.), p. 335, Madagascar, Pic, Bull. Soc. ent. France 1902, n. spp.

Tomoderus biroi, Malacca, *horvathi*, p. 406, *trimaculatus*, *csikii*, p. 407, New Guinea, Pic, Termes. Fuzetek xxv; *T. subcruciatus*, Brazil, Pic, Naturaliste xxiv, p. 21 : n. spp.

Trotomma baborensis, Algeria, Pic, Echange xvii, p. 32; *T. antennata*, Algeria, Pic, t. c. p. 80 : n. spp.

Trotommideomorpha subg. n., cf. *Scraptia*.

Xylophilus brunnescens, p. 258, *nucleus*, *constrictus*, p. 259, S. California, Fall, Pap. Calif. Ac. viii, n. spp.

Mordellidæ.

[Cf. Fairmaire (411), Lea (783).]

Synonymic list of Australian and Tasmanian *Mordellidæ*, Lea, Tr. ent. Soc. London 1902, pp. 1–9, pls. i, ii.

Mordella semiluctuosa, Madagascar, Fairmaire, Ann. Soc. ent. France 1902, p. 340; *M.* v-*aureum*, p. 4, pl. ii, fig. 34, *obsoleta*, *simillima*, p. 5, *brevis*, *cuneata*, p. 6, *verticordiæ*, *inornata*, *apicata*, p. 7, 9-*maculata*, p. 8, Australia, Lea, Tr. ent. Soc. London 1902 : n. spp.

Mordellistena concolor, W. Australia, Lea, t. c. p. 9; *M. sexnotata*, p. 176, *smithi*, p. 177, Cincinnati, Dury, J. Cincinnati Soc. xx : n. spp.

Tomoxia maculicollis, W. Australia, Lea, Tr. ent. Soc. London 1902, p. 8, n. sp.

Rhipiphoridæ.

[Cf. Alluaud (17), Chobaut (237), Lesne (799, 801), Pic (1038), Pierce 1064).]

Macrosiagon benschi, p. 322, *lyauteyi*, p. 323, Madagascar, *marcelli*, Ivory coast, p. 324, Alluaud, Bull. Soc. ent. France 1902, n. spp.

Myodites solidaginis, Nebraska, Pierce, Canad. Ent. xxxiv, p. 293, n. sp.

Pelecotoides minor, Madagascar, Fairmaire, Ann. Soc. ent. France 1902, p. 340, n. sp.

Rhipidius parisiensis, France, Lesne, Bull. Soc. ent. France 1902, p. 182, and Bull. Mus. Paris viii, p. 422; *R. kabylianus*, Algeria, Chobaut, Bull. Soc. ent. France 1902, p. 89 : n. spp.

Sitaris (*Stenoria*) *canariensis*, Tenerife, Pic, Echange xvii, p. 80, n. sp.

Cantharidæ.

[Cf. Buysson (192), Fairmaire (411), Reitter (1132).]

Oviposition and intelligence of *Mylabris variabilis*, Du Buysson, Bull. Soc. ent. France 1902, pp. 284–286.

Cissites debeyi, larvæ, Green, Ent. Mag. xxxviii, p. 282.

Decapotoma n. n. for *Decatoma* auctt. nec Spinola, Voigts, Wien. ent. Zeit. xxi, p. 177.

Lydulus semipurpureus, Turkestan, REITTER, Wien. ent. Zeit. xxi, p. 188, n. sp.
Mylabris hirtipennis = (*kabylica* Esch.), CHOBAUT, Bull. Soc. ent. France 1902, p. 164.
Nemognatha proboscidea, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 341, n. sp.
Zonabris peeli n. n. for *somalica* Thom. 1900; *transvaalensis* n. n. for *apicalis* Pér., p. 177; *falkensteini* n. n. for *diffinis* Kolbe; *stali* Fåhr. = (*palliata* Mars.), *interna* = (*vespina* Thom.); *senegalensis* n. n. for *bifasciata* Ol.; *bifasciata* De Geer = (*oculata* Thunb.), p. 178, VOIGTS, Wien. ent. Zeit. xxi.
Zonitis præusta varr. n. *flaviventris*, *nigripes*, MÜLLER, Wien. ent. Zeit. xxi, p. 116.
Z. perrieri, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 341, n. sp.

ŒDEMERIDÆ.

[Cf. FAIRMAIRE (411), PIC (1037, 1041).]

Ananca fuscipennis, *elegans*, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 342, n. spp.
Isoloxantha n. n. for *Xanthomima* Sem., SEMENOW, Rev. Russe Ent. ii, p. 353.
Œdemera euboica, Greece, PIC, Echange xvii, p. 64, n. sp.
Polypria lateralis, p. 166, *brevipennis*, p. 167, Brazil, PIC, Bull. Soc. ent. France 1902, n. spp.

CURCULIONIDÆ.

[Cf. APFELBECK (30), BROUN (632), CHAMPION (545), DANIEL & DANIEL (305), DESBROCHERS (315–318), ERICSON (402), FAIRMAIRE (411, 412, 416), FALL (424), FUENTE (509), GANGLBAUER (736), GERBER (523, 524), GESTRO (526), GIRARDIN (541), HOLDHAUS (609), KOLBE (725), KUNSTLER (744), LEA (785), MARSHALL (869), PÁSZTOR (1002), PETRI (1014, 1015), PIC (1028, 1031, 1032, 1034, 1038), REITTER (1128, 1133, 1134), RYBINSKI (1183), SCHILSKY (1200), SCHREINER (1213), SCHULTZE (1224), STIERLIN (1334), TAVARES (1356), WEBSTER (1468).]

Acalles maritimus Broun = (*A. cryptobius* Br. ♀), LEWIS, Tr. N. Zealand Inst. xxxiv, p. 204.
Achynius n. g. near *Cycloteres*, for *A. alluaudi*, n. sp., Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 362.
Aclees formosus, Madagascar, FAIRMAIRE, t. c. p. 363, n. sp.
Alcides griseoniger, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 238; *A. lobipennis*, *oxyomus*, p. 365, *pubicollis*, *maculosus*, p. 366, *musculus*, *androycus*, p. 367, *tomentosus*, *oblongulus*, p. 368, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902 : spp.
Alophus vau var. n. *haliciensis*, REITTER, Wien. ent. Zeit. xxi, p. 196.
A. hilfi, Herzegowina, REITTER, t. c. p. 8, n. sp.
Anaptoplus vagefasciatus, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 359, n. sp.
Anchonomorpha n. g. near *Hilipus*, p. 63, for *A. occulta*, pl. iv, f. 28, *tuberculifera*, pl. v, f. 1, p. 64, *debilis*, p. 65, n. spp., Central America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv.
Anchonus biolleyi, pl. v, f. 6, p. 69, *articulatus*, f. 7, *brevisetis*, f. 8, p. 70, *mexicanus*, f. 10, p. 71, *gibbirostris*, f. 11, *nodosus*, f. 12, p. 72, *silvicola*, f. 13, *carinirostris*, f. 14, p. 73, *penicillatus*, f. 15, p. 74, *obovatus*, f. 17, *validus*, *nodipennis*, f. 18, p. 75, *helleri*, f. 19, *subcristatus*, f. 20, p. 76,

coarctatus, f. 21, *cirratus*, p. 77, *granulatus*, f. 22, *salebrosus*, f. 23, p. 78, *sallæi*, f. 24, p. 79, *oblongus*, f. 26, *brevipennis*, f. 27, p. 80, *spiculosus*, f. 28, *quadrituberculatus*, f. 29, p. 81, *horridus*, f. 30, *costaricensis*, pl. vi, f. 1, *ovatus*, f. 2, p. 82, *crinitus*, f. 4, *alternans*, f. 5, p. 83, *nebulosus*, f. 6, *puncticollis*, p. 84, *affinis*, *hirsutus*, *subcarinatus*, f. 7, p. 85, *ericius*, f. 8, *hystrix*, f. 9, *angulatus*, f. 10, p. 86, *setulosus*, f. 11, *verrucosus*, f. 12, *tuberculirostris*, f. 13, p. 87, *foveifrons*, f. 16, p. 86, Centr. America, CHAMPION, t. c., n. spp.

Anthonomus cinctus, life-history, PÁSZTOR, Rov. Lapok ix, pp. 67–74.

A. apertus, *helianthi*, p. 262, *stolatus*, p. 264, *tahoensis*, p. 263, S. California, FALL, Pap. Calif. Ac. viii, n. spp.

Antistius n. g. near *Stigmatrachelus*, p. 357, for *A. desjardinsii*, n. sp., Mauritius, p. 358, FAIRMAIRE, Ann. Soc. ent. France 1902.

Apion; notes on some galls, TAVARES, Broteria i, pp. 172, 173; *A. cyanescens*, food-plant, CORDEMOY, p. 119, Bull. Soc. ent. France 1902; *A. cyanescens*, habits, GERBER, Bull. Soc. ent. France 1902, p. 208, cuts.

A. podolicum, Galicia, RYBINSKI, Bull. Ac. Cracovie 1902, p. 12, pl. iii, f. 5; *A. acuticlava*, Caucasus, *tauricum*, Crimea, *atripenne*, Greece, p. 159, *bipartitum*, Spain, *insculpticolle*, *chenocephalum*, Syria, p. 160, DESBROCHERS, Frelon x; *A. alternatum*, Turkestan, p. 108, *peyrimhoffi*, p. 109, DESBROCHERS, t. c.; *A. substriatum*, Siberia, No. 17, *strigipenne*, Caucasus, No. 25, *connexum*, Turkestan, No. 28, *myochroum*, Turkestan, No. 29, *brevicorne*, England, No. 31, *conicicolle*, Japan, No. 32, *unguiculare*, Turkestan, No. 36, *oblivium*, Besika bay, No. 54, *vastum*, Japan, No. 64, *hilleri*, Japan, No. 67, *subcandidum*, Ronda, No. 69, *obtectum*, W. Siberia, No. 74, *dorsale*, Japan, No. 77, SCHILSKY, Käfer Europ., Heft. 39 : n. spp.

Apoderus foveicollis, *semiruber*, *holoxanthus*, p. 383, *flaviventris*, p. 384, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, n. spp.

Arniticus cingulatus, pl. iv, f. 9, p. 50, *setiger*, f. 11, p. 51, Centr. America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv, n. spp.

Aviranus n. g. near *Balaninus*, for *A. pictor*, n. sp., Madagascar, and *Heteronus elegans* Fairm., FAIRMAIRE, Ann. Soc. ent. France 1902, p. 376.

Bagous; the British, NEWBERY, Ent. Rec. xiv, pp. 149–156.

Balaninus sericans, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 371, n. sp.

Barianus n. g. near *Platycopes*, for *B. uniformis*, p. 354, *coquerellii*, p. 355, n. spp., Madagascar, FAIRMAIRE, t. c.

Baris granulipennis, habits, REITTER, Wien. ent. Zeit. xxi, p. 221.

B. griseopubens, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 377; *B. heterodoxa*, p. 267, *monticola*, p. 268, S. California, FALL, Pap. Calif. Ac. viii : n. spp.

Blosyrus perrieri, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 352, n. sp.

Bothynacrum n. g. *Cryptorhynchides*, p. 437, for *B. storeoides*, n. sp., Australia, p. 438, LEA, P. Linn. Soc. N. S. Wales xxvii.

Brachiodontus schultzei n. n. for *B. ganglbaueri* Sch., nec Reitt., GANGLBAUER, Verh. Ges. Wien. lii.

Brachiodontus kraussi, Carniola, p. 107, *deubeli*, Transsilvania, p. 108, GANGLBAUER, t. c. n. spp.

Brachyleptops globipennis, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 358, n. sp.

Calandra oryzæ; conditions for increase at sea, KUNSTLER, Act. Soc. Bordeaux lvii, pp. 17–27.

Camptorhinus albocaudatus, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 238, n. sp.

Catolethrus intermedius, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 381, n. sp.

Ceratopus subfasciatus, pl. viii, f. 5, p. 123, *mixtus*, *dorytomoides*, f. 6, p. 124, *tessellatus*, f. 7, *longiclava*, f. 8, *rufirostris*, f. 9, p. 125, Centr. America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv, n. spp.

Ceuthorrhynchini; catalogue of palæarctic, SCHULTZE, Deutsche ent. Zeitschr. 1902, pp. 193–226.

Ceuthorrhynchus; gall on *Lepidium draba*, CORDEMOY, Bull. Soc. ent. France 1902, p. 120; *C. contractus*, gall, DARBOUX, Bull. Soc. ent. France 1902, p. 178.

C. formosus, f. 3, *galiciensis*, f. 4, Galicia, RYBINSKI, Bull. Ac. Cracovie 1902, p. 12, pl. iii; *C. pervestitus*, S. California, FALL, p. 267, Pap. Calif. Ac. viii : n. spp.

Chelotonyx fasciculatus, Mexico, pl. ix, f. 1, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv, p. 126, n. sp.

Chlorophanus merkli, Algeria, HOLDHAUS, Verh. Ges. Wien lii, p. 209, n. sp.

Cimbus sulphureus, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1901, p. 357, n. sp.

Cionesthes n. g. near *Cionus*, for *C. vestitus*, n. sp., Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 241.

Cionus; food-plants in Denmark, ANDERSEN, Ent. Meddel. i, p. 111; cocoons, KEW, Naturalist 1902, pp. 147–155.

Cleonus pacificus, p. 260, *erysimi*, p. 261, S. California, FALL, Pap. Calif. Ac. viii; *C. aztecus*, Mexico, pl. vii, f. 2, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv, p. 99 : n. spp.

Conocœtus revised, cf. *Eustolomorphus*, *Rhinocœtus*, DESBROCHERS, Frelon x, pp. 121–134.

C. quadraticollis, Smyrna, id. t. c. p. 129, n. sp.

Cossonus planatus, *crenulatus*, p. 380, *fortipes*, p. 381, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, n. spp.

Cryptorhynchus lapathi, in N. America, life-history, WEBSTER, Rep. ent. Soc. Ontario xxxii, pp. 67–73.

C. verus, Australia, LEA, P. Linn. Soc. N. S. Wales xxvii, p. 410, n. sp.

Curculio mendicus Ol. referred to *Sphenophorus*, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 243.

Cybebus perrieri, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 382, n. sp.

Cyclobarus hipponensis, Algeria, PIC, Echange xvii, p. 33, n. sp.

Cycloteres fasciculatus, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 237, n. sp.

Cylas nigrocœrulans, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 384, n. sp.

Derelominus n. g., for *D. piceus*, n. sp., Brit. Honduras, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv, p. 141.

Derelomus estriatus, *palmarum*, pl. viii, f. 24, Mexico, CHAMPION, t. c. p. 140, n. spp.

Desmidophorus pictipennis, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, n. sp.

Diachelus n. g., pp. 137, 150, for *Polydrusus laticeps* Db., DESBROCHERS, Frelon x.

Dinocleus dentatus, Mexico, pl. vii, f. 5, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv, p. 100, n. sp.

Dioptrophorus fausti, pl. vi, f. 20, p. 93, *prolixus*, f. 21, *verrucifer*, f. 25, p. 94, CHAMPION, t. c. n. spp.

Dorytomus armatus, Hungary, PETRI, Wien. ent. Zeit. xxi, p. 156, n. sp.

Echinopeplus dilatatus Broun [? not described, Recorder] = (*Heterodiscus horridus* Sharp), LEWIS, Tr. N. Zealand Inst. xxxiv, p. 204.

Ellimorrhinus n. g. *Oosomini*, p. 581, for *E. insularis*, n. sp., Aldabra Ids., p. 582, KOLBE, Abh. Senckenb. Ges. xxvi.

Endalus minutus, Mexico, pl. viii, f. 19, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv, p. 137, n. sp.

Epicœrus imbricatus, early stages, OSBORN & MALLY, P. Iowa Ac. iii, p. 206.

Epimechus æmulus, p. 266, *arenicolor*, p. 265, S. Calfornia, FALL, Pap. Calif. Ac. viii, n. spp.

Epiphylax oblongulus, p. 241, *apicalis*, p. 242, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi ; *E. planicollis*, *cribricollis*, *griseostriatus*, p. 378, *tenuis*, *punctulicollis*, p. 379, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902 : n. spp.

Eudipnus, cf. *Thomsoneonymus*.

Eupholus loriæ, N. Guinea, GESTRO, Bull. Soc. ent. Ital. xxxiv, p. 48, n. sp.

Eustolomorphus n. g. for *Polydrusus phœnicius* Fairm. = (*oberthuri* Db.), DESBROCHERS, Frelon x, pp. 121, 122, 134.

Geobyrsa = (*Anephilus* Faust), *G. nodifera*, pl. vi, f. 19, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv, p. 92.

Grasidius n. g. near *Thyrogenes*, p. 128, for *G. longimanus*, n. sp., Guatemala, pl. viii, f. 11, p. 129, CHAMPION, t. c.

Grypidiopsis n. g. *Erirhinides*, for *G. variegatus*, n. sp., Mexico, pl. viii, f. 10, CHAMPION, t. c. p. 127.

Gymnetron moricei, Greece, PIC, Echange xvii, p. 26 ; *G.* (*Aprinus*) *saladense*, Algeria, PIC, Echange xvii, p. 24 [second time] : n. spp.

Haplocorynus rotundicollis, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 370, n. sp.

Heteronus elegans, cf. *Aviranus*.

H. costicollis, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 377, n. sp.

Hilipinus n. g. for part of *Hilipus*, p. 51, with the following new, *ingens*, pl. iv, f. 12, p. 52, *biguttatus*, f. 13, *laticollis*, f. 14, p. 53, *alternatus*, p. 54, *mucronatus*, *scabiosus*, f. 16, p. 55, *fusiformis*, *quadrimaculatus*, f. 17, p. 56, *humeralis*, f. 18, p. 57, *sulcicrus*, f. 20, *sulcirostris*, f. 21, p. 58, *dentirostris*, f. 22, *curvirostris*, p. 59, *guatemalensis*, p. 60, *ochreopictus*, f. 24, p. 61, Central America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv.

Hilipus albopictus, pl. 1, f. 14, p. 9, *fenestratus*, f. 15, *albovenosus*, f. 16, p. 10, *hieroglyphicus*, f. 17, *limbatus*, f. 18, p. 11, *rectirostris*, f. 19, *ornatus*, f. 20, p. 12, *furcatus*, f. 21, *cylindricus*, f. 22, p. 13, *trifasciatus*, figg. 24, 25, p. 14, *belti*, f. 26, *albonotatus*, pl. ii, f. 1, p. 15, *albomaculatus*, f. 2, *stictopterus*, figg. 3, 4, p. 16, *bivittatus*, f. 5, *areolatus*, f. 6, p. 17, *clathratus*, f. 7, p. 18, *longirostris*, f. 9, *atomarius*, f. 10, p. 19, *mixtus*, f. 11, *guttiger*, f. 12, p. 20, 12-*guttatus*, f. 13, p. 21, *sexmaculatus*, f. 15, *albifrons*, f. 16, p. 22, *securiger*, f. 18, p. 23, *nigrofasciatus*, f. 19, p. 24, *leucostictus*, f. 21, p. 25, *chiriquensis*, f. 22, *rotundicollis*, f. 23, p. 26, *spiculosus*, f. 25, p. 27, *appendiculatus*, f. 27, p. 28, *pulchellus*, pl. iii, f. 2, p. 29, *flavolineatus*, f. 7, *nigromaculatus*, f. 8, p. 32, *decoratus*, f. 9, p. 33, *atrosignatus*, f. 12, p. 34, *asperatus*, f. 13, *costaricensis*, f. 14, p. 35, *trinotatus*, f. 15, p. 36, *quadrinodosus*, f. 17, p. 37, *quadrisignatus*, f. 19, p. 38, *adustus*, f. 22, *lentiginosus*, f. 23, p. 40, *angulosus*, f. 24, *strigipectus*, f. 25, p. 41, *punctipectus*, p. 42, *cæcus*, f. 27, *unifasciatus*, pl. iv, f. 1, p. 43, *cinctipennis*, p. 44, *crux-alba*, f. 2, *scutellaris*, f. 3, p. 45, *pulverulentus*, f. 4, *fulvisquamis*, f. 5, p. 46, *hyperoides*, *sulcifer*, f. 6, p. 47, *penicillatus*, f. 7, p. 48, *compressicollis*, f. 8, p. 49, Central America, CHAMPION, t. c. n. spp.

Hipporrhinus nestor, p. 405, *occidentalis*, p. 406, *fictilis*, p. 407, *canaliculatas*, p. 408, *incisirostris*, p. 409, *horni*, p. 410, *tricostatus*, p. 411, *maculatus*, p. 412, *lobatus*, p. 414, *brachyceroides*, p. 415, *oaxus*, p. 416, *janus*, p. 439, *congestus*, p. 440, *criniger*, p. 441, *gunningi*, p. 442,

errans, p. 443, *consors*, p. 444, *asper*, p. 445, *serratus*, p. 446, *deceptor*, p. 447, *sparsus*, p. 448, *chirindensis*, p. 449, *brevis*, p. 450, *braunsi*, p. 451, *vicinus*, p. 452, *laticeps*, p. 453, *incertus*, p. 454, *aculeatus*, p. 455, *bimaculatus*, p. 456, S. Africa, MARSHALL, Ann. Nat. Hist. x, n. spp.

Holonychus cruralis, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 236, n. sp.

Homapterus chevrolati n. n. for *affinis* Chevr., DESBROCHERS, Frelon x, p. 156.

Homœonychus fuscorufus, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 237, n. sp.

Hylobius mesopotamicus, Mesopotamia, PIC, Echange xvii, p. 25 [second time]; *H. græcus*, Taygetos, PIC, t. c. p. 57 : n. spp.

Hypera ocellata, Mexico, CHAMPION, pl. i, fig. 1, p. 3, Biol. Centr.-Amer. Col. iv, pt. iv, n. sp.

Hyperiosoma n. g. *Cryptorhynchides*, p. 434, for *H. falcatum*, n. sp., Cooktown, p. 435, LEA, P. Linn. Soc. N. S. Wales xxvii.

Hyperodes testaceipes, pl. viii, fig. 2, *angustata*, fig. 3, Centr. America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv, p. 122, n. spp.

Ileomus distinguendus, pl. vii, fig. 16, p. 113, CHAMPION, t. c.

Inocatoptes n. g. near *Inophlœus*, for *I. incertus*, n. sp., Auckland Ids., BROUN, Tr. N. Zealand Inst. xxxiv, p. 178.

Isorrhinus depressus, pl. i, fig. 3, p. 4, *gibbus*, fig. 5, *undatus*, fig. 7, p. 5, Centr. America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv, n. spp.

Ithaura pinicola, pl. iv, figg. 26, 27, *exarata*, fig. 28, Centr. America, CHAMPION, t. c. p. 96, n. spp.

Laccoproctus acalloides, pl. v, fig. 3, p. 66, CHAMPION, t. c.

Lagenoderus coniferus, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 282, n. sp.

Liocalandra hovana, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 242, n. sp.

Lissorhoptrus simplex, pl. viii, fig. 15, *apiculatus*, fig. 16, CHAMPION, p. 135, Biol. Centr.-Amer. Col. iv, pt. iv.

Listronotus bagoiformis, Mexico, pl. viii, fig. 1, CHAMPION, t. c. p. 120, n. sp.

Lithinus spinicollis, *cretaceus*, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 361, n. spp.

Lixomorpha n. g. near *Hilipus*, p. 62, for *L. albomarginata*, n. sp., Costa Rica, pl. iv, figg. 26, 27, p. 63, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv.

Lixus dentipes, pl. vii, fig. 6, p. 102, *cavicollis*, p. 103, *inermis*, *rugulirostris*, p. 104, *toltecus*, p. 105, *quadricollis*, p. 107, *caudatus*, fig. 7, *nigrinus*, p. 108, *sulcimargo*, *tæniatus*, fig. 13, p. 111, *maculipennis*, fig. 14, *apterus*, fig. 15, p. 112, Centr. America, CHAMPION, t. c., n. spp.

Lyperobius læviusculus, Auckland Ids., BROUN, Tr. N. Zealand Inst. xxxiv, p. 179, n. sp.

Macrobrachonyx n. g. near *Anthonomus*, for *M. gounellei*, n. sp., Tenerife, PIC, Echange xvii, p. 81.

Magdalis aterrimus, early stages, XAMBEU, Naturaliste xxiv, p. 271.

Mecinus dorsalis, galls, TAVARES, Broteria i, p. 176.

Megamastus costipennis, *minor*, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 369, n. spp.

Metatyges occidentalis, Benguela, FAIRMAIRE, Bull. Soc. ent. France 1902, p. 135, n. sp.

Metialma perrieri referred to *Osphiliades*, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 371.

Mylacus atticus, Greece, p. 25, *martini*, Caucasus, p. 26, PIC, Echange xvii, n. spp.

Nanophyes; note on Rey's species, PIC, Bull. Soc. ent. France 1902, p. 95;

N. globiformis, *niger*, galls, TAVARES, Broteria i, p. 42; *N. pallidus*, its jumping gall, TAVARES, t. c. pp. 173–176, cuts.

N. marmoratus var. n. *mulleri*, REITTER, Wien. ent. Zeit. xxi, p. 196.

Ochetina induta, Guatemala, pl. viii, fig. 13, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv, p. 132, n. sp.

Oncorrhinus latipennis, Centr. America, CHAMPION, t. c. p. 68, pl. v, fig. 5, n. sp.

Onychogymnus perrieri, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 363, n. sp.

Onychylis meridionalis, pl. viii, fig. 14, p. 133, *setiger*, *cretatus*, p. 134, Mexico, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv, n. spp.

Orchestes flagellum, Spitzbergen, ERICSON, Verh. Ges. Wien lii, p. 15.

Oreocharis picigularis Br. (= *O. bicristatus* Br. ♀), LEWIS, Tr. N. Zealand Inst. xxxiv, p. 204.

Osphilia semicristata, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 370; *O. centrolineata*, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 240 : n. spp.

Osphiliades, cf. *Metialma*.

O. pictidorsis, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 240, n. sp.

Otiorrhynchus sensitivus var. n. *hilfi*, *O. caudatus* var. n. *lætificator*, *O. niveopictus* var. n. *bellicomus*, REITTER, Wien. ent. Zeit. xxi, p. 7; *O. alutaceus* var. n. *augustior*, MÜLLER, Wien. ent. Zeit. xxi, p. 116; *O. tenebricosus* and *fuscipes*, EDWARDS, Ent. Mag. xxxviii, p. 240; *O. fussianus*, characters, CSIKI, Wien. ent. Zeit. xxi, pp. 107 110, cuts; *O. fussianus*, note, KRAUSS, Wien. ent. Zeit. xxi, p. 147 and CSIKI again, t. c. pp. 244–246; KRAUSS, t. c. pp. 247, 248.

O. amplus, Siebenbürgen, PETRI, Verh. Ges. Wien lii, p. 98; *O.* (*Dorymerus*) *kraussi*, Carniola, GANGLBAUER, Verh. Ges. Wien lii, p. 105; *O. ligneoides*, Calabria, p. 426, *O.* (*Tournieria*) *rufiventris*, Switzerland, p. 427, STIERLIN, Mt. Schweiz. ent. Ges. x; *O. cephalonicus*, Samos, PIC, Echange xvii, p. 57: *O. epiroticus*, *peristericus*, Epirus, APFELBECK, Wiss. Mitt. Bosnien viii, p. 466; *O. mecops*, *gymnopterus*, p. 105, *crinitellus*, p. 108, *O.* (*Arammichnus*) *sesquidentatus*, p. 109, *O.* (*Tournieria*) *heterostictus*, p. 110, *bodemeyeri*, p. 111, *spinifer*, p. 112, Asia Minor, DANIEL & DANIEL, München. Kol. Zeitschr. i : n. spp.

Pachyonyx concavicollis, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 370, n. sp.

Pachytychius latithorax, Morea, PIC, Echange xvii, p. 26, n. sp.

Peritelus andræ, Italy, DESBROCHERS, Frelon x, p. 105, n. sp.

Phellocaulus seriegranosus, Madagascar, FAIRMAIRE, Ann. Soc. ent France 1902, p. 360, n. sp.

Phelypera isthmica, Panama, pl. i, fig. 8, p. 6, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv, n. sp.

Phyllobius ætolicus, Greece, APFELBECK, Wiss. Mitt. Bosnien viii, p. 467; *P. elbesensis*, Syria, REITTER, Wien. ent. Zeit. xxi, p. 195; *P. auliensis*, Centr. Asia, p. 215, *narynensis*, Thian-Schan, *pseudopomonæ*, Irkutsk, p. 216, REITTER, t. c. : n. spp.

Phyllotrox megalops, pl. viii, fig. 25, *ater*, fig. 26, *mecinoides*, fig. 27, p. 142, *montanus*, p. 143, *crassipes*, fig. 28, p. 143, *fulcus*, *marcidus*, p. 144, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv, n. spp.

Piazomias rotundicollis, p. 109, *obsoletus*, *naupactoides*, p. 110, *suberuciatus*, p. 111, Turkestan, DESBROCHERS, Frelon x, n. spp.

Platycopes latipennis, p. 352, *madagascariensis*, *submaculatus*, *lateritius*, p. 353, *pictidorsis*, p. 354, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, n. spp.

Polycleis uniformis, *trapezicollis*, Madagascar, FAIRMAIRE, t. c. p. 356, n. spp.

Polydrusus phœnicius, cf. *Eustolomorphus*: *P. laticeps*, cf. *Diachelus*.
P. dodoneus, Epirus, APFELBECK, Wiss. Mitt. Bosnien viii, p. 468, n. sp.
Prœces rufipes, Seychelles, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 381, n. sp.
Proictes longehirtus, Madagascar, FAIRMAIRE, t. c. p. 352, n. sp.
Pseudiphisus n. g. near *Iphisomus*, for *P. guttulatus*, n. sp., Madagascar, FAIRMAIRE, t. c. p. 360.
Pseudobalaninus tetragrammus, *striatipennis*, p. 372, *rufipes*, *albogriseus*, *griseopilosus*, p. 373, *quadrillus*, *hirtulus*, p. 374, *longehirtus*, *penicillatus*, p. 375, Madagascar, FAIRMAIRE, t. c. n. spp.
Ptochus periteloides var. = (*Foucartia henschi* Reitt.), REITTER, Wien. ent. Zeit. xxi, p. 136.
P. neapolitanus, Italy, PIC, Echange xvii, p. 26; *P. albanicus*, Epirus, APFELBECK, Wiss. Mitt. Bosnien viii, p. 467 : n. spp.
Pyrœchmes n. g. near *Onychylis*, for *P. brevitarsis*, n. sp., Guatemala, pl. viii, fig. 17, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv, p. 136.
Raymondia hispalensis, Spain, DESBROCHERS, Frelon x, p. 106, n. sp.
Rhecas n. g. near *Laccoproctus*, p. 65, for *R. spureus*, n. sp., Guatemala, pl. v, fig. 2, p. 66, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv.
Rhinocœtus n. g. for *Conocœtus desbrochersi* St., DESBROCHERS, Frelon x, pp. 121, 122, 135.
Rhynchites, habits, SCHREINER (1213); *R. conicus* injurious to Chrysanthemums, GIRARDIN, Bull. Soc. Yonne lvi, p. 43.
R. œratoides, S. California, FALL, p. 260, Pap. Calif. Ac. viii, n. sp.
Rhynchophorus cruentatus, metamorphosis, CHITTENDEN, Bull. Dep. Agric. Ent. No. 38, p. 26, cuts.
Rhyparonotus serripes, pl. vi, fig. 17, p. 90, *vermiculatus*, *inermis*, fig. 18, p. 91, Centr. America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv, n. spp.
Sciaphilus asiaticus, Akbès. *humeralis*, Algeria, p. 107, *subcostatus*, Crissolo, p. 108, DESBROCHERS, Frelon x, n. spp.
Scleropoides n. g. *Cryptorhynchides*, p. 435, for *S. squamicollis*, *trianguliferus*, n. spp., Australia, LEA, P. Linn. Soc. N. S. Wales xxvii.
Scybis n. g. *Storeides*, p. 137, for *S. pubescens*, n. sp., Guatemala, pl. viii, fig. 20, p. 138, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv.
Scythropus; tabulation of palæarctic, DESBROCHERS, Frelon x, pp. 137–150.
Sibinia annulifer, Mongolia, *argentifer*, Algeria, *ægyptiaca*, Egypt, p. 39, *sahlbergi*, Centr. Asia, *tychiiformis*, Algeria, *gallica*, Cette, p. 40, PIC, Echange xvii, n. spp.
Sitones sulcifrons var. n. *deubeli*, KRAUSS, Wien. ent. Zeit. xxi, p. 91.
S. albolineatus, Portugal, REITTER, Wien. ent. Zeit. xxi, p. 195, n. sp.
Smicronyx tectus, p. 129, *loricatus*, *cataphractus*, pl. viii, fig. 12, p. 130, *thoracatus*, *tenuirostris*, *tenuisquamis*, p. 131, Centr. America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv, n. spp.
Soranus n. g. near *Anaptoplus*, p. 358, for *S. erinaceus*, n. sp., Madagascar, p. 359, FAIRMAIRE, Ann. Soc. ent. France 1902.
Sphenophorus obscurus in Hawaii, Bull. U. S. Dep. Agric. Ent. No. 38, pp. 102–104.
S. tardus, S. California, FALL, p. 269, Pap. Calif. Ac. viii, n. sp.
Sternechus continuus, pl. vii, fig. 20, *spinipes*, fig. 21, p. 115, *foveolatus*, *brevicollis*, fig. 22, *fuscomaculatus*, fig. 23, p. 116, *aurocinctus*, fig. 24, *bicaudatus*, fig. 25, p. 117, *bifasciatus*, fig. 26, *nitidus*, p. 118, *bicinctus*, fig. 28, p. 119, Centr. America, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv, n. spp.
Sympiezopus conicicollis, *rufotinctus*, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 239, n. sp.
Tanysomus n. g. near *Platycopes*, p. 355, for *T. frenatus*, n. sp., Madagascar, p. 356, FAIRMAIRE, Ann. Soc. ent. France 1902.

Tanysomus leucophæus, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 236, n. sp.
Telys n. g. near *Hilipus*, p. 61, for *T. bisinuatus*, n. sp., Guatemala, pl. iv, fig. 25, p. 62, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv.
Terires n. g. *Storeides*, for *T. pilosus*, n. sp., Guatemala, pl. viii, fig. 21, CHAMPION, t. c. p. 138.
Theognete n. g. near *Dioptrophorus*, for *T. lævis*, n. sp., Mexico, pl. vi, fig. 29, CHAMPION, t. c. p. 97.
Thomsoneonymus, n. g., p. 113, for part of *Eudipnus*, with ? n. spp., S. Europe, pp. 117–119, DESBROCHERS, Frelon x.
Trachyphlœus picturatus, Spain, FUENTE, Bol. Soc. espan. ii, p. 106, n. sp.
Trichobaris trinotata, habits, larva, CHITTENDEN, Bull. U. S. Dep. Agric. Ent. No. 33, pp. 9–18.
Typhloglymma referred to *Anchonina*, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv, p. 67.
Tyrtæosus religiosus, p. 416, *biseriatus*, p. 418, *æmulus*, *dolosus*, p. 420, *ichthyosomus*, p. 422, *carinatus*, p. 423, *castor*, p. 424, *pollux*, p. 425, *assimilis*, p. 426, *imitator*, p. 427, *laterarius*, p. 428, *inermis*, *corpulentus*, p. 429, *cinerascens*, p. 430, *urens*, p. 431, *æquus*, *crassirostris*, p. 432, *quadratolineatus*, p. 433, Australia, LEA, P. Linn. Soc. N. S. Wales xxvii, n. spp.
Udeus n. g. near *Eugnomus*, for *U. eugnomoides*, n. sp., Mexico, pl. viii, fig. 22, CHAMPION, Biol. Centr.-Amer. Col. iv, pt. iv, p. 139.

SCOLYTIDÆ.

[Cf. HOPKINS (616, 617), LEIST (792), REITTER (1130), SCHRÖDER (1215 A), SEMENOW (1250).]

Anatomy and development of internal sexual structures, male, SCHRÖDER, (1215 A).
Cannibalism in *Trypodendron*, LEIST (792).

Carphoborus rossicus, Jelabuga, SEMENOW, Rev. Russe Ent. ii, p. 272, n. sp.
Dendroctonus, taxonomy, HOPKINS, P. ent. Soc. Washington v, p. 3.
D. ponderosa, N. America, HOPKINS, Bull. U. S. Dep. Agric. Ent. No. 32, p. 10, n. sp.
Erineophilus n. g., p. 34, and new group *Erineophilides*, p. 37, for *E. schwarzi*, n. sp., Florida, p. 36, cuts, HOPKINS, P. ent. Soc. Washington v.
Hylastinus tiliæ, Transcaucasus, SEMENOW, Rev. Russe Ent. ii, p. 271, n. sp.
Hypothenemus kunnemanni, Bremen, REITTER, Wien. ent. Zeit. xxi, p. 140, n. sp.
Kissophagus novaki, *hederæ*, distinctions, MÜLLER, p. 116, REITTER, p. 117, Wien. ent. Zeit. xxi.
Liparthrum arnoldi, Tiflis, SEMENOW, Rev. Russe Ent. ii, p. 272, n. sp.
Phlœopthorus vino-gradowi, Transcaucasus, SEMENOW, t. c. p. 269, n. sp.
Phlœosinus punctatus, ravages, FOWLER, Rep. Agric. exp. Stat. California 1898–1901, p. 80.
P. turkestanicus, Bukhara etc., SEMENOW, Rev. Russe Ent. ii, p. 269, n. sp.
Pityophthorus coniperda, habits, HARRINGTON, Canad. Ent. xxxiv, p. 72.
Scolytus schevyrewi, Thian-shan, p. 265, *koenigi*, Transcaspian, p. 266, *morawitzi*, Transbaikal, p. 267, SEMENOW, Rev. Russe Ent. ii, n. spp.

BRENTHIDÆ.

[Cf. SENNA (1254, 1263).]

Allæometrus n. g., p. 157, for *A. breviceps*, n. sp., Sumatra, p. 158, SENNA, Bull. Soc. ent. Ital. xxxiv.
Carcinopisthius maculatus, Sumatra, SENNA, t. c. p. 164, n. sp.
Cordus sculpturatus, Sumatra, SENNA, t. c., n. sp.
Cyphagogus incisus, p. 153, *obconiceps*, *silvanus*, p. 154, *simulator*, p. 155, Sumatra, SENNA, t. c., n. spp.
Diurus silvanus ♀, SENNA, P. Zool. Soc. London 1902, ii, p. 280, pl. xx, fig. 4.
D. shelfordi, Borneo, p. 279, pl. xx, fig. 6, id. t. c. ; *D. silvanus*, Sumatra, SENNA, Bull. Soc. ent. Ital. xxxiv, p. 177 : n. spp.
Eterozemus n. g. for *Zemioses lætus* Senna, SENNA, t. c. p. 162.
Jonthocerus mimus sumatranus var. n., SENNA, t. c. p. 164.
Microsebus kerimi, Sumatra, SENNA, t. c. p. 162, n. sp.
Microtrachelizus montrouzieri, p. 167, *silvicola*, p. 168, *sirambeicus*, p. 169, Sumatra, SENNA, t. c., n. spp.
Miolispa exarata varr. n. *sumatrana*, *humeralis*, *metallica impressa*, p. 172, SENNA, t. c.
Neosebus n. g. *Taphroderini*, for *N. bidentatus*, n. sp., Sumatra, SENNA, t. c. p. 156.
Orychodes cinnamomi tuberculatus n. var., SENNA, t. c. p. 175.
Paraclidorhinus n. g. p. 159, for *P. modigliani*, n. sp., Sumatra, p. 160, SENNA, t. c.
Propthalmus ruficornis, Sumatra, SENNA, t. c. p. 174, n. sp.
Pseudorychodes dentipennis, ♂, SENNA, t. c. p. 176.
Stereodermus nemoralis, *elytralis*, Sumatra, SENNA, t. c. p. 166, n. spp.

ANTHRIBIDÆ.

[Cf. FAIRMAIRE (412), JORDAN (662), MARSHALL (871), ZEHNTNER (1511).]

Aræcerus fasciculatus, natural history, ZEHNTNER (1511).
Coxtexta n. g. near *Protœdus*, for *C. murina*, n. sp., Ceylon, JORDAN, Deutsche ent. Zeitschr. 1903, p. 78.
Disphærona n. g. near *Eucorynus*, for *D. punctata*, n. sp., Ceylon, JORDAN, t. c. p. 77.
Exillis horni, Ceylon, JORDAN, t. c. p. 77, n. sp.
Habrissus tibialis, Ceylon, JORDAN, t. c. p. 76, n. sp.
Mentanus n. g. near *Phlœobius*, for *M. costulatus*, n. sp., Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 243.
Meriolus n. g. *Tropiderides*, for *M. piceopictus*, n. sp., Madagascar, FAIRMAIRE, t. c. p. 244.
Phlœobius ceylonicus, Colombo, JORDAN, Deutsche ent. Zeitschr. 1902, p. 78, n. sp.
Spathorrhamphus n. g., p. 210, for *S. corsicus*, n. sp., Vizzavona, p. 211, MARSHALL, Bull. Soc. ent. France 1902.
Zygœnodes horni, *molitor*, Ceylon, JORDAN, Deutsche ent. Zeitschr. 1902, p. 76, n. spp.

BRUCHIDÆ.

[Cf. DARBOUX & MINGAUD (307, 308), FAIRMAIRE (412), PIC (1036, 1059, 1060).]

Bruchus multinotatus, *martini*, *subcœruleus*, Africa, PIC, Naturaliste xxiv, p. 146 ; *B. longipennis*, p. 7, *B.* (*Callosobruchus* s. g. n.) *marshalli*

rhodesianus, p. 6, Rhodesia, PIC, Rev. Ent. franc. xxi; *B. amplipennis*, *brachypygus*, p. 245, *rufopubens*, *rubroguttatus*, p. 246, *striatus*, *trogodermoides*, p. 247, Madagascar, FAIRMAIRE, Ann. Soc. ent Belgique xlvi; *B. patagonicus*, *silvestrii*, Patagonia, PIC, Echange xvii, p. 51 : n. spp.

Callosobruchus s. g. n. cf. *Bruchus*.

Caryoborus nigrosignatus, Rhodesia, PIC, Rev. Ent. franc. xxi, p. 5; *C. longus*, Africa, *minutus*, Madagascar, PIC, Naturaliste xxiv, p. 146; *C. revoili*, *sparsepunctatus*, S. America, PIC, t. c. p. 172 : n. spp.

Laria obtecta, early stages, DARBOUX & MINGAUD, Bull. Soc. ent. France 1902, pp. 72–75 and larval stages, synonymy, DARBOUX & MINGAUD, Bull. Soc. Nimes xxix, pp. 25–29.

Spermophagus multisignatus, Lour. Marquez, PIC, Naturaliste xxiv, p. 146; *S. gounellei*, *jatayensis*, *luteonotatus*, *sparsenotatus*, *longissimus*, *subflavidus*, *multimaculatus*, S. America, PIC, t. c. p. 172 : n. spp.

CERAMBYCIDÆ.

[Cf. AURIVILLIUS (46), BELON (81–85), BLACKBURN (112), ESCALERA (403, 404), FAIRMAIRE (411, 412, 416, 419, 420, 421, 423), FALL (424), GAHAN (660, 1263), HERRICK (597), JAKOWLEFF (650), JOUTEL (663), KOLBE (725), LAMEERE (757–760, 764, 765), LAUFFER (775), LEA (784), R. OBERTHÜR (971), PIC (1021, 1026, 1031, 1048, 1050, 1054), REITTER (1129), SEMENOW (1251), SHELFORD (1263).]

Revision of *Parandrines*, being the first part of a monograph of *Prionides*, LAMEERE, Ann. Soc. ent. Belgique xlvi, pp. 59–111.

Part II, *Anoplodermines*, id. t. c. pp. 191–225.

Part III, *Spondylines*, id. t. c. pp. 303–334.

Part IV, *Stenodontines*, Mem. Soc. ent. Belgique, pp. 63–110. The synonymy is too extensive and complex for dealing with here: reference must be made to the work itself.

Use of the tibial grooves of *Lamiides*, LAMEERE, Bull. Soc. ent. France 1902, p. 265.

Mimetic longicorns, SHELFORD, P. Zool. Soc. London 1902, ii, pp. 238–252.

Acanthocinus pusillus and *obsoletus*, distinguished, SCHAEFFER, Ent. News Philad. xiii, p. 236.

Adetus atomarius, p. 464, *guttulatus*, p. 466, *abruptus*, p. 467, *latericius*, p. 468, *incomptus*, p. 469, Bolivia, BELON, Ann. Soc. ent. Belgique xlvi, n. spp.

Aliturus n. g. near *Icariotis*, for *A. gracilipes*, n. sp., Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 386.

Anauxesis perrieri, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 256, n. sp.

Anobrium n. g. *Obrionides*, p. 333, for *A. oberthuri*, n. sp., Bolivia, BELON, Bull. Soc. ent. France 1902.

Anoploderma; revision, including *Migdolus*, *Sypilus*, *Cherrocrius* and *Mysteria* as subgenera, LAMEERE, Ann. Soc. ent. Beiglque xlvi, pp. 191–225.

A. thulanum, p. 201, *A.* (*Mysteria*) *darwini*, p. 210, *schroderi*, p. 211, *lacordairei*, p. 212, S. America, LAMEERE, t. c., n. spp.

Anthribola niviguttata, Madagascar, FAIRMAIRE, Naturaliste xxiv, p. 287, n. sp.

Aphrodisium saxosicolle, Yunnan, FAIRMAIRE, Bull. Soc. ent. France 1902, p. 245, n. sp.

Arctolamia fruhstorferi, Tonkin, AURIVILLIUS, Ent. Tidskr. xxiii, p. 208, n. sp.

Aromia basifemoralis, China, Pic, Longicornes iv, p. 30, n. sp.
Artelida gracilipes, *remipes*, Madagascar, Fairmaire, Naturaliste xxiv, p. 287; *A. diversitarsis*, *holoxantha*, Madagascar, Fairmaire, Ann. Soc. ent. France 1902, p. 385 : n. spp.
Astathes etc. of Paris Museum, *A. dimidiata*, note on, R. Oberthür, Bull. Mus. Paris viii, pp. 423–425.
Atripatus n. g. near *Daramus*, p. 248, for *A. subcylindricus*, n. sp., Madagascar, p. 249, Fairmaire, Ann. Soc. ent. Belgique xlvi.
Auxa gibbicollis, Madagascar, Fairmaire, Ann. Soc. ent. Belgique xlvi, p. 255, n. sp.
Brachytatus interruptus, *obscuricollis*, p. 253, *funerens*, p. 254, Madagascar, Fairmaire, t. c., n. spp.
Callidium scutellare, Madagascar, Fairmaire, Ann. Soc. ent. France 1902, p. 387, n. sp.
Callipogon (*Eoxenus*) *relictus* ♀, Semenow, Rev. Russe Ent. ii, p. 321, cut.
Calloplophora fruhstorferi, Tonkin, Aurivillius, Ent. Tidskr. xxiii, p. 209, n. sp.
Caloclytus syriacus, Syria, Pic, Echange xvii, p. 25, n. sp.
Cantharocnemis fairmairei, p. 308, *gahani*, p. 312, Africa, Lameere, Ann. Soc. ent. Belgique xlvi, n. spp.
Cantharoprion subg. n. for *Cantharocnemis livingstonei* Westw., Lameere, t. c. p. 314.
Carneades quadrinodosa, Columbia, Aurivillius, Ent. Tidskr. xxiii, p. 224, n. sp.
Ceresium opacum, Madagascar, Fairmaire, Ann. Soc. ent. Belgique xlvi, p. 249, n. sp.
Chelidones [? *Chlidones*] *apicalis*, Madagascar, Fairmaire, Naturaliste xxiv, p. 287, n. sp.
Clytanthus, *guerryi*, p. 30, *insignifer*, *tixieri*, p. 31, China, Pic, Longicornes iv, p. 31, n. spp.
Clytus paulonotatus, China, Pic, t. c. p. 20, n. sp.
Cœdomœa lichenea, Madagascar, Fairmaire, Ann. Soc. ent. Belgique xlvi, p. 255; *C. induta*, Madagascar, Fairmaire, t. c. p. 253, n. spp.
Cœnoptera marmottani, larva, Lavagne, Echange xvii, p. 72.
Colobothea declivis, p. 209, *simillima*, *crucigera*, with var. *amazonica*, p. 210, *plagiata*, *assimilis*, p. 212, *eximia*, p. 213, *numida*, p. 214, *obconica*, p. 215, *guttulata*, p. 216, *sexmaculata*, *flavoguttata*, p. 218, *plebeia*, p. 219, *niveosparsa*, *sahlbergi*, p. 220, *sordida*, *punctata*, p. 221, *mimetica*, *appendiculata*, p. 222, S. America, Aurivillius, Ent. Tidskr. xxiii, n. spp.
Colpoderus stuhlmanni ♂, Gahan, in Johnston Uganda Protectorate i, p. 462.
Cyrtognathus dentipes, p. 243, *sternalis*, p. 244, Yunnan, Fairmaire, Bull. Soc. ent. France 1902, n. spp.
Derechinus n. g. near *Dorycera* for *D. delatouchii*, n. sp., China, Fairmaire, t. c. p. 317.
Diadelia iners, Madagascar, Fairmaire, Ann. Soc. ent. France 1902, p. 388, n. sp.
Dorcadion: variation of Spanish, Escalera, Bol. Soc. espan. ii, pp. 270–272; *D. seguntianum* var. n. *intermedium*, p. 287, *heydeni* var. n. *seeboldi*, p. 288, *mucidum* and *handschuchi* distinguished, p. 289, *circumcinctum* = (*tenuecinctum* Pic), p. 290, Escalera, t. c.; *D. anatolicum* var. n. *subuniforme*, Pic, Echange xvii, p. 27.
D. abulense, Spain, Lauffer, Soc. ent. xvii, p. 105; *D. neilense*, p. 278, *almarzense*, p. 279, with varr. *urbionense*, *costatum*, p. 280, *villosladense*, p. 280, *terolense*, p. 282, with subsp. *albarium*, p. 283, *mosqueruelense*, p. 283, with var. *pseudo-molitor*, p. 285, *pruinosum*, p. 285, *demandense*.

p. 286, *parmeniforme*, p. 288, Spain, ESCALERA, Bol. Soc. espan. ii; *D. mokrzeckii*, Crimea, JAKOWLEFF, Rev. Russe Ent. ii, p. 148; *D. invicinum*, Diarbekir, PIC, Bull. Mus. Paris viii, p. 93 : n. spp.

Ectenessa villardi, p. 13, *argodi*, *nigriventris*, p. 15, Brazil, BELON, Ann. Soc. ent. Belgique xlvi, n. spp.

Entebbia n. g. *Tragocephalides* for *E. bipunctata*, n. sp., Uganda, GAHAN in Johnston Uganda Protectorate i, p. 463, n. sp.

Epeuchætes n. n. for *Euchætes* Lec., p. 27, but p. 52 *Eunyssobia* Casey = (*Epeuchætes*) LYMAN, Canad. Ent. xxxiv.

Erythrus rotundicollis, pl. xxiii, fig. 6, *sternalis*, fig. 7, p. 275, *biapicatus*, fig. 19, *viridipennis*, fig. 58, p. 276, Borneo, GAHAN, P. Zool. Soc. London 1902, ii, n. spp.

Eumimetes tenuepunctatus, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, n. sp.

Glenea johnstoni, Uganda, GAHAN in Johnston Uganda Protectorate i, p. 463, n. sp.

Haplocnema curculionides var. n. *biloculata*, NICOLAS, Echange xvii, p. 28.

Holangus, n. g. near *Oxycoleus*, p. 33, for *H. flavonotatus*, n. sp., Tonkin, p. 34, PIC, Longicornes iv.

Hoplorana arciferens, *dorsata*, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 255, n. spp.

Hypocephalus; structure and systematic position, LAMEERE, Ann. Soc. ent. Belgique xlvi, pp. 217–225.

Idobrium, n. g. *Graciliini*, p. 582, for *I. voeltzkowi*, n. sp., Aldabra Ids., p. 583, KOLBE, Abh. Senckenb. Ges. xxvi.

Idæmea californica, S. California, FALL, p. 256, Pap. Calif. Ac. viii, n. sp.

Leptura bangi, Japan, PIC, Bull. Mus. Paris vii, p. 340; *L. inequalithorax*, China, PIC, Longicornes iv, p. 28 : n. spp.

Linda pratti, Kiukiang, PIC, Echange xvii, p. 3; *L. fasciculata*, China, PIC, Longicornes iv, p. 32 : n. spp.

Liopus japonicus, Japan, PIC, Bull. Mus. Paris vii, p. 342, n. sp.

Logisticus proboscideus, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 249, n. sp.

Macropidonia n. g., p. 339, for *M. ruficollis*, n. sp., Japan, p. 340, PIC Bull. Mus. Paris vii.

Macrotoma plicicollis, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 248, n. sp.

Mallosia tristis and *ganglbaueri* distinguished, *ganglbaueri* var. n. *multimaculata*, PIC, Echange xvii, p. 42.

Mastodera ruforelutina, *armicollis*, Madagascar, FAIRMAIRE, Naturaliste xxiv, p. 287, n. spp.

Mecotagus rufulosparsus, Yunnan, FAIRMAIRE, Bull. Soc. ent. France 1902, p. 268, n. sp.

Melanauster argentifer, China, PIC, Longicornes iv, p. 31, n. sp.

Mesosa harmandi, Japan, PIC, Bull. Mus. Paris vii, p. 341, n. sp.

Microcoptops minor, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 252, n. sp.

Migdolus: cf. *Anoploderma*.

Mimocoptops n. g. near *Coptops*, p. 251, for *M. perrieri*, n. sp., Madagascar, p. 252, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi.

Minutius n. g. near *Anisogaster*, p. 386, for *M. tenuis*, n. sp., Madagascar, p. 387, FAIRMAIRE, Ann. Soc. ent. France 1902.

Miocris n. g. near *Erythrus*, for *M. nigrosentatus*, n. sp., Yunnan, FAIRMAIRE, Bull. Soc. ent. France 1902, p. 245.

Monohammus beloni, Japan, PIC, Bull. Mus. Paris vii, p. 341, n. sp.

Musonius n. g. near *Liopus*, for *M. luctuosus*, n. sp., Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 256.

Neogdalis xantha, Caucasus, SEMENOW, Rev. Russe Ent. ii, p. 285; *N.*

sirexoides, Astrabad, REITTER, Wien. ent. Zeit. xxi, p. 82; *N. harmandi*, Japan, PIC, Bull. Mus. Paris vii, p. 340 : n. spp.

Nethinius longipennis, p. 250, *coindardii*, p. 251, *obtusicollis*, p. 252, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, n. spp.

Nicarete pallidulus, Madagascar, FAIRMAIRE, t. c. p. 252, n. sp.

Nothopeus intermedius, Borneo, GAHAN, P. Zool. Soc. London 1902, ii, p. 277, pl. xix, fig. 21, n. sp.

Oberea langana, Tonkin, PIC, Longicornes iv, p. 35; *O. distinctipennis*, *sinense*, *theryi*, China, PIC, Echange xvii, p. 2 : n. spp.

Œdeus thoracicus, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 250, n. sp.

Oncideres texana, life-history, habits, HERRICK, J. N. York Ent. Soc. x, pp. 15–20.

Orica dorsopicta, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 254, n. sp.

Pachyteria latemaculata, *magnifica*, China, PIC, Longicornes iv, p. 29, n. spp.

Parandra expectata, p. 69, *brevicollis*, p. 76, S. America, *brachyderes*, p. 71, Mexico, *heterostyla*, Celebes, p. 100, LAMEERE, Ann. Soc. ent. Belgique xlvi, n. spp.

Paraphacodes subg. n. cf. *Phacodes*.

Paratoxotus farinosus, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 385, n. sp.

Phacodes (*Paraphacodes* subg. n., p. 4), *triangulum*, New Caledonia, BELON, Rev. Ent. franc. xxi, p. 1, n. sp.

Phymatechus n. g. *Œmides*, p. 410, for *P. fenestratus*, n. sp., Congo, p. 411, BELON, Ann. Soc. ent. Belgique xlvi.

Phyodexia carinata, Tonkin, PIC, Longicornes iv, p. 34, n. sp.

Phytœcia tonkinea, Tonkin, PIC, t. c. p. 34, n. sp.

Pidonia semiobscura, *maculithorax*, p. 338, *bouvieri*, p. 339, Japan, PIC, Bull. Mus. Paris vii, n. spp.

Praonetha vagefasciata, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 388, n. sp.

Psebena n. g. *Necydalinæ*, p. 277, for *P. brevipennis*, n. sp., Borneo, p. 278, pl. xix, fig. 12, GAHAN, P. Zool. Soc. London 1902, ii.

Pseudomyrmecion; note, PIC, Bull. Soc. ent. France 1902, p. 28.

Pseudosieversia n. g. for *Pidonia*, *bicolor*, *rufa*, PIC, Echange xvii, p. 19.

Purpuricenus budensis varr., PIC, t. c. p. 27.

Rhytiphora maculosella, Queensland, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, p. 320, n. sp.

Sachalinobia koltzei Heyd. as *Brachyta* = (*retuta* Jac.), JACOBSON, p. 363, Deutsche ent. Zeitschr. 1902.

Sangaris octomaculata, Brazil, AURIVILLIUS, Ent. Tidskr. xxiii, p. 223, n. sp.

Saperda hornii, California, JOUTEL, Ent. News Philad. xiii, p. 33, pl. ii, n. sp.

Sphenura semiluctuosa, Yunnan, FAIRMAIRE, Bull. Soc. ent. France 1902, p. 269, n. sp.

Stenodontes popelairei, Peru, p. 82, *S.* (*Physopleuras*) *villardi*, Ecuador, p. 87, LAMEERE, Mem. Soc. ent. Belgique ix, n. spp.

Sternotomis rufozonata, San-Thomé, FAIRMAIRE, Bull. Soc. ent. France 1902, p. 136, n. sp.

Strangalia quadrizona, Yunnan, FAIRMAIRE, Bull. Soc. ent. France 1902, p. 244; *S.? mirabilis*, Tonkin, AURIVILLIUS, Ent. Tidskr. xxiii, p. 207; *S. guerryi*, China, PIC, Longicornes iv, p. 28 : n. spp.

Symphyletes compos, Queensland, BLACKBURN, Tr. R. Soc. S. Austral. xxvi, p. 319, n. sp.

Tetropiopsis, systematic position; relations of *Monodesmides*, *Vesperus* etc., LAMEERE, Bull. Soc. ent. France 1902, p. 26.

Xylotrechus; brief note, Pic, Bull. Soc. ent. France 1902, p. 92; affinities of palaearctic, Pic, Bull. Soc. zool. France xxvii, p. 71.

Zelota n. g. *Mesosinarum*, p. 273, for *Z. spathomelina*, n. sp., Sarawak, pl. xxiii, fig. 57, p. 274, Gahan, P. Zool. Soc. London 1902, ii.

Chrysomelidæ.

[Cf. Brèthes (166), Demaison (312), Donisthorpe (348), Fairmaire (412), Gestro (527, 528), Jacoby (641, 642), Kaeseberg (664), Pic (1026, 1031), Reitter (1130, 1134), Sanderson (1187), Spaeth (1319–1321), Weise (1476, 1478, 1479, 1482–1484).]

Structure and classification of larvæ, Sanderson, P. ent. Soc. Washington v, pp. 21–31.

Abrarius n. g. near *Cryptocephalus*, for *A. cribrosus*, n. sp., Madagascar, Fairmaire, Ann. Soc. ent. Belgique xlvi, p. 261.

Adialyta n. g. *Monoleptites*, for *A. aurantiaca*, n. sp., Madagascar, Fairmaire, t. c. p. 270.

Æthonea variabilis Jac. *murrayi* Baly, distinguished, Weise, Arch. Naturg. lxviii, i, p. 139.

Agetocera orientalis, Tonkin, Weise, Deutsche ent. Zeitschr. 1902, p. 367, n. sp.

Allorina subg. n. cf. *Chrysochloa*.

Alphidia and *Hovalia*, ? synonymous, Weise, Arch. Naturg. lxviii, i, p. 157.

Amphimela tarsata, Kwai, Weise, t. c. p. 162, n. sp.

Anaxerta n. g. *Arsipodites*, p. 267, for *A. castanea*, n. sp., Madagascar, p. 268, Fairmaire, Ann. Soc. ent. Belgique xlvi.

Aphthona vulgaris, p. 172, *usambarica*, p. 173, Africa, Weise, Arch. Naturg. lxviii, i, n. spp.

Argopus pusillus referred to *Sphæroderma*, Weise, t. c. p. 171.

Asbecesta icterica, Usambara, Weise, t. c. p. 149, n. sp.

Aspidomorpha cf. *Conchyloctenia*; *A. aruwimiensis* = (*nigricornis* W.), Weise, Deutsche ent. Zeitschr. 1902, p. 404; *A. bimaculata* var. n. *cordigera*, p. 447, *areata* var. n. *duvivieri*, p. 448, Spaeth, Ann. Soc. ent. Belgique xlvi.

A. honesta, p. 446, *severini*, p. 447, Centr. Africa, Spaeth, t. c.; *A. gotzeni*, Africa, Kaeseberg (664), p. 400 : n. spp

Baranosa bang-haasi, Peru, Spaeth, Deutsche ent. Zeitschr. 1902, p. 84, n. sp.

Bia latissima, p. 82, *hirsuta*, p. 101, Peru, Spaeth, t. c., n. spp.

Blepharida jacobyi, p. 158, *marginalis*, p. 159, Africa, Weise, Arch. Naturg. lxviii, i, n. spp.

Cacoscelis guianaensis, *tibialis*, p. 182, *caripes*, *caruleipennis*, p. 190, S. America, Jacoby, P. Zool. Soc. London 1902, i, n. spp.

Callispa minima, Ceylon, Gestro, Bull. Soc. ent. Ital. xxxiv, p. 51, n. sp.

Cassida humerosa, p. 455, *rugipennis*, p. 456, *harnoncourti*, p. 457, Centr. Africa, Spaeth, Ann. Soc. ent. Belgique xlvi, n. spp.

Chætocnema bilunulata, Luxor, Demaison, Bull. Soc. ent. France 1902, p. 24, n. sp.

Charidotis pulchra, p. 87, *porosula*, p. 88, Peru, Spaeth, Deutsche ent. Zeitschr. 1902, n. spp.

Chelymorpha peruana, Peru, Spaeth, t. c. p. 86, n. sp.

Chirida baumanni, p. 459, *flavipennis*, *tschoffeni*, p. 460, Centr. Africa, Spaeth, Ann. Soc. ent. Belgique xlvi, n. spp.

Chrysochloa (*Allorina* subg. n.) *rugulosa*, young, Weise, Deutsche ent. Zeitschr. 1902, pp. 103–105.

Chrysomela limbolata = (*interversa* F. = *salisburiensis* Jac.), WEISE, t. c. p. 404; *C. cerealis*, habits, SOPP, p. 13, Natural. J. xi; *C. lichenis*, egg and young, WEISE, Deutsche ent. Zeitschr. 1902, pp. 105–108.

Clitena Baly 1864 = (*Mesodonta* Baly 1865), WEISE, Arch. Naturg. lxviii, i, p. 157.

Clythra 4-punctata, life-history, DONISTHORPE, Tr. ent. Soc. London 1902, p. 11, pl. iii.

Cœnobius sulcicollis, Mauritius, JACOBY, Entomologist 1902, p. 203, n. sp.

Colaspis brunnea, metamorphosis, FORBES, Rep. Ent. Illinois xxii, pp. 145–149.

Colasposoma bennigseni, p. 132, *gloriosum*, p. 133, Africa, WEISE, Arch. Naturg. lxviii, i; *C. cupricolle*, *asperatum*, *semiasperum*, p. 262, *homolamprum*, *basipenne*, *subimpressum*, p. 263, *mediocre*, p. 264, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi : n. spp.

Conchyloctenia n. g. for part of *Aspidomorpha* auct., p. 449, with *C. luteipennis*, p. 450, *notaticollis*, p. 452, n. spp., Centr. Africa, SPAETH, Ann. Soc. ent. Belgique xlvi.

C. mouffleti var. n. *clavareaui*, *signatipennis* varr. n. *jecorosa*, *maculipunctata*, SPAETH, t. c. p. 451.

Coptocephala opacipennis, Africa, WEISE, Arch. Naturg. lxviii, i, p. 129, n. sp.

Coptocycla clarki var. n. *respertilio*, SPAETH, Deutsche ent. Zeitschr. 1902, p. 100; *C. venustula*, habitat is Natal, WEISE, Deutsche ent. Zeitschr. 1902, p. 404; *C. radiata* and *aruensis*, note, WEISE, t. c. p. 409.

C. patella, p. 90, *C.* (*Plagiometriona*) *excellens*, p. 91, Peru, SPAETH, Deutsche ent. Zeitschr. 1902, n. spp.

Crepidodera usambarica, *togoensis*, Africa, WEISE, Deutsche ent. Zeitschr. 1902, p 301; *C. flavomaculata*, Chili, p. 201, *erichsoni*, *magistralis*, Peru, p. 202, JACOBY, P. Zool. Soc. London 1902, i, n. spp.

Crioceris merdigera and larva and *C. 12-punctata* in Denmark, ANDERSEN, Ent. Meddel. i, pp. 110, 111.

C. latevittata, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 258, n. sp.

Cryptocephalus apertus = (*kerremansi* Duv.), WEISE, Deutsche ent. Zeitschr. 1902, p. 404; *C. mayeti* ♂, LAVAGNE, Echange xvii, p. 81; *C. crassus*, varr., CHOBAUT, Bull. Soc. ent. France 1902, p. 165; *C. alboscutellatus* varr., PIC, Echange xvii, pp. 7, 8.

C. rosti, Amur, PIC, t. c. p. 25 [second time]; *C. kwaiensis*, Africa, WEISE, Arch. Naturg. lxviii, i, p. 130; *C. partitipennis*, p. 258, *substriatus*, *inæqualis*, *triplex*, p. 259, *tenuepunctatus*, *flavomelas*, *semivittatus*, p. 260, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi : n. spp.

Ctenochira tristicula, p. 92, *gagatina*, p. 94, Peru, SPAETH, Deutsche ent. Zeitschr. 1902, n. spp.

Dactylispa haeckelii, p. 56, *D.* (*Triplispa*) *horni*, p. 58, Ceylon, GESTRO, Bull. Soc. ent. Ital. xxxiv, n. spp.

Dermoxanthus sulcipennis, *conjunctus*, Africa, WEISE, Arch. Naturg. lxviii, i, n. spp.

Diamphidia longula, Usambara, WEISE, t. c. p. 161, n. sp.

Dibolia tricolor, characters, VON STEIN, Wien. ent. Zeit. xxi, p. 142.

Diphaulica costatipennis, p. 171, *flavipes*, *pallipes*, p. 172, *fruhstorferi*, *haroldi*, p. 173, S. America, JACOBY, P. Zool. Soc. London 1902, i, n. spp.

Dircemella n. g. for part of *Pachytoma*, WEISE, Arch. Naturg. lxviii, i, p. 156.

Disonycha decemmaculata, *elongata*, p. 187, S. America, *brevicollis*, Mexico, *angulatofasciata*, pl. xx, fig. 4, S. America, p. 188, JACOBY, P. Zool. Soc. London 1902, i, n. spp.

Dyserythra n. n. for *Hyperythra* (below), WEISE, Deutsche ent. Zeitschr. 1902, p. 416.

Eleona n. g. near *Adimonia*, p. 268, for *E. perrieri*, n. sp., Madagascar, p. 269, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi.

Embolimus n. g., p. 303, type *Phyllotreta africana* Jac., with *E. pauli*, n. sp., Usambara, p. 304, WEISE, Deutsche ent. Zeitschr. 1902.

Eprius n. g. near *Colasposoma*, for *E. perrieri*, n. sp., Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 264.

Erythrobapta n. g. *Rhaphidopalpini*, p. 140, for *E. bennigseni*, *scutellaris*, *variicornis*, *gracilis*, p. 141, *punctipennis*, p. 142, n. spp., Africa, WEISE, Arch. Naturg. lxviii, i.

Eumela assamensis, Assam, *tonkinensis*, Tonkin, WEISE, Deutsche ent. Zeitschr. 1902, p. 110, n. sp.

Fidia viticina, life-history, SLINGERLAND & CRAIG (1292).

Galeruca ulmi, natural history, MENEGAUX, C.R. Ass. franc. 1901, pt. 2, p. 551.

Gastrida concolor, Africa, WEISE, Arch. Naturg. lxviii, i, p. 139, n. sp.

Gonophora taprobanæ, Ceylon, GESTRO, Bull. Soc. ent. Ital. xxxiv, p. 53; *G. shelfordi*, p. 139, *cariosicollis*, p. 142, *opacipennis*, p. 144, Borneo, GESTRO, t. c. : n. spp.

Gynandrophthalma discithorax, Amurland, PIC, Echange xvii, p. 49; *G. scutellata*, p. 127, *usambarica*, *kwaiensis*, p. 128, *pauli*, p. 129, Africa, WEISE, Arch. Naturg. lxviii, i : n. spp.

Hallirhotius 4-maculatus, E. Africa, WEISE, t. c. p. 147, n. sp.

Halys n. g. for *Idacantha weisei* Jac., WEISE, t. c. p. 148.

Hemiphracta n. g. for part of *Pachytoma*, WEISE, t. c. p. 157.

Hermæophaga picta, Usambara, WEISE, Deutsche ent. Zeitschr. 1902, p. 302, n. sp.

Hispida, bionomic notes, CHITTENDEN, Bull. U. S. Dep. Agric. Ent. No. 38, pp. 70–89.

Hispa subinermis, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 271, n. sp.

Homichloda n. g. *Halticini*, p. 165, for *H. pauli*, n. sp., Kwai, p. 166, WEISE, Arch. Naturg. lxviii, i.

Hovalia, cf. *Alphidia*.

H. nigricornis, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 269, n. sp.

Hydrothassa septentrionis, St. Petersburg, DEMAISON, Bull. Soc. ent. France 1902, p. 24, n. sp.; an error, cf. JACOBSON, t. c. p. 174.

Hyperythra n. gen., p. 139, *Agelastacini*, for *H. concinna*, n. sp., Africa, p. 140, WEISE, Arch. Naturg. lxviii, i. Cf. *Dyserythra*, above.

Idacantha viridipicta, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 265, n. sp.

Jacobya notabilis, *pilosula*, Africa, WEISE, Arch. Naturg. lxviii, i, p. 145, n. spp.

Jamesonia jacobyi, p. 173, *nigriceps*, *abdominalis*, p. 174, Africa, WEISE, t. c., n. spp.

Laccoptera modesta, Centr. Africa, SPAETH, Ann. Soc. ent. Belgique xlvi, p. 454, n. sp.

Lachnæa salaamensis, E. Africa, WEISE, Arch. Naturg. lxviii, i, p. 126, n. sp.

Lactica boliviana, *lobata*, p. 174, *funerea*, S. America, *costatipennis*, pl. xx, fig. 1, Guatemala, p. 175, *bilineata*, *seminigra*, fig. 2, p. 176, *bicolorata*, fig. 3, *limbatipennis*, p. 177, *paraguayensis*, S. America, *apicipes*, W. Indies, p. 178, *weisei*, *strigatipes*, p. 179, *semifulva*, *flavilabris*, p. 180, *rufobasalis*, *femorata*, p. 181, *clarki*, *brevicollis*, p. 182, *nigricornis*, *gracilicornis*, p. 183, *carinata*, *impressicollis*, p. 184, *bahiaensis*, p. 185, S. America, JACOBY, P. Zool. Soc. London 1902, i, n. spp.

Luctina lævicollis, p. 185, *semirugosa*, *glabrata*, p. 186, S. America, JACOBY, t. c., n. spp.

Lema sulcicollis W. = (*impressicollis* Jac.), WEISE, Deutsche ent. Zeitschr. 1902.

L. impressicollis, p. 257, *vittulata*, p. 258, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, n. spp.

Leptaulaca n. g. near *Orthaulaca*, for *L. basalis*, p. 142, *nigricornis*, p. 143, n. spp., Africa, and including *Aulacoph.* 11-*punctata* Kl., *fissicollis* Thoms. of which varr. are diagnosed, WEISE, Arch. Naturg. lxviii, i.

Leucastea occipitalis, Africa, WEISE, t. c. p. 122, n. sp.

Longitarsus striatus, *kwaiensis*, p. 171, *usambaricus*, p. 172, Africa, WEISE, t. c., n. spp.

Luperus pyrenæus var. *quittardi*, PIC, Echange xvii, p. 27.

L. apicalis, Usambara, WEISE, Arch. Naturg. lxviii, i, p. 150, n. sp.

Macrolopha n. g. for part of *Pœcilomorpha*, p. 119, with *M. jacobyi*, *rustica*, p. 120, *dentipes*, p. 121, n. spp., Africa, WEISE, t. c.

Malacosoma pusilla = (*zanzibarica* Duv.), WEISE, Deutsche ent. Zeitschr. 1902, p. 404.

M. cyanipennis, Persia, REITTER, Wien. ent. Zeit. xxi, p. 217; *M. nigricornis*, p. 149, *ventralis*, p. 150, Africa, WEISE, Arch. Naturg. lxviii, i; *M. opacula*, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 268 : n. spp.

Malegia hauseri, Afghanistan, PIC, Echange xvii, p. 3, n. sp.

Megalognatha, characters and composition, WEISE, p. 152, Arch. Naturg. lxviii, i.

M. cyanipennis, p. 153, *variicornis*, *imbecilla*, p. 154, Africa, id., t. c., n. spp.

Mellesia n. g. near *Hallirhotius*, p. 146, for *M. elegans*, n. sp., Usambara, p. 147, WEISE, t. c.

Mesodonta; see *Clitena*.

Metriona subprasina, Peru, SPAETH, Deutsche ent. Zeitschr. 1902, p. 100, n. sp.

Mimastroides usambarica, Kwai, WEISE, Arch. Naturg. lxviii, i, p. 158, n. sp.

Monolepta rubricosa = (*nigro-ornata* Jac.), *M. irregularis* = (*Cand. inconstans* Duv. = *M. atomaria* Fairm.), *M. bioculata* = (*tricolor* Fairm.), *M. duplicata* = (*pulchella* Kl.), WEISE, Deutsche ent. Zeitschr. 1902, p. 404.

M. kerstingi, Africa, KAESEBERG (664), p. 401, n. sp.

Nasigona n. g. near *Oxygona*, for *N. pallida*, n. sp., Peru, pl. xx, fig. 12, JACOBY, P. Zool. Soc. London 1902, i, p. 203.

Nephrica boliviana, *maculipennis*, pl. xx, fig. 8, p. 192, *sanguinolenta*, fig. 10, *fulvicornis*, p. 193, *paraguayensis*, *inclusa*, fig. 5, *claveri*, fig. 9, p. 194, *staudingeri*, fig. 11, *terminata*, p. 195, *brasiliensis*, fig. 6, *imitans*, p. 196, *nigrofasciata*, *unifasciata*, fig. 7, p. 197, S. America, JACOBY, t. c., n. spp.

Nodostenopa perrieri, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 265, n. sp.

Nosognatha soror, Africa, WEISE, Arch. Naturg. lxviii, i, p. 126, n. sp.

Nyctiphantus n. n. for *Nyctidromas* Sem., SEMENOW, Rev. Russe Ent. ii, p. 353.

Oenoscelis boliviana, S. America, JACOBY, P. Zool. Soc. London 1902, i, p. 191, n. sp.

Odontota dorsalis and others, metamorphosis, CHITTENDEN, Bull. U. S. Dep. Agric. No. 38, pp. 72–86.

Œdionychis rufosellata, *basipennis*, p. 266, *nigricans*, p. 267, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, n. spp.

Oides kolbei, p. 137, *conradti*, p. 138, Africa, WEISE, Arch. Naturg. lxviii, i, n. spp.

Orphnoda weisei, p. 21, S. Africa, *rugosicollis*, p. 22, *distans*, p. 23, Centr. Africa, SPAETH, Termes. Fuzetek xxv, n. spp.
Orphnodella n. g., p. 20, for part of *Orphnoda*, with *O. burorum*, n. sp., S. Africa, p. 24, SPAETH, t. c.
Omoplata brunnidorsis, Peru, SPAETH, Deutsche ent. Zeitschr. 1902, p. 85, n. sp.
Oxygona brasiliensis, p. 200, *nigricollis*, p. 201, Brazil, JACOBY, P. Zool. Soc. London 1902, i, n. spp.
Pachytoma, cf. *Dircemella*, *Hemiphracta*.
Periclitena n. n. for *Clitena* Baly 1865, nec Baly 1864 [cf. *Clitena*, *Mesodonta*], WEISE, Arch. Naturg. lxviii, i, p. 157.
Phygasia basalis, E. Africa, WEISE, Deutsche ent. Zeitschr. 1902, p. 302, n. sp.
Phyllobroticella kraatzi, Cameroons, WEISE, Arch. Naturg. lxviii, i, p. 148, n. sp.
Phyllotreta armoraciæ, early stages, POPPIUS, Medd. Soc. Faun. Fenn. xxvii, pp. 106–108.
Physodactyla nigripes, *collaris*, Africa, WEISE, Arch. Naturg. lxviii, i, p. 168, n. spp.
Physonychis wissmanni, p. 168, *subopaca*, *plicipennis*, p. 169, Africa, WEISE, t. c., n. spp.
Phytodecta (*Spartophila*) *gobanzi*, Carniola, REITTER, Wien. ent. Zeit. xxi, p. 141, n. sp.
Platypria chætomys, Borneo, GESTRO, Bull. Soc. ent. Ital. xxxiv, p. 147, n. sp.
Platyxantha calcarata (=*rufoviridis* All.), WEISE, Deutsche ent. Zeitschr. 1902, p. 416.
Podagrica discedens var. n. *luctuosa*, DEMAISON, Bull. Soc. ent. France 1901, p. 25.
P. puncticollis, *ferruginea*, p. 166, *lineata*, *maculata*, *angustula*, p. 167, Africa, WEISE, Arch. Naturg. lxviii, i, n. spp.
Pœcilomorpha; see *Macrolopha*. *P. apicata* (=*adusta* Quedenf.), WEISE, t. c. p. 121.
P. usambarica, Africa, WEISE, t. c. p. 121, n. sp.
Porphyraspis quadrata, Peru, SPAETH, Deutsche ent. Zeitschr. 1902, p. 81, n. sp.
Pseudabiras brevis, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 261, n. sp.
Pseudocolaspis femoralis, Kwai, WEISE, Arch. Naturg. lxviii, i, p. 134, n. sp.
Pseudomela ferruginipes, Ashanti, WEISE, Deutsche ent. Zeitschr. 1902, p. 102, n. sp.
Pseudomesomphalia bang-haasi, p. 84, *clathrata*, p. 95, *zonata*, p. 96, *sulphurata*, p. 97, *P.* (*Trilaccodea*, subg. n.) *langei*, p. 98, Peru, SPAETH, Deutsche ent. Zeitschr. 1902; *P. vorax*, p. 241, *submetallica*, *erichsoni*, p. 242, Peru, WEISE, Deutsche ent. Zeitschr. 1902 : n. spp.
Pseudostola grandis, *fulvida*, Madagascar, FAIRMAIRE, Ann. Soc. ent. Belgique xlvi, p. 265, n. spp.
Psylliodes; gall, CORDEMOY, Bull. Soc. ent. France 1900, p. 120, and p. 159.
Pyrgo convexa, Tonkin, WEISE, Deutsche ent. Zeitschr. 1902, p. 368, n. sp.
Rhyparida bimaculicollis, Mauritius, JACOBY, Entomologist 1902, p. 203, n. sp.
Rudolphia minor, Kwai, WEISE, Arch. Naturg. lxviii, i, p. 152, n. sp.
Sebaethe cinctipennis (=*flavolimbata* Jac.), WEISE, Deutsche ent. Zeitschr. 1902, p. 404.
S. usambarica, *vulgaris*, *angustifrons*, Africa, WEISE, Arch. Naturg. lxviii, i, p. 170, n. spp.
Semicnema reitteri, pl. i, fig. 9, REITTER, Wien. ent. Zeit. xxi.
Spaethia; characters and components, SPAETH, Ann. Soc. ent. Belgique xlvi, p. 453.

Sphæroderma, pusilla, cf. *Argopus*.
Sphondylia n. g. for part of *Pœcilomorpha*, p. 120, with *S. magnicollis*, p. 122, *schulzi*, p. 123, Africa, WEISE, Arch. Naturg. lxviii, i.
Spilonota, n. g., p. 144, near *Lætana*, for *S. sagax*, n. sp., Africa, p. 145, WEISE, t. c.
Stenella, n. g., p. 150, *Luperini*, for *S. marginata*, n. sp., Kwai, p. 151, WEISE, t. c.
Strobiderus (=*Syoplia*), *S. africanus* (=*kraatzi* W.), WEISE, Deutsche ent. Zeitschr. 1902, p. 416.
S. kraatzi, p. 155, *jacobyi*, p. 156, Africa, WEISE, Arch. Naturg. lxviii, i, n. spp.
Systena clarki, punctatissima, p. 198, *brasiliensis*, S. America, *abbreviata*, Mexico, p. 199, JACOBY, P. Zool. Soc. London 1902, i, n. spp.
Tarachodia n. g. *Atysites*, for *T. geniculata*, n. sp., Africa, WEISE, Arch. Naturg. lxviii, i, p. 156.
Thysbina n. g. for part of *Colasposoma*, p. 130, with *T. fallax, rufipes*, p. 131, *bicostata*, p. 132, n. spp., Africa, WEISE, t. c.
Titubæa peyerimhoffi, Arabia, PIC, Echange xvii, p. 49, n. sp.
Torodera n. g., p. 163, *Halticini*, for *T. 8-maculata, fasciata*, n. spp., Africa, p. 164, WEISE, Arch. Naturg. lxviii, i.
Trichostola puncticollis, thoracica, p. 204, *fasciatipennis, femoralis*, p. 205, Mauritius, JACOBY, Entomologist 1902, n. spp.
Trilaccodea subg. n. cf. *Pseudomesomphalia*.
Uroplata costipennis, metamorphosis, BRÈTHES, An. Mus. Buenos Aires viii, pp. 13–17, cuts.
Wallacea neglecta, Borneo, GESTRO, Bull. Soc. ent. Ital. xxxiv, p. 135, n. sp.

EROTYLIDÆ.

[Cf. ARROW (660), CSIKI (295), FAIRMAIRE (411), FALL (412).]

Episcaphula singalensis, Ceylon, CSIKI, Termes. Fuzetek xxv, p. 26.
Languria californica, S. California, FALL, p. 235, Pap. Calif. Ac. viii, n. sp.
Promecolanguria cuprea, Uganda, ARROW, in Johnston Uganda Protectorate i, p. 460, n. sp.
Triplax basalis, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 325, n. sp.

ENDOMYCHIDÆ.

[Cf. CSIKI (295–298), FAIRMAIRE (411), PIC (1027, 1030, 1032).]

A Malayan larva noticed, ANNANDALE, P. Phys. Soc. Edinb. xiv, pp. 442–444.

Alexia formaneki, Herzegowina, REITTER, Wien. ent. Zeit. xxi, p. 5, n. sp.
Corynomalus; species tabulated, CSIKI, Termes. Fuzetek xxv, pp. 587–592.
C. elegans, p. 582, *punctatus, marcapatæ*, p. 583, *obsti*, p. 584, *bahiensis, peruvianus*, p. 585, *paroecus, clavatus*, p. 586, S. America, CSIKI, t. c., n. spp.
Coryphus n. g. near *Stenotarsoides*, for *C. biroi*, n. sp., New Guinea, CSIKI, t. c. p. 352.
Dapsa græca, Greece, PIC, Echange xvii, p. 71; *D.* (*Phylira*) *obscurissima*, Algeria, PIC, t. c. p. 10; *D. syriaca*, Beyrout, PIC, t. c. p. 33 : n. spp.
Encymon, revised, with varr. n., CSIKI, Termes. Fuzetek xxv, pp. 28–38.
E. australasiæ, N. S. Wales, *papuanus*, New Guinea, id. t. c. p. 34; *E. scutatus*, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, p. 325 : n. spp.

Endomychus coccineus, early stages, HACKER, Allg. Zeitschr. Ent. vii, p. 497.
Haploscelis metallescens, p. 325, *cærulescens*, *cyanescens*, p. 326, *perrieri*, p. 327, Madagascar, FAIRMAIRE, Ann. Soc. ent. France 1902, n. spp.
Stenotarsoides discoidalis, New Guinea, CSIKI, Termes. Fuzetek xxv, p. 352, n. sp.
Trycherus longanimis Th. = (*elegans* Csiki), FAIRMAIRE, Ann. Soc. ent. France 1902, p. 327.

COCCINELLIDÆ.

[Cf. FALL (424), FROGGATT (495), LEA (784), PORTA (1081), SEMENOW (1244), WEISE (1477, 1480, 1481).]

Australian *Coccinellidæ*, notes, FROGGATT, Agric. Gaz. N. S. W. xiii, pp. 895–911, 1 pl.
Synonymy of N. American, BOWDITCH, Ent. News Philad. xiii, pp. 205–207.
Experiments as to liquid emitted, PORTA (1081).
Large assemblies, TUTT, Ent. Rec. xiv, pp. 73–75.

Alesia tonkinensis, Tonkin, WEISE, Termes. Fuzetek xxv, p. 505, n. sp.
Alexia, see *Endomychidæ*.
Anortalia n. g., p. 517, for *A. fleutiauxi*, n. sp., with var. *maculata*, p. 518, N. Guinea, WEISE, Termes. Fuzetek xxv.
Brachyacantha bilineata, Bolivia, WEISE, Deutsche ent. Zeitschr. 1902, p. 170, n. sp.
Brumus hexasticta, referred to *Exochomus*, WEISE, t. c. p. 176.
Bucolellus ornatus, note, LEA, P. Linn. Soc. N. S. Wales xxvi, p. 509.
Bucolus nuytsiæ, *nigripes*, p. 508, *obscurus*, p. 509, Australia, BLACKBURN, P. Linn. Soc. N. S. Wales xxvi, n. spp.
Caria singularis, N. Guinea, p. 504, *gracilicornis*, Tonkin, p. 505, WEISE, Termes. Fuzetek xxv, n. spp.
Chilocorus melanophthalmus, *politus*, *sublineatus*, characters, WEISE, t. c. p. 506; *C. similis*, in N. America, SMITH, Rep. N. Jersey exp. Stat. 1902, pp. 505–508; *C. similis* and *bivulnerus*, habits, etc., MARLATT, Bull. U. S. Dep. Agric. Ent. 37, pp. 78–84.
Coccidula scutellata var. n. *æthiops*, KRAUSS, Wien. ent. Zeit. xxi, p. 92.
Coccinella 11-*punctata* var. n. *confluens*, DONISTHORPE, Ent. Rec. xiv, p. 99.
C. religiosa, N. W. Australia, LEA, P. Linn. Soc. N. S. Wales xxvi, p. 488, n. sp.
Cœlophora inæqualis varr. n. *consortula*, p. 502, *fasciata*, p. 503, N. Guinea, WEISE, Termes. Fuzetek xxv.
C. astrolabiana, with var. *mutata*, p. 498, *extensa*, N. Guinea, with var. *mysolensis*, p. 499, *moseri*, Mysol, p. 500, *seminigra*, N. Guinea and Cooktown, p. 501, WEISE, t. c., n. spp.
Cryptolæmus concinnus, N. Guinea, WEISE, t. c. p. 519, n. sp.
Cycloneda reclusa, p. 168, *galbanata*, p. 169, *boliviana*, p. 170, S. America, WEISE, Deutsche ent. Zeitschr. 1902, n. spp.
Epilachna hæmorrhoa var. n. *dissoluta*, WEISE, Termes. Fuzetek xxv, p. 491.
E. biroi, New Guinea, WEISE, t. c. p. 491, n. sp.
Erithionyx albatus, N. S. Wales, LEA, P. Linn. Soc. N. S. Wales xxvi, n. sp.
Exochomus plagiatus, destroying *Lecanium* in Arizona, SCHWARZ, P. ent. Soc. Washington v, p. 40.
E. histrio, S. California, FALL, p. 230, Pap. Calif. Ac. viii, n. sp.
Harmonia arcuata var. n. *papuana*, WEISE, Termes. Fuzetek xxv, p. 496.
Hinda decas, Colombia, WEISE, Deutsche ent. Zeitschr. 1902, p. 171 n. sp.

Hyperaspis excelsa, *spiculinota*, S. California, FALL, p. 232, Pap. Calif. Ac. viii; *H. trivittata*, *blandula*, p. 172, *ornaticollis*, p. 173, *vetusta*, *graphica*, p. 174, S. America, WEISE, Deutsche ent. Zeitschr. 1902 : n. spp.

Leis conformis var. *occidentalis*, LEA, P. Linn. Soc. N. S. Wales xxvi, p. 489.

Leptothea csikii, New Guinea, *moseri*, Key Id., WEISE, Termes. Fuzetek xxv, p. 497, n. spp.

Lithophilus tauricus, Eupatoria, SEMENOW, Horæ Soc. ent. Ross. xxxv, p. 254, n. sp.

Novius tridens, *immaculatus*, p. 492, *koebelei*, p. 493, Australia, LEA, P. Linn. Soc. N. S. Wales xxvi, n. spp.

Œnosia mimica, E. India, WEISE, Termes. Fuzetek xxv, p. 505, n. sp.

Orcus australasiæ var. n. *quadrinotatus*, LEA, P. Linn. Soc. N. S. Wales xxvi, p. 491.

O. purpureotinctus, *citri*, Australia, id. t. c. p. 490; *O. biroi* with var. *ruficollis*, p. 507, *cinctus*, p. 508, New Guinea, *nigricollis*, Key Id., p. 509, WEISE, Termes. Fuzetek xxv : n. spp.

Oxytella n. g. near *Psyllobora*, for *O. subcordata*, p. 167, *longula*, p. 168, n. spp., Peru, WEISE, Deutsche ent. Zeitschr. 1902.

Platyomus immaculatus and *eugeniæ*, variation, LEA, P. Linn. Soc. N. S. Wales xxvi, p. 507.

Pristonema meridionalis, Paraguay, WEISE, Deutsche ent. Zeitschr. 1902, p. 170, n. sp.

Prodilis maculata, Peru, WEISE, t. c. p. 175, n. sp.

Psyllobora peruana, Peru, WEISE, t. c. p. 166, n. sp.

Pullus minimus, larva, WEISE, t. c. p. 109.

P. biroi, Bertram Id., p. 518, *pupulus*, N. Guinea, p. 519, WEISE, Termes. Fuzetek xxv, n. spp.

Rhizobius tricolor, p. 493, *calomeloides*, p. 494, *virgatus*, *alphabeticus*, p. 495, Tasmania, *corticalis*, p. 496, *confinis*, p. 497, Australia, LEA, P. Linn. Soc. N. S. Wales xxvi, n. spp.

Scymnus frontalis, larval habits, WEISE, Deutsche ent. Zeitschr. 1902, p. 108.

S. silesiacus, Germany, WEISE, t. c. p. 240; *S. striatus*, N. W. Australia, *trilobus*, Tasmania, p. 500, *indistinctus*, *triangularis*, p. 501, *compositus*, *mimicus*, p. 502, *vittipennis*, p. 503, *pectoralis*, p. 504, *frater*, *elutus*, p. 505, Australia, LEA, P. Linn. Soc. N. S. Wales xxvi; *S. tædatus*, *megacephalus*, p. 233, *mimus*, *dentipes*, p. 234, S. California, FALL, Pap. Calif. Ac. viii : n. spp.

Serangium nigrum, Tasmania, *microscopicum*, *punctipenne*, p. 510, *mæstum* (sic), p. 511, *obscuripes*, p. 512, Australia, LEA, P. Linn. Soc. N. S. Wales xxvi, n. spp.

Smilia reversa, S. California, FALL, p. 231, Pap. Calif. Ac. viii, n. sp.

Solanophila saginata, p. 494, *lenta*, p. 495, Tonkin, WEISE, Termes. Fuzetek xxv; *S. ignobilis*, *nucula*, p. 161, *striola*, *staudingeri*, p. 162, *fuscopilosa*, *opulenta*, p. 163, *ostensa*, p. 164, *pastica*, p. 165, Peru, *gibbula*, Bolivia, p. 166, WEISE, Deutsche ent. Zeitschr. 1902 : n. spp.

Sticholotis quadrillum, New Guinea, p. 509, *quadrimaculata*, E. India, p. 510, *quadrisignata*, Hué, *ruficeps*, Malacca, p. 511, *læta*, Java, p. 512, *kraatzi*, Sumatra, *amabilis*, Java, p. 513, *varia*, Sumatra, *bisulcata*, Singapore, p. 514, *crux*, Java, p. 515, *partita*, Perak, p. 516, WEISE, Termes. Fuzetek xxv, n. spp.

CORYLOPHIDÆ, PSEUDOCORYLOPHIDÆ.

Pseudocorylophidæ; this family is the same as *Discolomidæ* Horn; position in or near *Colydiidæ*, SHARP, Biol. Centr.-Amer. Col. ii, pt. i, p. 630.

Orthoperus schneideri, Corsica, REITTER, Wien. ent. Zeit. xxi, p. 138, n. sp.

(B.) *HYMENOPTERA.*

Catalogue of *Hymenoptera* in 10 vols. completed, DALLA TORRE (300).
Instinct of *Hymenoptera*, FOREL (460).
Sleeping habits, BANKS, J. N. York. Ent. Soc. x, pp. 209–214, cut.
Notes on larvæ and habits, XAMBEU (1505).
Physiology of metamorphosis, *Tenthredinidæ*, *Formicidæ*, *Cynipidæ*, *Chalcididæ*, and *Aculeata*, BERLESE, Riv. Patol. Veg. ix, pp. 211–291.

ACULEATA.

APIDÆ.

[Cf. ALFKEN (11, 12), ASHMEAD (38, 41), BRAUNS (154, 155), BUGNION (179), R. DU BUYSSON (191), CAMERON (198, 200, 203–207), COCKERELL (247–249, 251–254), COCKERELL & ATKINS (272, 273), CRAWFORD (291, 292), DUCKE (353–355, 357, 360), FABRE (410), FERTON (432, 433), FOWLER (475), FOX (479), FRIESE (480–487), GRAEFFE (550), GREEN (552), HÖPPNER (619), LANDACRE (768), MELANDER (888), NIELSEN (962), NURSE (967), PÉREZ (1066), PLATEAU (1068, 1069), ROBERTSON (1159–1164), SCHROTTKY (1216–1218), SCHULZ (1226), TITUS (1377, 1378), VACHAL (1401), VIERECK (1416, 1419, 1420).]

Habits of solitary bees, specially nesting-habits, NIELSEN (962), *Osmia*, *Podalirius*, *Megachile*, *Eucera*, *Chelostoma*, *Sapyga*.
Nests of nine European species, DU BUYSSON, Ann. Soc. ent. France lxxi, pp. 751–755.
Notes on bees at Pará and the flowers they visit, DUCKE, Allg. Zeitschr. Ent. vii, p. 321 etc.
Errors of instinct on the part of *Hymenoptera* visiting flowers, PLATEAU, Ann. Soc. ent. Belgique xlvi, pp. 113–129.
Amputation of antennæ of *Bombus* results, PLATEAU (1069).
Apidæ of California, FOWLER (475). Some species are mentioned that may be new though not so indicated.
Synopsis of N. American *Andreninæ*, ROBERTSON, Tr. Amer. ent. Soc. xxxv, pp. 187–194.

Agapostemon æneus, Brazil, SCHROTTKY, An. Mus. Buenos Aires vii, p. 313, n. sp.
Alcidamea uvulalis, California, COCKERELL, Bull. S. Calif. Ac. Sci. i, p. 139, n. sp.
Allodape ; colonial habits, BRAUNS, Zeitschr. Hym. Dipt. ii, p. 380.
A. picitarsis, Laccadives, CAMERON, Fauna Maldive i, p. 60, n. sp.
Ammobates hipponensis, Algeria, pl. lvii, *abeillei*, Nazareth, p. lviii, PÉREZ, Pr.-verb. Soc. Bordeaux 1902, n. spp.
Ancyla holtzi, *nitida*, Greece, p. 105, *cretensis*, Crete, p. 106, FRIESE, Zeitschr. Hym. Dipt. ii, n. spp.
Andrena fulvipennis, p. 237, *salicis*, characters, VIERECK, Ent. News Philad. xiii, p. 238 ; *A. hirticeps* ♀, p. 47, *nasonii* ♂, *robertsonii* ♂, p. 49, ROBERTSON, Tr. St. Louis Ac. x ; *A. ferox* and *bucephala*, ♂ distinctions, MORICE, Ent. Mag. xxxviii, p. 171 ; *A. frigida* ♂, ASHMEAD, P. Washington Ac. iv, p. 131 ; *A. cressoni*=(*kausensis*), ROBERTSON, Canad. Ent. xxxiv, p. 48.

A. batava, Holland, p. clxxiv, *nuptialis*, *carantonica*, p. lxxv, France, *nigriventris*, *ferrida*, Algeria, *lavandulæ*, Banyuls, p. clxxvi, *nigrosterna*, *pauperata*, p. clxxvii, *bothriorhina*, France, *languida*, Algeria, *coarctata*, Pyrenees, p. clxxviii, *cellularis*, Montpellier, *granulosa*, Barcelona, p. clxxix, PÉREZ, Pr.-verb. Soc. Bordeaux 1902 ; *A. simlaensis*, India, CAMERON, J. Bombay Soc. xiv, p. 422 ; *A. viciniformis*, p. 47, *macoupinensis*, *salicacea*, p. 48, *corni*, p. 50, N. America, ROBERTSON, Tr. Ac. St. Louis x ; *A. dubia*, Illinois, ROBERTSON, Canad. Ent. xxxiv, p. 48 ; *A. medionitens*, p. 101, *semipunctata*, p. 102, *hartfordensis*, p. 103, *graenicheri*, p. 104, *parnassiæ*, *peckhami*, p. 105, N. America, COCKERELL, Ann. Nat. Hist. ix ; *A. subcommoda*, *sigmundi*, p. 45, *multiplicata*, *radiatula*, *rufosignata*, p. 46, *clypeonitens*, p. 47, N. America, COCKERELL, Canad. Ent. xxxiv : n. spp.

Andronicus, *Alcidamea*, *Monumetha*, Cresson, merged in *Osmia*, FRIESE, Zeitschr. Hym. Dipt. ii, p. 188.

Anthedon n. g. for *Melissodes compta* Cr., ROBERTSON, Tr. Ac. St. Louis x, p. 53.

Anthemurgus n. g. for *A. passifloræ*, n. sp., Illinois, ROBERTSON, Canad. Ent. xxxiv, p. 321.

Anthidium longicorne n. n. for *steloides* Bingh. nec Spin., FRIESE, Zeitschr. Hym. Dipt. ii, p. 109 ; *A. texanum*, nest-habits, MELANDER, Biol. Bull. iii, pp. 27–32, cuts ; *A. oblongatum*, nest, BREDDIN, Wien. ent. Zeit. xxi, p. 23.

A. saltator, p. 151, *viaticum*, p. 152, India, NURSE, J. Asiat. Soc. Bengal lxx ; *A. psoraleæ*, Illinois, ROBERTSON, Canad. Ent. xxxiv, p. 322 ; *A. pondreum*, Colorado, TITUS, Ent. News Philad. xiii, p. 169 : n. spp.

Anthophora, to be used not *Podalirius*, PÉREZ, Pr.-verb. Soc. Bordeaux 1902, p. xliii ; *A. balneorum*, nest, FERTON, Ann. Soc. ent. France 1902, p. 503.

A. andalusiaca, Spain, p. xliii, *stefanii*, Sicily, p. xliv, *senicula*, Balearic Islds., *dalmatica*, Dalmatia, p. xlv, PÉREZ, Pr.-verb. Soc. Bordeaux 1902, n. spp.

Anthrena trimarginata = (*Halictus trimarginatus* Rad.), VACHAL, Rev. Russe Ent. ii, p. 231.

Apis florea, *dorsata*, combs, FRIESE, Allg. Zeitschr. Ent. vii, pp. 198–200, cuts ; *A. dorsata*, its domestication, HAMLYN-HARRIS, Ent. Rec. xiv, pp. 12–14.

Bombomelecta arizonica, Arizona, COCKERELL, Canad. Ent. xxxiv, p. 267, n. sp.

Bombus ; catalogue with dates and localities of Colorado species, *B. proximus* var. n. *coloradensis*, p. 41, TITUS, Canad. Ent. xxxiv, pp. 37–44 ; the arctic species, with plate, FRIESE, Fauna arctica ii, p. 484–488, pl. iii ; *Bombus* and *Psithyrus* of France and Belgium, FRIONNET, Feuille Natural. xxxii, pp. 165–169 etc. ; *B. soroensis*, habits, nests, HÖPPNER, Allg. Zeitschr. Ent. vii, pp. 298, 301.

B. neglectulus, p. 124, *mckayi*, p. 125, *alaskensis*, *mixtuosus*, p. 128, *dimidiatus*, p. 129, Alaska, ASHMEAD, P. Washington Ac. iv ; *B. titusi*, Colorado, ASHMEAD, Ent. News Philad. xiii, p. 50 : n. spp.

Calliopsis subg. n. cf. *Verbenapis* ; *C. verbenæ* var. n. *nebraskensis*, CRAWFORD, Canad. Ent. xxxiv, p. 240.

Caupolicana mystica, S. America, SCHROTTKY, An. Mus. Buenos Aires vii, p. 318, n. sp.

Cemolobus n. g. for *Xenoglossa ipomoeæ*, ROBERTSON, Canad. Ent. xxxiv, p. 324.

Centris (*Melanocentris*) *furcata* var. n. *friesei*, SCHROTTKY, An. Mus. Buenos Aires vii, p. 312 ; *C. nudipes* referred to *Meliphila*, SCHROTTKY, t. c. p. 325.

Centris friesei, Pará, DUCKE, Allg. Zeitschr. Ent. vii, p. 363 ; *C.* (*Melano-*

centris) *lynchi*, Argentina, SCHROTTKY, An. Mus. Buenos Aires vii, p. 312 ; *C.* (*Rhodocentris*) *brethesi*, Argentina, SCHROTTKY, op. cit. viii, p. 117 : n. spp.

Ceratina calcarata n. n. for *tejonensis* Rob., ROBERTSON, Tr. Ac. St. Louis x, p. 54.

C. cerca, *muscatella*, p. 152, *loquata*, p. 153, India, NURSE, J. Asiat. Soc. Bengal lxx ; *C. appendiculata*, Maldives, CAMERON, Fauna Maldive i, p. 59 ; *C. polita*, Haity, FRIESE, Zeitschr. Hym. Dipt. ii, p. 198 : n. spp.

Chelostoma australis, California, COCKERELL, Bull. S. Calif. Ac. i, p. 139, n. sp.

Chloralictus n. g. type *Halictus cressoni*, p. 248, with *C. cereopsis*, *sparsus*, *versatus*, p. 249, *foveolatus*, p. 250, n. spp., N. America, ROBERTSON, Canad. Ent. xxxiv.

Cœlioxinæ, characters of N. American genera and taxonomy of group, COCKERELL & ATKINS, Ann. Nat. Hist. ix, pp. 230–234.

Cœlioxys decemdentata, Tunis, PÉREZ, Pr.-verb. Soc. Bordeaux 1902, p. cxxi ; *C. taurus*, India, NURSE, J. Asiat. Soc. Bengal lxx, p. 153 ; *C. eriocephala*, Sarawak, CAMERON, J. Straits Asiat. Soc. xxxvii, p. 117 ; *C. foxii*, p. 325, *slossoni*, p. 327, N. America, VIERECK, Canad. Ent. xxxiv : n. spp.

Colletes californicus Prov., description, VIERECK, P. Ac. Philad. liv, p. 730 ; *C. brevicornis* ♀, ROBERTSON, Tr. Ac. St. Louis x, p. 51.

C. crucis, New Mexico, COCKERELL, Ent. News Philad. xiii, p. 304, n. sp.

Corynura (*Corynuropsis*) *darwini*, S. America, COCKERELL, P. Ac. Philad. 1901, p. 220 (omitted last year), n. sp.

Dialictus n. g. for *Halictus anomalus* Rob., ROBERTSON, Canad. Ent. xxxiv, p. 48 ; *D. accidentalis* n. n. for *anomalus* Ckll., CRAWFORD, Canad. Ent. xxxiv, p. 318 ; *D. theodori*, New Mexico, CRAWFORD, t. c. p. 318, n. sp.

Dianthidium boreale, Illinois, ROBERTSON, Canad. Ent. xxxiv, p. 323 ; *D. balli*, Colorado, TITUS, Ent. News Philad. xiii, p. 171 : n. spp.

Dioxys, habits, FERTON, Ann. Soc. ent. France 1902, p. 503.

D. boghariensis, Boghar, PÉREZ, Pr.-verb. Soc. Bordeaux 1902, p. cxxii ; *D. martii*, New Mexico, COCKERELL, Ann. Nat. Hist. ix, p. 233 : n. spp.

Emphor bombiformis, sexes and synonymy, ROBERTSON, Tr. Ac. St. Louis x, p. 53.

Epeolus lectus=(*agnatus*), ROBERTSON, Ent. News Philad. xiii, p. 80.

E. autumnalis, Illinois, ROBERTSON, Ent. News Philad. xiii, p. 81 ; *E. interruptus*, Illinois, ROBERTSON, Tr. Ac. St. Louis x, p. 55 ; *E. fulvopilosus*, Mexico, CAMERON, Tr. Amer. ent. Soc. xxxv, p. 377 : n. spp.

Epicharis burmeisteri, Minas Geraës, SCHROTTKY, An. Mus. Buenos Aires vii, p. 320, n. sp.

Epimelissodes, not valid, ROBERTSON, Tr. Ac. St. Louis x, p. 53.

Epinomia triangulifera=(*persimilis* Cock.), CRAWFORD, Canad. Ent. xxxiv, p. 240.

Eucera longicornis L. synonymy, SAUNDERS, Ent. Mag. xxxviii, p. 159 ; *E. tomentosa* Drs. a valid species, *fedtchenkoi* n. n. for *tomentosa* Mor., PÉREZ, Pr.-verb. Soc. Bordeaux 1902.

Eucera hellenica, p. xlvi, *parnassia*, Greece, *hispaliensis*, Spain, p. xlvii, *barbiventris*, Castille, *platyrhina*, Ukrain, p. xlviii, PÉREZ, Pr.-verb. Soc. Bordeaux 1902, n. spp.

Eucondylops n. g. for *E. konowi*, n. sp., S. Africa, BRAUNS, Zeitschr. Hym. Dipt. ii, p. 377.

Euglossa ; characters of species at Pará, notes on habits etc., with some new names of species to be described in Bol. Mus. Para., DUCKE,

pp. 400–405, 417, Allg. Zeitschr. Ent. vii ; the species of Pará, nests, DUCKE, Bol. Mus. Para. iii, pp. 561–577, 1 pl. ; *E. mariana* var. n. *tucumana*, SCHROTTKY, An. Mus. Buenos Aires viii, p. 117.

E. cordata, nesting habits, SCHULZ, Allg. Zeitschr. Ent. p. 153.

E. meliponoides, p. 569, *bicolor*, p. 570, *polita*, p. 571, *laniventris*, p. 575, Pará, DUCKE, Bol. Mus. Para. iii, n. spp.

Ecylæus n. g. type *Halictus arcuatus* Rob., ROBERTSON, Canad. Ent. xxxiv, p. 247.

Exomalopsis bruneri, Nebraska, CRAWFORD, Canad. Ent. xxxiv, p. 238, n. sp.

Fidelia villosa, Karroo, BRAUNS, Zeitschr. Hym. Dipt. ii, p. 375, n. sp.

Florilegus n. g. for *Melissodes condigna* Cr., ROBERTSON, Tr. Ac. St. Louis x, p. 53.

Gastrohalictus subg. n., cf. *Halictus*.

Halictoides davidsoni, California, COCKERELL, Bull. S. Calif. Ac. i, p. 140, n. sp.

Halictus ; natural history, FABRE (410) ; *H. dmitrijewi*, characters, p. 227, *sexnotatulus* ♂, p. 228 ; *H. pallidus*, cf. *Nomioides* ; *H. trimarginatus*, cf. *Anthrena* ; VACHAL, Rev. Russe Ent. ii ; *H. arcuatus* ♂, p. 51, *similis* ♂, p. 52, ROBERTSON, Tr. Ac. St. Louis x.

H. duplocinctus, p. 225, *bivinctus*, Askhabad, *chlapovskii*, E. Siberia, p. 226, *recepticius*, Vilna, *amurensis*, Siberia, p. 227, *pistorius*, *radovzkovskii*, Askhabad, p. 228, *attritus*, Fergana, *morawitzi*, p. 229, *cupidus*, Transcaspian, *extorris*, Egypt, *pinguis*, Mussoori, p. 230, VACHAL, Rev. Russe Ent. ii ; *H. krishna*, p. 146, *clarus*, *fulgens*, p. 147, *testaceus*, p. 148, India, NURSE, J. Asiat. Soc. Bengal lxx ; *H. lahorensis*, p. 253, India, *ceylonicus*, Ceylon, p. 254, *zonatulus*, Bengal, p. 255, CAMERON, Ann. Nat. Hist. ix ; *H. minikoiensis*, Laccadives, CAMERON, Fauna Maldives i, p. 58 ; *H. montanus*, p. 234, *titusi*, *fulgidus*, p. 235, *cockerelli*, *pictus*, p. 236, *bruneri*, *rugosus*, p. 237, N. America, CRAWFORD, Canad. Ent. xxxiv ; *H.* (*Gastrohalictus* subg. n.) *osmioides*, Pará, DUCKE, Zeitschr. Hym. Dipt. ii, p. 102 : n. spp.

Heminomada subg. n. for *Nomada obliterata*, COCKERELL & ATKINS, Ann. Nat. Hist. x, p. 42.

Heriades carinatus referred to *Trypetes*, and *H. philadelphi* to *Chelostoma*, ROBERTSON, Tr. Ac. St Louis x, p. 52.

H. odontera, California, COCKERELL, Bull. S. Calif. Ac. i, p. 139, n. sp.

Iomelissa n. g. for *Andrena violæ* Rob., ROBERTSON, Tr. Ac. St. Louis x, p. 50.

Lamproapis n. g. near *Dufourea*, p. 419, for *L. maculipennis*, n. sp., India, p. 420, pl. fig. 2, CAMERON, J. Bombay Soc. xiv.

Lithurgopsis n. g. type *Lithurgus apicalis* Cress., FOX, Ent. News Philad. xiii, pp. 137, 182.

Lithurgus, referred to Berthold not Latreille ; *L. oblongus* to *Megachile*, FOX, t. c. p. 137 ; *L. apicalis* var. *opuntiæ*, COCKERELL, Ent. News Philad. xiii, p. 182.

L. corumbæ, S. America, COCKERELL, P. Ac. Philad. 1901, p. 216 (omitted last year), n. sp.

Macrocera antigæ, p. xlv, *confusa*, p. xlvi, Spain, PÉREZ, Pr.-verb. Soc. Bordeaux 1902 ; *M. argentina*, p. 309, *mephistophelica*, p. 310, S. America, SCHROTTKY, An. Mus. Buenos Aires vii : n. spp.

Macropis labiata and *fulvipes*, distinctions, MORICE, Ent. Mag. xxxviii, p. 83.

Megachile petulans, *optiva*, synonymy, ROBERTSON, Canad Ent. xxxiv, p. 49 ; *M. occidentalis* var. n. *leucotricha*, COCKERELL, Bull. S. Calif. Ac. i, p. 137 ; *M. cœlioxysides* ♂, NURSE, J. Asiat. Soc. Bengal lxx, p. 150.

M. bioculata, Catalonia, *confluens*, Algeria, *canariensis*, Canaries, p. cxix, *gothalauniensis*, Catalonia, p. cxx, *massiliensis*, p. cxxi, PÉREZ, Pr.-verb.

Soc. Bordeaux 1902; *M. vera*, *katinka*, p. 150, *patella*, *ulrica*, p. 151, India, NURSE, J. Asiat. Soc. Bengal lxx; *M. otriades*, Maldives, p. 60, *cinyras*, Laccadives, p. 61, CAMERON, Fauna Maldive i; *M. alticola*, p. 118, *viriplaca*, p. 119, *mœra*, p. 120, *œola*, p. 121, *osea*, p. 122, *amstela*, p. 123, *tarea*, *shelfordi*, p. 124, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii; *M. zygia*, Borneo, CAMERON, t. c. p. 133; *M. manumuskeri*, New Jersey, VIERECK, Canad. Ent. xxxiv, p. 328; *M. davidsoni*, *angelarum*, California, COCKERELL, Bull. S. Calif. Ac. i, p. 70 : n. spp.

Megacilissa metatarsalis, Paraná, SCHROTTKY, An. Mus. Buenos Aires vii, p. 317, n. sp.

Melanapis n. g. near *Nomia*?, p. 420, for *M. violaceipennis*, n. sp., India, p. 421, pl. fig. 1, CAMERON, J. Bombay Soc. xiv.

Meliphila n. g. p. 310, for *M. ipomœæ*, n. sp., Buenos Aires, p. 311, with *M. mattogroensis*, n. sp., Matto Grosso, p. 326, SCHROTTKY, An. Mus. Buenos Aires vii; *M.*, see also *Centris nudipes*.

Melipona; the species of Pará described, with figg., DUCKE, Zool. Jahrb. Syst. xvii, pp. 285–328, pl. xi.

M. puncticollis, Pará, FRIESE, Zeitschr. Hym. Dipt. ii, p. 382, n. sp.

Melissa piliceus, Haity, FRIESE, t. c. p. 200; *M. superba*, p. 577, *friesei*, *itaitubina*, p. 578, Pará, DUCKE, Bol. Mus. Para. iii, n. spp.

Melissodes tristis malvina subsp. n., COCKERELL, Entomologist 1902, p. 177; *M. condigna* cf. *Florilegus*, *M. compta* cf. *Anthedon*.

M. vernoniæ, Illinois, ROBERTSON, Canad. Ent. xxxiv, p. 323; *M. petalostemonis*, Illinois, ROBERTSON, Tr. Ac. St. Louis x, p. 53 : n. spp.

Melitturga spinigera, Greece, FRIESE, Zeitschr. Hym. Dipt. ii, p. 107, n. sp.

Mesocheira guedesii, Pará, DUCKE, Bol. Mus. Para. iii, p. 579, n. sp.

Micronomada subg. n. for *Nomada modesta*, COCKERELL & ATKINS, Ann. Nat. Hist. x, p. 44.

Morawitzia n. g. near *Rhophites*, p. 185, for *M. panurgoides*, with var. *fuscescens*, n. sp., Asia Minor, p. 186, FRIESE, Zeitschr. Hym. Dipt. ii.

Nomada; the bees they prey on, ALFKEN, Zeitschr. Hym. Dipt. ii, pp. 5–10; *N. denticulata* n. n. for *articulata* Rob. nec Sm., ROBERTSON, Canad. Ent. xxxiv, p. 49; *N.*, subgg. n. *Heminomada*, *Micronomada*, qq.v.

N. rugithorax, *faventiana*, Barcelona, p. lix, *gracilipes*, Algeria, *novioregensis*, Royan, *superba*, Lyon, p. lx, *bipunctis*, Algeria, p. lxi, *lituripes*, Barcelona, *sternipes*, Bougie, p. lxii, *maculiscapa*, *micronycha*, Europe?, p. lxiii, PÉREZ, Pr.-verb. Soc. Bordeaux 1902; *N. flavozonata*, p. 148, *lucilla*, p. 149, *priscilla*, p. 150, India, NURSE, J. Asiat. Soc. Bengal lxx; *N. salicis*, Illinois, ROBERTSON, Tr. Ac. St. Louis x, p. 52; *N. simplex* (=*bella* Rob. nec Cress.), Illinois, ROBERTSON, Ent. News Philad. xiii, p. 80; *N. formula*, California, VIERECK, P. Ac. Philad. liv, p. 728 : n. spp.

Nomadidæ; phylogeny, taxonomy, four groups, *Nomadinæ*, *Phileremineæ*, *Melectinæ*, *Ericrocinæ*, COCKERELL & ATKINS, Ann. Nat. Hist. x, pp. 40–46.

Nomia shica, *himalayana*, India, NURSE, J. Asiat. Soc. Bengal lxx, p. 148; *N.* (*Paranomia*) *zebrata*, *frederici*, p. 248, *argenteobalteata*, p. 249, *N. aureobalteata*, p. 250, Bengal, *carinicollis*, Ceylon, p. 251, *albofimbriata*, Bengal, p. 252, CAMERON, Ann. Nat. Hist. ix; *N. robusta*, p. 114, *borneana*, p. 115, *leucozonata*, p. 116, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii; *N. varibalteata*, Borneo, CAMERON, t. c. p. 132; *N. tacita*, *cillaba*, New Mexico, CAMERON, Tr. Amer. ent. Soc. xxxv, p. 376 : n. spp.

Nomioides pallida Rad. referred to *Halictus*, VACHAL, Rev. Russe Ent. ii, p. 231.

Opandrena n. g. type *A. cressonii* Rob., ROBERTSON, Tr. Amer. ent. Soc. xxxv, p. 193.

Osmia nigritula, n. n. for *O. parvula* D. T. nec Duf., FRIESE, Zeitschr. Hym. Dipt. ii, p. 109; *O. manicata* ♀, MORICE, Ent. Mag. xxxviii, p. 81; *O. bocconis* referred to *Ashmeadiella*, ROBERTSON, Tr. Ac. St. Louis x, p. 52; *O. cobaltina* and *illinoensis* are sexes of one, also *atriventris* and *proxima*, and *pumila* and *vicina*, ROBERTSON, Ent. News Philad. xiii, p. 79; *O. papaveris*, instinct, FERTON, Ann. Soc. ent. France 1902, p. 502; *O. spinulosa*, nest-habits, GEHRS, Zeitschr. Hym. Dipt. ii, p. 4.

O. ochraceicornis, Cerdagne, FERTON, Ann. Soc. ent. France 1902, p. 499; *O. recta*, p. lxiii, *niveibarbis*, Algeria, *nassonowi*, Transcaspian, p. lxiv, *subintegra*, Palestine, *ciliaris*, Drôme, p. lxv, *rondoui*, Gèdre, *undulata*, *chobauti*, *fortispina*, p. lxvi, *marchali*, Algeria, *ravouxi*, France, p. lxvii, *rhinotropis*, Catalonia, *mecheriana*, Algeria, p. lxviii, PÉREZ, Pr.-verb. Soc. Bordeaux 1902; *O. major* and *cordata*, Illinois, ROBERTSON, Ent. News Philad. xiii, p. 79; *O. iridis*, p. 816, *chlorops*, p. 817, New Mexico, COCKERELL & TITUS, Amer. Natural. xxxvi : n. spp.

Pachycentris n. g., p. 186, for *P. schrottkyi*, n. sp., S. America, p. 187, FRIESE, Zeitschr. Hym. Dipt. ii.

Peponapis n. g. for *Macrocera pruinosa* Say, ROBERTSON, Canad. Ent. xxxiv, p. 324.

Perdita anogræ, New Mexico, COCKERELL, Amer. Natuaal. 1902, p. 812, n. sp.

Perditella boltoniæ, Illinois, ROBERTSON, Canad. Ent. xxxiv, p. 322, n. sp.

Phileremus major, Barcelona, p. lviii, *minor*, Algeria, p. lix, PÉREZ, Pr.-verb. Soc. Bordeaux 1902, n. spp.

Prosopis; characters of N. W. German, with critical and synonymical remarks, ALFKEN, Zeitschr. Hym. Dipt. ii, pp. 65–91; Nests, HÖPPNER, Allg. Zeitschr. Ent. vii, p. 134, cut; *P. annularis* and allies, characters, ALFKEN, pp. 193–195, Zeitschr. Hym. Dipt. ii.

Protanthidium rufobalteatum, p. 125, *ovatum*, p. 126, *rufomaculatum*, p. 127, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii; *P. cockerelli*, Colorado, TITUS, Ent. News Philad. xiii, p. 170 : n. spp.

Psithyrus kodiakensis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 130, n. sp.

Pterandrena n. g. type *A. pulchella* Rob., ROBERTSON, Tr. Amer. ent. Soc. xxxv, p. 194.

Ptilandrena n. g. type *A. erigeniæ* Rob., ROBERTSON, t. c. p. 192.

Rhophites nigripes, Asia Minor, p. 380, *hartmanni*, Centr. Europe, p. 381, FRIESE, Zeitschr. Hym. Dipt. ii, n. spp.

Sphecodes pimpinellæ, Illinois, ROBERTSON, Tr. Ac. St. Louis x, p. 51, n. sp.

Stelidium n. g. for *S. trypetinum*, n. sp., Illinois, ROBERTSON, Canad. Ent. xxxiv, p. 323.

Stelis pulchra, Nebraska, CRAWFORD, Canad. Ent. xxxiv, p. 239, n. sp.

Synhalonia atriventris n. f. *fuscipes*, ROBERTSON, Tr. Ac. St. Louis x, p. 54.

S. rosæ, Illinois, id. l. c.; *S. illinoensis*, N. America, ROBERTSON, Canad. Ent. xxxiv, p. 49 : n. spp.

Trachandrena n. g. type *A. rugosa* Rob., with *T. obscura*, n. sp., N. America, ROBERTSON, Tr. Amer. ent. Soc. xxxv, p. 189.

Triepeolus minimus, Illinois, ROBERTSON, Ent. News Philad. xiii, p. 81, n. sp.

Trigona bipunctata, var. n. *luteipennis*, FRIESE, Zeitschr. Hym. Dipt. ii, p. 382.

T. erythrogastra, p. 129, *flavistigma*, *latebalteata*, p. 130, *lacteifasciata*, p. 131, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii; *T. silvestrii*, Paraguay, p. 382, *buyssoni*, Peru, p. 383, FRIESE, Zeitschr. Hym. Dipt. ii : n. spp.

Verbenapis subg. n. of *Calliopsis*, for *C. verbenæ*, COCKERELL & ATKINS, Ann. Nat. Hist. x, p. 44.

Xenoglossa angelica, California, COCKERELL, Ent. News Philad. xiii, p. 103, n. sp.
Xylocopa; parasites, Acarid pouch, GREEN, Ent. Mag. xxxviii, p. 232, cut.
X. esica, p. 61, *gardineri*, p. 62, Maldives, CAMERON in Gardiner, Fauna Maldive Arch. i; *X. shelfordi*, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii, p. 128 : n. spp.

VESPIDÆ, EUMENIDÆ, MASARIDÆ.

[Cf. ADLERZ (3), ASHMEAD (36), BINGHAM (108), BRAUNS (153), R. DU BUYSSON (189, 190), CAMERON (200, 203, 204, 206), FERTON (433), FOX (478), NURSE (968), PERKINS (1009), SCHROTTKY (1218), ZAVŘEL (1509).]

Vespidæ; classification, table of genera, ASHMEAD, Canad. Ent. xxxiv, pp. 163–166.
Eumenidæ; classification, ASHMEAD, t. c. pp. 203–210.
Masaridæ; classification, ASHMEAD, t. c. pp. 219–221.

Ancistrocerus halophila, California, VIERECK, P. Ac. Philad. liv, p. 735, n. sp.
Ceramius schulthessi, p. 182, *fumipennis*, p. 275, *capicola*, p. 278, *karrooensis*, p. 282, S. Africa, BRAUNS, Zeitschr. Hym. Dipt. ii, n. spp.
Discoelius transvaalensis, S. Africa, BINGHAM, Ann. Nat. Hist. x, p. 218, n. sp.
Eumenes amedei, note on habits, ESCHER-KÜNDIG, Mt. Schweiz. ent. Ges. x, p. 374; *E. pomiformis*, oviposition, larval habits, FERTON, Ann. Soc. ent. France 1902, pp. 521–527.
E. rendalli, S. Africa, BINGHAM, Ann. Nat. Hist. x, p. 220, n. sp.
Hoplomerus remiformis, habits, ADLERZ, Ent. Tidskr. xxiii, pp. 241–252.
Icaria latebalteata, p. 100, *flavobilineata*, p. 102, *xanthopoda*, p. 103, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii, n. spp.
Ischnogaster nigricans, *ornatifrons*, p. 105, *fulvipennis*, p. 106, *flavolineata*, p. 108, Borneo, CAMERON, t. c., n. spp.
Micreumenes n. g. type *curriei*, not described, ASHMEAD, Canad. Ent. xxxiv, p. 208.
Monobiella n. g. type *Vespa atrata* Fabr., ASHMEAD, t. c. p. 209.
Montezumia gujaratica, India, NURSE, J. Bombay Soc. xiv, p. 90; *M.* ? *forticeps*, Sarawak, CAMERON, J. Asiat. Soc. xxxvii, p. 109 : n. spp.
Odynerus parietinum, a nest, DALLA TORRE, Wien. ent. Zeit. xxi, p. 21; *O. exilis*, *lævipes*, nesting habits, HÖPPNER, Allg. Zeitschr. Ent., pp. 180–184, cuts.
O. rubroniger, *simplex*, S. Africa, BINGHAM, Ann. Nat. Hist. x, p. 222; *O. hospes*, p. 90, *punjabensis*, p. 91, India, NURSE, J. Bombay Soc. xiv; *O. cilicius*, p. 111, *hyades*, p. 112, *lybas*, p. 114, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii; *O.* (*Stenancistrocerus*) *apicipennis*, p. 44, *convulutus*, p. 45, *suffusus*, p. 46, *areatus*, p. 47, *abdominalis*, *dentiformis*, p. 48, *O.* (*Ancistrocerus*) *fulvimaculus*, p. 49, *rufimaculus*, p. 50, *O.* (*Stenancistrocerus*) *atripes*, p. 51, *O.* (*Ancistrocerus*?) *conjunctus*, p. 52, *O.* (*Hypancistrocerus*) *reflexus*, p. 53, *O. coxalis*, p. 54, *herbertii*, p. 56, *cordatus*, p. 57, *dorsonotatus*, p. 58, *longicornis*, p. 59, *striatus*, p. 60, *inusitatus*, p. 61, *rufosuffusus*, p. 62, *relaticus*, *corumbæ*, p. 63, *chapadæ*, p. 64, *sericeus*, *O.* (*Stenodynerus*) *serratus*, p. 65, *griseus*, p. 66, *subapicalis*, p. 67, Brazil, FOX, P. Ac. Philad. liv; *O.* (*Pachodynerus*) *perniger*, Argentina, SCHROTTKY, An. Mus. Buenos Aires viii, p. 115; *O. cypris*, *eutretus*, *holomelas*, p. 138, *crypterythrus*, *newelli*, p. 139, *mesospilus*, p. 140, Hawaii, PERKINS, Tr. ent. Soc. London 1902 : n. spp.
Polybia bucula, W. Africa, DU BUYSSON, Bull. Soc. ent. France 1902,

p. 253; *P. ruficeps*, Argentina, SCHROTTKY, An. Mus. Buenos Aires viii, p. 116 : n. spp.

Pseudomasaris n. g. type *Masaris occidentalis* Cress., ASHMEAD, Canad. Ent. xxxiv, p. 221.

Quartinia thebaica, Egypt, DU BUYSSON, Bull. Soc. ent. France 1902, p. 141, n. sp.

Rhynchium maldivense, Maldives, CAMERON, Fauna Maldives i, p. 57, n. sp.

Vespa rufa, habits, PACK-BERESFORD, Irish Natural. xi, p. 94.

V. orbata, *oberthuri*, China, DU BUYSSON, Bull. Soc. ent. France 1902, p. 140, n. spp.

Zethus interstitialis, India, CAMERON, J. Bombay Soc. xiv, p. 291; *Z. varipunctus*, Sarawak, CAMERON, J. Straits Asiat. Soc. xxxvii, p. 110; *Z. quadridentata*, Borneo, CAMERON, Entomologist 1902, p. 314 : n. spp.

HYMENOPTERA FOSSORIA.

[Cf. ANDRÉ (22–25), ASHMEAD (36 & 38), BINGHAM (108, 868), CAMERON 198–200, 203–207), CRESSON (293), DUCKE (356), FERTON (432–434), HÖPPNER (619), KIEFFER (690), KOHL (719), KOKUJEW (720), MANTERO (854), MELANDER & BRUES (890), MORICE (926), NURSE (968), PERKINS (1011), SCHROTTKY (1216, 1218), VIERECK (1414, 1420).]

Classification of *Fossoria*, continuation, ASHMEAD, Canad. Ent. xxxiv, p. 79 etc.

Sphegoidea of Ottawa, HARRINGTON, Ottawa Natural. xv, pp. 215–224.

Actenopoda n. g. type undescribed, ASHMEAD, Canad. Ent. xxxiv, p. 88.

Agenia albipalpis, Borneo, CAMERON, Ann. Nat. Hist. ix, p. 215; *A. euphorbiæ*, California, VIERECK, P. Ac. Philad. liv, p. 734 : n. spp.

Agenioideus n. g. type *Pompilus humilis* Cress., ASHMEAD, Canad. Ent. xxxiv, p. 85.

Agenioxenus n. g. type *Ceropales rufiventris* Walsh, ASHMEAD, Canad. Ent. xxxiv, p. 137; *A.* cf. *Ceropales*.

Allocyphonyx n. g. type *Pompilus maurus* Cress., ASHMEAD, Canad. Ent. xxxiv, p. 136.

Alyson testaceitarsis, p. 290, *erythrothorax*, p. 291, India, CAMERON, J. Bombay Soc. xiv; *A. petiolatus*, p. 374, *interstitialis*, p. 375, New Mexico, CAMERON, Tr. Amer. ent. Soc. xxxv : n. spp.

Ampulex longicollis, p. 263, *trigona*, p. 264, *brevicornis*, p. 312, Khasia Hills, CAMERON, Entomologist 1902; *A. tricarinata*, Borneo, CAMERON, Ann. Nat. Hist. ix, p. 245; *A. rothneyi*, p. 54, *trichiosoma*, p. 55, *ruficoxis*, p. 56, Assam, CAMERON, op. cit. x, p. 56; *A. striatifrons*, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii. p. 95 : n. spp.

Anoplius (*Pompilinus*) *padrinus*, California, VIERECK, P. Ac. Philad. liv, p. 734, n. sp.

Aphloctenus n. g. type *Pompilus virginiensis* Cress., ASHMEAD, Canad. Ent. xxxiv, p. 87.

Aporinæ to be used in place of *Pompilinæ*, ASHMEAD, t. c. p. 79.

Aporinus n. g. type not named, ASHMEAD, t. c. p. 88.

Aporoideus n. g. type *Pompilus sericeus* Lind., ASHMEAD, t. c. p. 86.

Arachnophila n. g. type *Pompilus divisus* Cress., ASHMEAD, t. c. p. 86.

Arachnophroctonus n. g. type *Pompilus ferrugineus* Say, ASHMEAD, t. c. p. 83.

Astatus pelops, Olympia, p. 104, *massiliensis*, S. France, p. 105, MORICE, Ent. Mag. xxxviii, n. spp.

Atillum n. g. *Mutillidæ*, pp. 16, 19, 47 for part of *Mutilla*, ANDRÉ, Wytsman gen. ins. Mutillidæ.

Aulocostethus n. g. type *bifasciatus* not described, ASHMEAD, Canad. Ent. xxxiv, p. 133.

Bembex oculata, habits, FERTON, Ann. Soc. ent. France 1902, pp. 514–516.

B. maldiviensis, p. 56, *handlirschi*, p. 57, Maldives, CAMERON, Fauna Maldives i, n. spp.

Batozonus n. g. type *Pompilus algidus*, ASHMEAD, Canad. Ent. xxxiv, p. 81.

Bothynostethus aberrans, p. 578, *dubius*, p. 577, *kohlii*, p. 575, Pará, DUCKE, Verh. Ges. Wien lii, n. spp.

Ceratocolus subterraneus, habits, NIELSEN, Allg. Zeitschr. Ent. vii, pp. 178–180, cuts.

Cerceris latifrons, p. 214, *mitrata*, p. 215, S. Africa, BINGHAM, Ann. Nat. Hist. x; *C. fortinata*, *erythropoda*, Assam, CAMERON, Ann. Nat. Hist. x, p. 57; *C. crassidens*, p. 98, *latidens*, p. 99, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii; *C. excavata*, Borneo, CAMERON, t. c. p. 135; *C. cockerelli*, California, VIERECK, P. Ac. Philad. liv, p. 731 : n. spp.

Ceropales=(*Agenioxenus* Ashm.), CAUDELL, Ent. News Philad. xiii, p. 275; but cf. ASHMEAD, t. c. p. 318.

C. judicatrix, India, NURSE, J. Bombay Soc. xiv, p. 85; *C. quaintancei*, Maryland, VIERECK, Ent. News Philad. xiii, p. 275 : n. spp.

Chirodamus; noticed, ASHMEAD, Canad. Ent. xxxiv, p. 135; *C. kingi* = (*Salius pachymerus* Dalla Torre), SCHROTTKY, An. Mus. Buenos Aires viii, p. 112.

Crabro; food-habits, FERTON, Ann. Soc. ent. France 1902, p. 518.

C. assamensis, p. 59, *melanotarsis*, *fulvopilosellus*, p. 60, *khasianus*, p. 61, Assam, CAMERON, Ann. Nat. Hist. x; *C. pulveris*, p. 87, *petiolatus*, *aswad*, *traductor*, p. 88, *eques*, *simlaensis*, p. 89, India, NURSE, J. Bombay Soc. xiv; *C. idrieus*, *musæus*, Maldives, CAMERON, Fauna Maldives i, p. 53; *C. venturii*, Buenos Aires, SCHROTTKY, An. Mus. Buenos Aires viii, p. 114 : n. spp.

Dielis formosa, habits, larva, FROGGATT, Agric. Gaz. N. S. W. xiii, pp. 63–68, plate.

D. borneana, Sarawak, CAMERON, J. Straits Asiat. Soc. xxxvii, n. sp.

Dolichocrabro wickhami, Alaska, ASHMEAD, P. Washington Ac. iv, p. 133, n. sp.

Elis thoracica ♂, CAMERON, Fauna Maldives i, p. 55.

Ephutomorpha, n. g. *Mutillidæ*, pp. 15, 18, 48, for part of *Mutilla*, ANDRÉ, Wytsman gen. ins. Mutillidæ, p. 48.

Ephutomorpha addenda varr. n. *rufocincta*, *ferrugineipes*, p. 244, *E. sanguineiceps* var. n. *tristifica*, p. 248, *E. hospes* var. n. *rufovariegata*, p. 251, *E. lauta* var. n. *æneidorsis*, p. 259, *aurovestita* varr. n. *fulvipes*, *pallidinervis*, p. 269, ANDRÉ, Mem. Soc. zool. France xv.

E. illustris, p. 244, *viridiænea*, p. 246, *associata*, p. 249, *brachynota*, p. 250, *alata*, p. 252, *mutabilis*, p. 253, *impressiventris*, p. 255, *liopyga*, p. 257, *chalcosoma*, p. 258, *chalconota*, p. 260, *assimilis*, p. 261, *lincithorax*, p. 262, *adjuncta*, p. 263, *diaphanopyga*, p. 266, *rufomixta*, p. 267, *nigroviridis*, p. 269, *atrovirens*, p. 271, *corusca*, p. 272, *placens*, p. 273, *nigrociliata*, p. 275, *atroænea*, p. 277, Australia, ANDRÉ, t. c., n. spp.

Gastrosericus rufitarsis, India, CAMERON, J. Bombay Soc. xiv, p. 286, n. sp.

Gonaporus n. g. type *Pompilus gracilis* Kl., ASHMEAD, Canad. Ent. xxxiv, p. 88.

Gorytes capitatus, India, NURSE, J. Bombay Soc. xiv, p. 86, n. sp.

Hylocrabro n. g. type *Crabro tumidoventris* Perk., PERKINS, Tr. ent. Soc. London 1902, p. 147.

Hypoferreola n. g. type *F. cephalotes* Sauss., ASHMEAD, Canad. Ent. xxxiv, p. 82.

Labidomilla n. g. *Mutillidæ*, pp. 14, 18, 26 for *M. deformis* Smith, ANDRÉ, Wytsman gen. ins. Mutillidæ.

Larra cassandra, Argentina, SCHROTTKY, An. Mus. Buenos Aires viii, p. 114.

Macromeris aureopilosa, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii, p. 88, n. sp.

Meira quadrimaculata, India, CAMERON, p. 274, pl. fig. 5, J. Bombay Soc. xiv, n. sp.

Melanocrabro n. g. type *Crabro curtipes* Perk., PERKINS, Tr. ent. Soc. London 1902, p. 147.

Melanoporus n. g. type *Planiceps euferatis* Fox, ASHMEAD, Canad. Ent. xxxiv, p. 132.

Mutilla sumptuosa var. n. *rubriceps*, SCHROTTKY, An. Mus. Buenos Aires viii, p. 110; *M. regia* ♂, CAMERON, J. Bombay Soc. xiv, p. 271, pl. fig. 9, ♀ fig. 8; *M. rufipes*, habits, KIEFFER, Allg. Zeitschr. Ent. vii, p. 82.

M. pharaonis Egypt, p. 325, *berberica* Algeria, pp. 334, 357, *arameana*, Syria, p. 336, *erronea*, Mediterranean, p. 362, *M.* (*Dasylabris*) *suspecta*, Turkestan, p. 408, ANDRÉ, Spec. Hym. viii; *Mutilla notatipennis*, p. 18, *bothavillensis*, p. 19, *peringueyi*, p. 23, *argenteiventris*, p. 25, *interrogata*, p. 26, *sinuosiceps*, p. 27, *pectinidorsis*, p. 30, *hoplocephala*, p. 34, *lobognatha*, p. 35, S. Africa, *septemmaculata*, p. 37, Congo, *breviuscula*, p. 39, *dubiosa*, p. 40, *parva*, p. 41, S. Africa, ANDRÉ, Zeitschr. Hym. Dipt. ii; *M. excavata*, S. Africa, BINGHAM, Ann. Nat. Hist. ix, p. 341; *M. zonata*, p. 79, *kallala*, *ekka*, *chota*, p. 80, India, NURSE, J. Bombay Soc. xiv; *M. climia*, p. 267, *japhia*, p. 268, *acasta*, p. 269, *diomeda*, p. 270, India, CAMERON, J. Bombay Soc. xiv; *M. casiphia*, p. 207, *æesyca*, p. 208, Borneo, CAMERON, Entomologist 1902; *M. herpa*, p. 73, *ira*, p. 74, *olbia*, p. 75, *bagrada*, p. 76, *agapeta*, p. 77, *ilerda*, p. 78, *mamblia*, p. 79, *palaca*, p. 80, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii; *M. gispa*, Borneo, CAMERON, t. c. p. 139; *M.* (*Photopsis*) *valenca*, ♂, Rio de Janeiro, CRESSON, Tr. Amer. ent. Soc. xxxv, p. 80; *M. praxedis*, S. America, SCHROTTKY, An. Mus. Buenos Aires viii, p. 111; ♀ *M. cornigera*, *decussata*, p. 15, *iracunda*, *seducta*, p. 16, *exclamationis*, p. 17, *dividua*, p. 18, *credula*, *crepera*, *paulula*, p. 19, *parata*, p. 20, *pergrata*, *pacata*, p. 21, *tantula*, *invitata*, p. 22, *benevola*, *beatula*, *integella*, p. 23, *verecunda*, p. 24, *vera*, p. 25, *spiniceps*, p. 26, *centromaculata*, *smithii*, p. 27, *victura*, p. 29, *centrovittata*, p. 31, *auroplaga*, *calvaria*, p. 32, *felix*, *crusa*, *projectifrons*, p. 33, *araxa*, *turnalis*, p. 34, *curiosa*, p. 35, *bombycina*, *carinigena*, p. 36, *infausta*, p. 38, *bellula*, p. 39, *frigidula*, *bellica*, p. 40, *bellicosa*, *bellifera*, p. 41, *latevittata*, p. 42, *demissa*, p. 43, *dorsovittata*, p. 44, *chapada*, p. 45, *crixa*, p. 46, *estrella*, p. 47, *solemnis*, p. 49, *æmulata*, p. 50, *vivata*, p. 51, *manca*, *sodalis*, *optata*, p. 52, *borba*, *auxiliaris*, p. 53, *unimarginata*, *mundula*, p. 54, *andrei*, *ipanema*, p. 55, Brazil, CRESSON, Tr. Amer. ent. Soc. xxxv; ♂ *M. macapa*, p. 59, *escada*, *manga*, p. 60, *laguna*, p. 62, *morada*, *croata*, *jatoba*, p. 63, *catinga*, *abadia*, *onga*, p. 64, *vicosa*, *sincora*, p. 65, *pinha*, p. 66, *barboza*, p. 67, *alagoa*, p. 68, *molaca*, *coimbra*, *inga*, p. 69, *carmo*, p. 70, *cuiba*, *orbana*, p. 71, *lorena*, p. 72, *caxara*, *caneta*, p. 73, *almada*, *picada*, p. 74, *barra*, *zapara*, p. 75, *tapera*, p. 76, *serra*, *viana*, p. 77, *sabara*, *taboca*, *maraca*, p. 78, *acara*, *pomba*, p. 79, Brazil, CRESSON, t. c. : n. spp.

Myrmilloides n. g. *Mutillidæ*, pp. 16, 19, 27, for *M. grandiceps* Blake, ANDRÉ, Wytsman gen. ins. Mutillidæ.

Myrmosa melanocephala, habits, KIEFFER, Allg. Zeitschr. Ent. vii, p. 82.

Myzine hortata, India, NURSE, J. Bombay Soc. xiv, p. 81; *M. apimacula*, India, CAMERON, J. Bombay Soc. xiv, p. 272; *M. rothneyi*, Assam, CAMERON, Ann. Nat. Hist. x, p. 88 : n. spp.

Nannopompilus n. g., type undescribed, ASHMEAD, Canad. Ent. xxxiv, p. 82.

Notogonia nigripennis occidentalis subsp. n., VIERECK, P. Ac. Philad. liv, p. 731.

N. pulcherrima, India, CAMERON, J. Bombay Soc. xiv, p. 285, pl. fig. 7; *N. umbripennis*, p. 97, *tegularis*, p. 98, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii : n. spp.

Nursea n. g. *Scoliidæ*, p. 275, for *N. carinata*, n. sp., Simla, p. 276, pl. fig. 4, CAMERON, J. Bombay Soc. xiv.

Odontomutilla australica, Australia, ANDRÉ, Mem. Soc. zool. France xv, pp. 241–243.

Odontophotopsis n. g., p. 738, for *O. exogyrus*, p. 738, *clandestinus*, p. 740, *succineus*, p. 741, n. spp., N. America, VIERECK, P. Ac. Philad. liv.

Oreocrabro n. g. for *Crabro abnormis* Blackb., PERKINS, p. 146, Tr. ent. Soc. London 1902.

Oxybelus, food-habits, FERTON, Ann. Soc. ent. France 1902, pp. 516–518; *O. uniglumis*, parasites of, KIEFFER, Allg. Zeitschr. Ent. vii, pp. 81–85.

O. aurifrons, India, CAMERON, J. Bombay Soc. xiv, p. 287, n. sp.

Pepsis venturii, Argentina, SCHROTTKY, An. Mus. Buenos Aires vii, p. 313, n. sp.

Philanthus innominatus, Pretoria, BINGHAM, Ann. Nat. Hist. x, p. 212; *P. punjabensis*, p. 86, *scrutator*, p. 87, India, NURSE, J. Bombay Soc. xiv; *P. dentatus*, Assam, CAMERON, Ann. Nat. Hist. x, p. 65 : n. spp.

Photopsis lingulatus, California, VIERECK, P. Ac. Philad. liv, p. 737, n. sp.

Plenoculus foxii, p. 73, *atlanticus*, p. 74, New Jersey, VIERECK, Ent. News Philad. xviii, n. spp.

Podium; monograph, KOHL, Abh. Ges. Wien i, Heft 4, 10 pp. 7 pls.

Podium (*Trigonopsis*) *resplendens*, Brazil, p. 41, *P.* (*Parapodium*) *agile*, Bahia, p. 43, *P. angustifrons*, Cayenne, p. 51, *foxii*, Brazil, p. 53, *chalybæum*, p. 56, *iridescens*, p. 60, *brevicolle*, p. 62, Mexico, *intermissum*, Brazil, p. 64, *mocsaryi*, S. America, p. 73, *latro*, Brazil, p. 74, *distinguendum*, p. 76, *spretum*, p. 79, *fallax*, p. 80, *viduatum*, p. 82, Brazil, *princeps*, Cayenne, p. 83, *taschenbergi*, Neu-Freiburg, p. 87, *P.* (*Parapodium*) *friesei*, Ecuador, p. 84, KOHL, t. c., n. spp.

Pœcilopompilus n. g. type *Pomp. navus* Cress., ASHMEAD, Canad. Ent. xxxiv, p. 82.

Pœcilotiphia n. g. near *Myzine*, p. 273, for *P. albomaculata*, n. sp., India, p. 274, pl. fig. 6, CAMERON, J. Bombay Soc. xiv.

Pompilinus n. g. type *Pompilus cylindricus* Cress., ASHMEAD, Canad. Ent. xxxiv, p. 85.

Pompilogastra n. g. type *Pompilus æthiops* Cress., ASHMEAD, t. c. p. 81.

Pompilus pectinipes, parasitic habits, FERTON, Ann. Soc. ent. France 1902, p. 519; *P. honestus* Sm. referred to *Macromeris*, SCHULZ, Zeitschr. Hym. Dipt. ii, p. 2.

P. marshalli, Mashonaland, BINGHAM, Tr. ent. Soc. London 1902, p. 547, pl. xxiii, fig. 20; *P.? latipes*, S. Africa, BINGHAM, Ann. Nat. Hist. ix, p. 349; *P. heraclides*, p. 277, pl. fig. 3, *deesæ*, p. 278, *caryatis*, p. 279, *eanes*, p. 280, *sollicitans*, p. 281, *alcacus*, *P.* (*Planiceps*) *caroli*, p. 282, *halys*, *simlaensis*, p. 283, *indostanus*, p. 284, India, CAMERON, J. Bombay Soc. xiv; *P. paulus*, p. 82, *certator*, *arrestus*, p. 83, *brutus*, *cassius*, *horatius*, p. 84, India, NURSE, J. Bombay Soc. xiv; *P. laticollis*, p. 82, *hookeri*, p. 83, *subfervens*, p. 84, *campbelli*, *implicitanus*, p. 85, Assam, CAMERON, Ann. Nat. Hist. x; *P. citherus*, p. 89, *iliacus*, p. 90, *cariniscutis*, p. 91, *parmenas*, p. 92, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii; *P. setabis*, Borneo, CAMERON, Entomologist 1902, p. 240 : n. spp.

Promecilla n. g. *Mutillidæ*, pp. 14, 30, for *M. ariel* and others, ANDRÉ, Wytsman gen. ins. Mutillidæ.

Psammophila grossa ♂, MELANDER & BRUES, Biol. Bull. iii, p. 41.

Psen carinifrons, p. 288, *reticulatus*, p. 289, India, CAMERON, J. Bombay

Soc. xiv; *P. nigrinervis*, Assam, CAMERON, Ann. Nat. Hist. x, p. 63 : n. spp.

Pseudagenia rossi, p. 207, *flavotegulata*, p. 208, S. Africa, BINGHAM, Ann. Nat. Hist. ix; *P. morna*, p. 213, *mutua*, p. 214, Bengal, CAMERON, Ann. Nat. Hist. ix; *P. erythropoda*, p. 66, *montanata*, *gnoma*, p. 67, *excellens*, p. 68, Assam, CAMERON, op. cit. x; *P. reticulata*, p. 92, *borneana*, p. 93, *balteata*, p. 94, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii : n. spp.

Pycnopompilus n. g. type *Pomp. scelestus* Cress., ASHMEAD, Canad. Ent. xxxiv, p. 83.

Rhoptromutilla n. g. *Mutillidæ*, pp. 16, 19, 43, for *M. abadia* and others, ANDRÉ, Wytsman gen. ins. Mutillidæ.

Salius sericeipennis, Transvaal, BINGHAM, Ann. Nat. Hist. ix, p. 351; *S. himalayensis*, Khasia Hills, CAMERON, Entomologist 1902, p. 240; *S. intimellus*, p. 77, *khasianus*, *assamensis*, p. 78, *junctellus*, p. 79, *curvinervis*, p. 80, *brevipennis*, p. 81, Assam, CAMERON, Ann. Nat. Hist. x; *S. sostratus*, p. 86, *iobates*, p. 87, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii; *S.* (*Priocnemis*) *autrani*, Rio Corcovado, SCHROTTKY, An. Mus. Buenos Aires viii, p. 112 : n. spp.

Scolia pila, India, NURSE, J. Bombay Soc. xiv, p. 82; *S.* (*Triscolia*) *aglana*, p. 81, *S.* (*Discolia*) *ergenna*, p. 82, *patara*, p. 83, *acutinerva*, p. 84, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii; *S. pulchrivestita*, p. 136, *apherema*, p. 137, *S.* (*Discolia*) *thyatira*, p. 188, Borneo, CAMERON, t. c. : n. spp.

Sericopompilus n. g. type *P. cinctipes* Cress., ASHMEAD, Canad. Ent. xxxiv, p. 82.

Spilopompilus n. g. type *P. biguttulatus* Fabr., ASHMEAD, t. c. p. 81.

Sophropompilus n. g. type *Pompilus ingenuus* Cress., ASHMEAD, t. c. p. 84.

Sphex subfuscatus habits, and instinct, FERTON, Ann. Soc. ent. France 1902, pp. 504–512, *S. albisectus*, id., pp. 512–514.

S. malayanus, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii, p. 134; *S. franzi*, Borneo, CAMERON, Ann. Nat. Hist. ix, p. 246 : n. spp.

Stizus tridens, habits, FERTON, Ann. Soc. ent. France 1902, p. 514; *S. fasciatus*, habits, FERTON, C.R. Ass. Franc. 1901, pt. 2, pp. 680–683.

S. scolioides, Merv, KOKOUYEW, Rev. Russe Ent. ii, p. 10, n. sp.

Tachypompilus n. g. type undescribed, ASHMEAD, Canad. Ent. xxxiv, p. 83.

Tachytes andreniformis, Assam, CAMERON, Ann. Nat. Hist. x, p. 64; *T. borneana*, Sarawak, CAMERON, J. Straits Asiat. Soc. xxxvii, p. 96 : n. spp.

Tallium n. g. *Mutillidæ*, pp. 16, 19, 45, type *tenebrosa* Gerst., ANDRÉ, Wytsman gen. ins. Mutillidæ.

Tilluma subg. n. of *Mutilla* for type *spinosa*, *auromaculata* and others, ANDRÉ, t. c. p. 52.

Tiphia natalensis ♂, BINGHAM, Ann. Nat. Hist. ix, p. 343.

T. conscia, *nervosa*, India, NURSE, J. Bombay Soc. xiv, p. 81; *T. spinosa*, p. 237, *curvinervis*, p. 238, Khasia Hills, *bicarinata*, Japan, p. 239, CAMERON, Entomologist 1902; *T. khasiana*, p. 86, *canaliculata*, p. 87, Assam, CAMERON, Ann. Nat. Hist. x : n. spp.

Trypoxylon geniculatum, *trochanteratum*, Khasia Hills, CAMERON, Entomologist 1902, p. 313; *T. erythrozonatum*, *melanurum*, Maldives, CAMERON, Fauna Maldives i, p. 54; *T. parvum*, Argentina, SCHROTTKY, An. Mus. Buenos Aires viii, p. 114 : n. spp.

Xenaporus n. g. type *Pompilus amœnus* Kl., ASHMEAD, Canad. Ent. xxxiv, p. 88.

Xenocrabro n. g. type *Crabro unicolor* Sm., PERKINS, Tr. ent. Soc. London 1902, p. 148, n. sp.

FORMICIDÆ.

[Cf. ADLERZ (5), ANDRÉ (21), COBELLI (245), DODD (342), DUFOUR (364), EMERY (393–397), ESCHERICH (408), FIELDE (436), FOREL (460–470), FOREL & DUFOUR (471), JANET (655A), LAMEERE (761), MAYR (878), MUCKERMANN (934), PROWAZEK (1093), RUZSKY (1180–1182), SCHOUTEDEN (1210), VIEHMEYER (1413), WASMANN (1450, 1454–1456), WHEELER (1489–1492).]

Anatomy of *Myrmica*, JANET (655A).
The genera tabulated as to workers, EMERY, Amer. Natural. xxxvi, pp. 707–725.
Senses, habits, FIELDE (436).
Ant-associations, and ant-psychology, WASMANN (1456).
Experiments as to sensitiveness of Ants, FOREL & DUFOUR (471).
The guests of *Dorylini*, WASMANN, Verh. Deutsch. zool. Ges. 1902, pp. 86–98.
Lateral eyes in *Eciton*, nature of, WHEELER, Biol. Bull. iii, p. 188.
WHEELER discusses at length the N. American ants described by BUCKLEY, in order to facilitate their recognition, Tr. Texas Ac. iv, pt. 2, pp. 17–31.
Agricultural ants; WHEELER, Amer. Natural. xxv, pp. 91–95.
Habits of Algerian ants, LAMEERE (761).
Origin of a nest, *Camponotus ligniperdus*, FORD, Ann. Soc. ent. Belgique xlvi, pp. 180, 294.
Relations of ants and *Aphidæ* in Belgium, SCHOUTEDEN (1212).
New Indian Ants, *Myrmicinæ*, FOREL, Rev. Suisse Zool. x, pp. 165–249.
Table of *Myrmicinæ* of India and Ceylon, FOREL, J. Bombay Soc. xiv, pp. 520–546. There are many forms indicated as new in this and the preceding paper, which deal with one subject. Though there are no cross-references I believe the novelties in each case are the same. Probably the Rev. Suisse Zool. paper was first published, and our references are thereto.
Origin of pseudogynes, WASMANN (1455), VIEHMEYER (1413).
Notes on larvæ, with figures, EMERY, Mem. Acc. Bologna (5) viii, pp. 3–10, pls. i, ii.

Acantholepis capensis, var. n. *guineensis*, MAYR, Verh. Ges. Wien lii, p. 296.
A. (*Acrostigma* subg. n., p. 477), with *froggatti*, p. 478, *australis*, p. 479, *bosii*, p. 481, *clivispina*, p. 482, Australia, FOREL, Rev. Suisse Zool. x, n. spp.
Acropyga moluccana var. n. *australis*, FOREL, Rev. Suisse Zool. x, p. 477.
Acrostigma subg. n. for Australian *Acantholepis*, q. v.
Aenictus mocsaryi, New Guinea, EMERY, Termes. Fuzetek xxv, p. 152, n. sp.
Bothriomyrmex pusillus var. n. *æqualis*, FOREL, Rev. Suisse Zool. x, p. 476.
Camponotus herculeanus var. n. *whymperi*, FOREL, Tr. ent. Soc. London 1902, p. 699; *C. intrepidus bellicosus* n. st., *C. suffusus* var. n. *bendigensis*, p. 493, *C. claripes elegans* n. st., p. 496, *C. maculatus* var. n. *humilior* and st. n. *discors*, p. 497, *C. nigriceps* var. n. *clarior* and st. n. *obniger*, *C. reticulatus mackayensis* n. st., p. 506, *gasseri obtusitruncatus*, p. 508, FOREL, Rev. Suisse Zool. x; *C. foreli* r. *impolitus* n. st., FOREL, Ann. Soc. ent. Belgique xlvi, p. 158; *C. pellitus* var. n. *æquinotus*, *C. ustus* var. n. *arhuacus*, p. 173, *cingulatus* var. n. *bambusarum*, p. 176, FOREL, Ann. Soc. ent. Belgique xlvi; *C. maculatus* r. *somnificus* n. st., r. *lobinieri* n. st., FOREL, Ann. Soc. ent. Belgique

xlvi, p. 287 ; *C. contractus* var. n. *buttesi*, FOREL, Ann. Soc. ent. Belgique xlvi, p. 463 ; *C. carbo* var. n. *occidentalis*, MAYR, Verh. Ges. Wien lii, p. 300.

C. acutisquamis, p. 296, *buchholzi*, p. 297, W. Africa, MAYR, t. c. ; *C.* (*Colobopsis*) *longi*, p. 284, *C. crassisquamis*, p. 285, Assam, *gretæ*, Burma, p. 288, FOREL, Ann. Soc. ent. Belgique xlvi ; *C. fieldeæ*, p. 495, *gibbinotus*, p. 498, *innexus*, p. 499, *hartogi*, p. 500, *oxleyi*, p. 501, *tasmani*, p. 503, *froggatti*, p. 504, *C.* (*Colobopsis*) *fictor*, p. 508, Australia, FOREL, Rev. Suisse Zool. x ; *C. fugax*, Jamaica, p. 173, *silvicola*, p. 174, *falco*, p. 175, Colombia, FOREL, Ann. Soc. ent. Belgique xlvi ; *C. biolleyi*, Coco Isld., p. 177, *mocsaryi*, Amazons, p. 178, FOREL, Ann. Soc. ent. Belgique xlvi : n. spp.

Cardiocondyla koshewnikovi, Ural Sea, RUZSKY, Zool. Jahrb. Syst. xvii, p. 480 ; *C. parvinoda*, India, FOREL, Rev. Suisse Zool. x, p. 213 : n. spp.

Cerapachyinæ, taxonomy, WHEELER, Biol. Bull. iii, pp. 181 etc.

Cerapachys inconspicua, *opaca*, New Guinea, EMERY, Termes. Fuzetek xxv, p. 152 ; *C.* (*Phyracaces*) *turneri*, Queensland, FOREL, Rev. Suisse Zool. x, p. 405 ; *C. augustæ*, Texas, WHEELER, Biol. Bull. iii, p. 182 : n. spp.

Cremastogaster meneleki occidentalis, subsp. n., p. 293, *africana variegata* var. n., p. 294, MAYR, Verh. Ges. Wien lii ; *C. auberti* varr. n. *levithorax*, *striaticeps*, FOREL, Ann. Soc. ent. Belgique xlvi, p. 462 ; *C. scutellaris* r. *tenuispina* n. st., FOREL, Ann. Soc. ent. Belgique xlvi ; *C. aberrans* var. n. *inglebyi*, p. 201, *rothneyi* var. n. *civa*, p. 203, *biroi* varr. n. *aitkenii smythiesii*, p. 203, *subnuda politula* n. st., and n. varr. *ruginota*, p. 207, FOREL, Rev. Suisse Zool. x ; *C. sordidula* varr. n. *queenslandica*, *froggatti*, p. 410, *rogans*, p. 411, *dispar*, p. 412, *C. læviceps* varr. n. *chasei*, p. 413, *clarior*, p. 414, FOREL, t. c. ; *C. lineolata* var. n., WHEELER, Bull. S. Calif. Ac. i, p. 41.

C. impressiceps, Fernando Po, MAYR, Verh. Ges. Wien lii, p. 294 ; *C.* (*Oxygyne*) *ebenina*, p. 199, with var. *corax*, *travancorensis*, *soror*, p. 200, *dalyi*, p. 201, *perelegans*, *himalayanus*, p. 202, *hodgsoni*, *sagei*, p. 204, with var. *lævinota*, *walshi*, *millardi*, p. 205, *buddhæ*, *wroughtonii*, p. 206, *nilgirica*, *nicevillei*, *notabilis*, p. 208, India, FOREL, Rev. Suisse Zool. x ; *C. cornigera*, p. 407, *scita* with race *mixta*, p. 409, *frivolus*, p. 412, Australia, FOREL, t. c. : n. spp.

Dolichoderus doriæ ♂, var. n. *dentata*, *D. scabridus* r. *ypsilon* n. st., FOREL, Rev. Suisse Zool. x.

D. turneri, Queensland, FOREL, p. 462, t. c., n. sp.

Eciton curvipes, *westwoodi*, p. 180, *maxillosum*, p. 181, *leptognathum*, *falciferum*, p. 182, *shuckhardi*, p. 183, *radoszkowskii*, p. 181, Centr. and S. America, EMERY, Mem. Acc. Bologna (5) viii, n. spp.

Formica ; nests of in N. America, MUCKERMANN, Psyche ix, pp. 355-360 ; *F. cinerea* and *rufibarbis* in N. America, habits, *F. fusca* var. n. *argentata*, WHEELER, Amer. Natural. xxxvi, pp. 947–952 ; *F. fusca* var. n. *perpilosa*, WHEELER, Mem. Soc. Ant. Alzate xvii, p. 141 ; *F. rufibarbis clara* ♂, p. 471, subsp. n. *subpilosa*, *F. cinerea* var. n. *imitans*, p. 472, RUZSKY, Zool. Jahrb. Syst. xvii ; *F. kraussii* ♂, FOREL, Ann. Soc. ent. Belgique xlvi, p. 155.

F. suecica, Sweden, ADLERZ, Ofv. Ak. Forh. 1902, p. 263, n. sp.

Froggattella n. g. *Dolichoderinæ*, p. 459, for *kirbyi* Lowne, with var. n. *bispinosa*, p. 460, FOREL, Rev. Suisse Zool. x.

Holcomyrmex glaber var. n. *clarus*, p. 219, *glabro-criniceps*, *crincipito-scabriceps* varr., *criniceps* var. n. *niger*, p. 220, FOREL, Rev. Suisse Zool. x.

H. lameerei, p. 150, *faf*, p. 151, Sahara, FOREL, Ann. Soc. ent. Belgique xlvi, n. spp.

Holcoponera brasiliensis, Rio de Janeiro, EMERY, Bull. Soc. ent. France 1902, p. 181, n. sp.

Huberia striata var. n. *rufescens*, FOREL, Rev. Suisse Zool. x, p. 447.

Iridomyrmex rufoniger varr. n., p. 466, *I. gracilis rubriceps* n. st., *I. bicknelli* variations, pp. 468, 469, *I. itinerans* n. varr., p. 472, *I. glaber* varr. n., p. 473, FOREL, t. c.

I. conifer, p. 463, *discors*, p. 464, with var. *obscurior*, p. 465, *chasei*, p. 467, with var. *concolor*, p. 468, *froggatti*, *gilberti*, p. 470, Australia, FOREL, t. c., n. spp.

Lasius flavus, in Helgoland, WASMANN, Deutsche ent. Zeitschr. 1902, p. 63.

Leptogenys (*Lobopelta*) *emiliæ*, India, FOREL, Ann. Soc. ent. Belgique xlvi, p. 294 ; *L. triloba*, p. 159, *bituberculata*, p. 160, New Guinea, EMERY, Termes. Fuzetek xxv : n. spp.

Leptomyrmex varians var. n. *rothneyi*, FOREL, Rev. Suisse Zool. x, p. 473.

Leptothorax serviculus, W. Siberia, p. 476, *satunini*, Ararat, p. 477, *pamiricus*, Iskanderkul, p. 478, RUZSKY, Zool. Jahrb. Syst. xvii ; *L. taylori*, p. 228, *fultonii*, *inermis*, p. 229, *rothneyi*, p. 230, with *schurri* n. st., p. 231, India, FOREL, Rev. Suisse Zool. x : n. spp.

Liometopum lindgreeni, Assam, FOREL, Ann. Soc. ent. Belgique xlvi, p. 293, n. sp.

Macromischa ; notes on W. African, MAYR, Verh. Ges. Wien lii, p. 292.

Mayriella n. g. near *Meranoplus*, for *M. abstinens*, n. sp., Queensland, FOREL, Rev. Suisse Zool. x, p. 454.

Melophorus iridescens var. n. *froggatti*, FOREL, t. c. p. 487.

M. formicoides, p. 483, *ludius*, p. 484, *curtus*, p. 485, *hirsutus*, p. 488, Australia, FOREL, t. c., n. spp.

Meranoplus diversus unicolor subsp. n., p. 455, *M. hirsutus minor* subsp. n., p. 457, FOREL, t. c.

M. bellii, p. 240, *rothneyi*, p. 241, India, FOREL, t. c. ; *M. mars*, p. 454, *puryi*, p. 456, Australia, FOREL, t. c., n. spp.

Monomorium gracillimum var. n. *mayri*, p. 209, *salomonis indicum* n. st., p. 213, FOREL, t. c. ; *M. decamerum*, habits, WASMANN, Zool. Jahrb. Syst. xvii, p. 153.

M. wroughtoni, *aberrans*, p. 209, *atomus* with var. *integrius*, p. 210, *sagei*, *longi*, p. 211, *schurri*, *dichroum*, p. 212, India, FOREL, Rev. Suisse Zool. x ; *M. gilberti*, p. 440, *kiliani*, p. 441, *sydneyense*, p. 442, *sordidum*, p. 443, *rothsteini*, p. 444, *M.* (*Adlerzia* subg. n.) *froggatti*, p. 445, Australia, FOREL, t. c. : n. spp.

Myiopias cribriceps, New Guinea, EMERY, Termes. Fuzetek xxv, p. 156, n. sp.

Myrmecina rugosa, Queensland, FOREL, Rev. Suisse Zool. x, p. 438, n. sp.

Myrmecocystus ; habits and psychology, ESCHERICH, Allg. Zeitschr. Ent. vii, pp. 353 etc. ; *M. cursor* var. n. *caspius*, RUZSKY, Zool. Jahrb. Syst. xvii, p. 470 ; *M. viaticus* var. n. *diehlii*, *M. albicans* var. n. *fortis*, FOREL, Ann. Soc. ent. Belgique xlvi ; *M. viaticus diehlii*, forms described, relations with *Thorictus*, FOREL, Ann. Soc. ent. Belgique xlvi, pp. 462, 463.

Myrmecocystus lameerei, Sahara, FOREL, t. c. p. 156, n. sp.

Myrmica rubra var. n. *frigida*, FOREL, Tr. ent. Soc. London 1902, p. 699.

M. stangeana, Tourgaï, RUZSKY, Rev. Russe Ent. ii, p. 234 ; *M. bergi*, Aral Sea, p. 473, *stangeana*, Kirghiz Steppes, p. 474, RUZSKY, Zool. Jahrb. Syst. xvii ; *M. ineza*, *smythiesii*, p. 226, with var. *rupestris* and *carbonaria* n. st., p. 227, *M. rugosa* var. *rugoso-smythiesi*, p. 228, FOREL, Rev. Suisse Zool. x, n. spp.

Myrmicaria arachnoides birmana n. st., FOREL, Rev. Suisse Zool. x, p. 243.

Myrmorenus n. g., p. 474, for *M. gordiagini*, n. sp., Koktschetaw, p. 476, RUZSKY, Zool. Jahrb. Syst. xvii.

Neoponera lævinodis, p. 14, *rugosinodis*, p. 15, Peru, ANDRÉ, Bull. Soc. ent. France 1902, n. spp.

Odontomachus gulosus, New Guinea, EMERY, Termes. Fuzetek xxv, p. 160, n. sp.

Œcophylla smaragdina, habits, DODD, Victorian Natural. xviii, pp. 136–140.

Oligomyrmex asinus, p. 214, *raja*, *leei*, p. 216, *bengalensis*, p. 217, *rothneyi*, p. 218, India, FOREL, Rev. Suisse Zool. x ; *O. corniger*, Australia, FOREL, t. c. : n. spp.

Opisthopsis major, Queensland, FOREL, t. c. p. 492, n. sp.

Pachycondyla (*Ectomomyrmex*) *exarata*, p. 156, *aciculata*, p. 157, New Guinea, EMERY, Termes. Fuzetek xxv, n. spp.

Pheidole variabilis varr. n. *rugoceiput rugosula*, p. 423, *parvispina*, p. 424, *mediofusca*, p. 425, *prædo*, p. 426, *P. proxima transversa* subsp. n., p. 428, *P. ampla* varr. n. *yarrensis*, p. 434, *parallela*, p. 435, *mackayensis*, p. 436, *P. longiceps* var. n. *frontalis*, p. 436, *tasmaniensis* var. n. *continentis*, p. 437, *P. javana* var. n. *cairnsiana*, p. 438, FOREL, Rev. Suisse Zool. x ; *P. latinoda* subsp. n. *angustior*, p. 189, *parva* var n. *decanica*, p. 192, *rhombinoda* var. n. *taprobanæ*, *sulcaticeps* var. n. *yeensis*, p. 195, *jucunda fossulata* n. st., p. 196, *javana* var. n. *dharmsalana*, p. 198, *indica* var. n. *coonoorensis* and subspp. n. *rotschana*, *himalayana*, p. 199, FOREL, t. c.

P. (*Ceratopheidole*) *smythiesii*, p. 185, with var. *bengalensis*, p. 186, *lamellinoda*, p. 186, *grayi*, *naoroji*, India, *malinsii*, *spathifera*, Ceylon, p. 187, with var. *yerburyi* and subsp. *aspatha*, p. 188, *fergusoni*, *sharpi*, p. 188, with subsp. *hoogwerfi*, p. 189, *watsoni*, p. 189, *phipsoni*, *sykesi*, India, *pronotalis*, Ceylon, p. 190, *mus*, p. 191, *sagei*, *templaria*, p. 192, *wroughtonii*, p. 193, *constanciæ* with var. *nigra*, p. 194, *ghatica*, p. 196, *multidens*, *rogersi*, p. 197, *roberti binghamii*, p. 198, India, FOREL, t. c. ; *P. froggatti*, p. 414, *concentrica*, p. 416, *conficta*, p. 417, *anthracina*, p. 419 with race *orba*, p. 421, *myops*, p. 421, *turneri*, p. 430, Australia, FOREL, t. c. : n. spp.

Pheidologeton lamellifrons, India, FOREL, t. c. p. 219, n. sp.

Plagiolepis rothneyi r. *wroughtonii* n. st., FOREL, Ann. Soc. ent. Belgique xlvi, p. 292 ; *P. exigua* var. n. *quadrimaculata*, FOREL, Rev. Suisse Zool. x, p. 483.

P. dichroa, India, FOREL, t. c. p. 235, n. sp.

Pogonomyrmex barbatus var. n. *nigrescens*, p. 389, *P. occidentalis comanche*, subsp. n., p. 392, WHEELER, Psyche ix.

P. desertorum, p. 387, *sancti-hyacinthi*, p. 388, *apache*, p. 392, Texas, WHEELER, t. c. ; *P. imberbiculus*, Texas, WHEELER, Amer. Natural. xxxvi, p. 87 : n. spp.

Polyrhachis striata r. *assamensis* n. st., *punctillata* r. *fergusoni* n. st., *clypeata* r. *obtusisquama* n. var., *furcata* v. *tenella* n. var., FOREL, Ann. Soc. ent. Belgique xlvi, p. 289 ; *P. daemeli argentosa* n. st., p. 515, *P. gab* var. n. *senilis*, *P. appendiculata schoopæ* n. st., p. 520, *P. hookeri* var. n. *area*, *P. heinlethi* var. n. *sophiæ*, p. 522, *P. schenki lydiæ* n. st., p. 523, *P. ammon augusta* n. st., p. 524, and var. n. *angustata*, p. 525, *P. rastellata* var. n. *pilosa*, p. 527, FOREL, Rev. Suisse Zool. x.

P. fissus, W. Africa, MAYR, Verh. Ges. Wien lxii ; *P. hodgsoni*, Burma, FOREL, Ann. Soc. ent. Belgique xlvi, p. 289 ; *P. thusnelda*, p. 509, *euterpe*, p. 511, *erato*, p. 512, *cleopatra*, p. 513, *clio*, p. 515, *urania*, p. 516, *tubifera*, p. 517, *bedoti*, p. 518, *sokolova*, p. 522, *clotho*, p. 525, *hecuba*, p. 527, *schwiedlandi*, p. 529, *thalia*, p. 530, *templi*, p. 531, *polymnia*, p. 532, Australia, FOREL, Rev. Suisse Zool. x : n. spp.

Ponera pallidula var. n. *fuscula*, EMERY, Termes. Fuzetek xxv, p. 158.

P. punctiventris, p. 157, *tenella*, p. 158, New Guinea, EMERY, t. c., n. spp.

Prenolepis guatemalensis var. n. *cocoensis*, FOREL, Ann. Soc. ent. Belgique

xlvi, p. 178; *P. braueri* var. n. *glabrior*, FOREL, Rev. Suisse Zool. x, p. 490.

P. naoroji, Assam, p. 290, *birmana*, Moulmain, p. 291, with var. *hodgsoni*, p. 292, *asseta*, Darjiling, p. 292, FOREL, Ann. Soc. ent. Belgique xlvi; *P. rosæ*, p. 489, *caledonica*, p. 491, Australia, FOREL, Rev. Suisse Zool. x : n. spp.

Rhopalopone major, New Guinea, EMERY, Termes. Fuzetek xxv, p. 154, n. sp.

Rhoptromyrmex wroughtonii, India, p. 231, with *rothneyi* n. st., p. 232, FOREL, Rev. Suisse Zool. x, n. sp.

Selenopsis wroughtonii, India, FOREL, t. c. p. 214, n. sp.

Sima difficilis longiceps, subsp. n., p. 247, *S. nigra fergusoni*, subsp. n., *S. rufonigra* var. n. *yeenensis*, p. 248, *S. attenuata* var. n. *thagatensis*, p. 249, FOREL, t. c.

S. binghami, p. 243, India, *birmana*, Burma, *aitkenii*, p. 245, *siggi*, p. 246, India, FOREL, t. c., n. spp.

Solenopsis lou, Biskra, FOREL, Ann. Soc. ent. Belgique xlvi, p. 152, n. sp.

Stenamma arenarium ♂, FOREL, t. c. p. 148; *S. longiceps ruginota*, subsp. n., FOREL, Rev. Suisse Zool. x, p. 440; *S.* (*Messor*) *barbarum*, *himalayanum* n. st., FOREL, t. c. p. 220.

S. (*Messor*) *caviceps*, Sahara, FOREL, Ann. Soc. ent. Belgique xlvi, p. 149; *S.* (*Aphænogaster*) *sagei*, p. 221, *smythiesii*, p. 222, with var. *prudens*, *schurri*, p. 223, *rothneyi*, p. 224, *cristatus*, p. 225, India, FOREL, Rev. Suisse Zool. x : n. spp.

Stictoponera biroi, New Guinea, EMERY, Termes. Fuzetek xxv, p. 154, n. sp.

Strumigenys godefroyi var. n. *indica*, FOREL, Rev. Suisse Zool. x, p. 243.

S. smythiesii, Assam, FOREL, t. c. p. 242; *S. guttulata*, Queensland, FOREL, t. c. p. 458 : n. spp.

Tapinoma minutum var. n. *integrum*, FOREL, Rev. Suisse Zool. x, p. 476.

Technomyrmex modiglianii r. *elatior* n. st., FOREL, Ann. Soc. ent. Belgique xlvi, p. 293; *T. bicolor* var. n. *antonii*, FOREL, Rev. Suisse Zool. x, p. 475.

T. sophiæ, Queensland, FOREL, t. c. p. 474, n. sp.

Tetramorium cæspitum var. n. *reticuliventre*, RUZSKY, Zool. Jahrb. Syst. xvii, p. 481; *T. simillimum* subspp. n. *lævinode* and *denticulatum*, p. 235, *T. pilosum yerburyi* n. st., p. 238, *tortuorum* var. n. *bellii*, p. 239, FOREL, Rev. Suisse Zool. x.

T. christiei, p. 232, *inglebyi*, p. 233, *fergusoni*, p. 234, *salvatum*, p. 235, *mixtum*, p. 236, *coonoorense*, p. 237, *T.* (*Xiphomyrmex*) *belgaense*, p. 238, India, FOREL, t. c.; *T.* (*Xiphomyrmex*) *turneri*, Queensland, FOREL, t. c. p. 447 : n. spp.

Trapeziopelta tenuis var. n. *fulvescens*, EMERY, Termes. Fuzetek xxv, p. 155.

T. punctigera, *levigata*, New Guinea, id. l. c.; *T. kuhni*, Key Id., FOREL, Ann. Soc. ent. Belgique xlvi, p. 179 : n. spp.

Triglyphothrix striatidens orissana n. st., FOREL, Rev. Suisse Zool. x; *T. striatidens* var. n. *australis*, FOREL, t. c. p. 449.

T. musculus, p. 239, *decamera*, p. 240, India, FOREL, t. c., n. spp.

CHRYSIDÆ.

[Cf. ASHMEAD (36), CAMERON (203, 206), DUCKE (358, 359, 361, 362), GARCIA (519), MELANDER & BRUES (890), MOCSÁRY (919, 920), NURSE (966), SEMENOW (1248).]

Classification; ASHMEAD, Canad. Ent. xxxiv, pp. 221–231.

Acrotoma n. g. near *Hedychrum*, p. 537, for *A. braunsii*, n. sp., S. Africa, p. 538, MOCSÁRY, Termes. Fuzetek xxv.

Amisega mocsáryi, Pará, DUCKE, Zeitschr. Hym. Dipt. ii, p. 142, n. sp.
Ameseginæ n. group for *Amisega* Cam. and *Mesitiopterus*, ASHMEAD, Canad. Ent. xxxiv, p. 231.
Buyssonia n. g. for *Hedychridium dybowskii*, MOCSÁRY, Termes. Fuzetek xxv, p. 536.
Chrysis grohmanni var. n. *bolivari*, GARCIA MERCET, Bol. Soc. espan. ii, p. 222.
C. (*Holochrysis*) *brevigena*, p. 542, *ardens*, p. 543, *C.* (*Gonochrysis*) *biangulata*, p. 544, *decipiens*, p. 545, *C.* (*Dichrysis*) *aberrans*, *C.* (*Trichrysis*) *convexifrons*, p. 546, *impressifrons*, p. 547, *C.* (*Tetrachrysis*) *pachystoma*, p. 548, *bucculenta*, p. 549, *hoplites*, p. 550, *heliaca*, p. 551, *inimica*, *latigena*, p. 552, *macrognatha*, p. 553, *blanda*, p. 554, *fraudulenta*, p. 555, *blandula*, *nasuta*, p. 556, *postscutellaris*, p. 558, *burorum*, p. 559, *concinna*, p. 560, *aulica*, p. 561, *numerata*, *braunsiana*, p. 562, *C.* (*Hexachrysis*) *fervens*, p. 563, *marginella*, p. 564, *exornata*, p. 565, *longicollis*, p. 566, *laminata*, p. 568, *insignita*, *crenulata*, p. 569, S. Africa, MOCSÁRY, Termes. Fuzetek xxv; *C. jalala*, p. 306, *kashmirensis*, *quærita*, *abuensis*, p. 307, *chavanæ*, p. 308, India, NURSE, Entomologist 1902; *C.* (*Tetrachrysis*) *lepcha*, Khasia Hills, CAMERON, Entomologist 1902, p. 206; *C.* (*Holochrysis*) *rubricata*, Egypt, p. 340, *C.* (*Trichrysis*) *cypria*, Cyprus, p. 341, *C.* (*Tetrachrysis*) *inseriata*, p. 342, *duckei*, p. 343, Brazil, *C.* (*Pentachrysis*) *bombycida*, E. Africa, p. 344, *euchroma*, Hungary, p. 345, *C.* (*Hexachrysis*) *mesocyanea*, Madagascar, p. 346, *oceanica*, Solomon Ids., p. 347, MOCSÁRY, Termes. Fuzetek xxv; *C. ellampoides*, p. 98, *frieseana*, p. 99, *bisulcata*, p. 100, Pará, DUCKE, Zeitschr. Hym. Dipt. ii : n. spp.
Chrysogona braunsii, p. 539, *apiculata*, p. 540, *africana*, p. 541, S. Africa, MOCSÁRY, Termes. Fuzetek xxv; *C. alfkeni*, Pará, DUCKE, Zeitschr. Hym. Dipt. ii, p. 97 : n. spp.
Cleptes parnassicus, Greece, MOCSÁRY, Termes. Fuzetek xxv, p. 339; *C. mutilloides*, Pará, DUCKE, Zeitschr. Hym. Dipt. ii, p. 91, and ♂, p. 204 : n. spp.
Ellampus timidus, Quetta, NURSE, Entomologist 1902, p. 305, n. sp.
Euchrœus cupreiventris, India, CAMERON, J. Bombay Soc. xiv, p. 423, n. sp.
Hedychridium perversum, *selectum*, Quetta, NURSE, Entomologist 1902, p. 306, n. spp.
Holopyga fervida var. n. *buyssoni*, GARCIA MERCET, Bol. Soc. espan. ii, p. 221.
H. (*Hedychridium*) *hirtipes*, Egypt, MOCSÁRY, Termes. Fuzetek xxv, p. 340; *H. obscurata*, p. 536, *subaurata*, p. 537, S. Africa, MOCSÁRY, t. c.; *H. cupreata*, Kashmir, NURSE, Entomologist 1902, p. 305 : n. spp.
Isadelphia n. n. for *Isadelpha* Sem. nec Förster, SEMENOW, Rev. Russe. Ent. ii, p. 353.
Mesitiopterus n. g. *Amiseginæ*, for *M. kahlii*, Kansas, *townsendi*, Mexico, n. spp., ASHMEAD, Canad. Ent. xxxiv, p. 231.
Notozus kashmirensis, India, NURSE, Entomologist 1902, p. 305, n. sp.
Parnopes aglaspidula, p. 38, *westcottii*, p. 39, N. America, MELANDER & BRUES, Biol. Bull. iii, n. spp.
Pseudepyrinæ subfam. n. for the following,
Pseudepyris n. g., p. 204, for *P. paradoxa*, n. sp., Pará, p. 205, DUCKE, Zeitschr. Hym. Dipt. ii.
Pseudochrysis sphinx, Amu-Darja, SEMENOW, Rev. Russe Ent. ii, p. 168, n. sp.
Pseudomalus n. g. type *Omalus semicircularis* Aaron, ASHMEAD, Canad. Ent. xxxiv, p. 229.
Spintharis bispinosa, S. Africa, MOCSÁRY, Termes. Fuzetek xxv, p. 539, n. sp.

HYMENOPTERA PARASITICA.

Catalogue completed, DALLA TORRE (300).

Parasites of *Lymantria monacha*, BENGTSSON, Ent. Tidskr. xxiii, pp. 165–168.

ICHNEUMONIDÆ.

[Cf. ASHMEAD (38), BRADLEY (151), CAMERON (198, 200, 201, 203, 204, 206–208), FELT (429), HABERMEHL (575), KOKUJEW (722), MORLEY (928, 929), PERKINS (1010), PIC (1061), SCHMIEDEKNECHT (1201, 1202), SCHROTTKY (1218), STROBL (1341), VIERECK (1416, 1418).]

Tables of genera and species of *Ichneumonidæ*, Part i, SCHMIDEKNECHT (1202).

Ichneumonidæ of Styria, III *Pimplariæ*, STROBL, Mt. Ver. Steiermark xxxviii, pp. 3–48. The summary gives 531 species of Styrian *Ichneumonidæ*.

Synonymy of early British writers: MORLEY, Ent. Mag. xxxviii, pp. 118–123. [No attempt to deal with this is made below.]

Abanchogastra n.g. *Ophioninae*, for *A. debilis*, n. sp., Oahu, PERKINS, Tr. ent. Soc. London 1902, p. 141, n. sp.

Acanthojoppa n. g., p. 109, for *A. schizoaspis*, n. sp., Khasia Hills, p. 110, CAMERON, Entomologist 1902.

Aclastus rufipes, Alaska, ASHMEAD, P. Washington Ac. iv, p. 187, n. sp.

Acleasa n. g. *Mesostenini*, for *A. albispina*, n. sp., Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii, p. 55.

Acrolyta karlukensis, *aciculata*, Alaska, ASHMEAD, P. Washington Ac. iv, p. 186, n. spp.

Ænoplex rufipes, Alaska, ASHMEAD, t. c. p. 188, n. sp.

Aglaojoppa rothneyi, Khasia Hills, CAMERON, Ann. Nat. Hist. ix, p. 145, n. sp.

Algathia n. g. *Heresiarchini*, p. 392, for *A. maculiceps*, n. sp., Khasia Hills, p. 393, CAMERON, Zeitschr. Hym. Dipt. ii.

Algina alaskensis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 188, n. sp.

Amblyjoppa n. g. for *A. rufo-balteata* n. sp., Khasia Hills, CAMERON, Entomologist 1902, p. 108.

Amblyteles tangerianus, Tangier, PIC, Echange xvii, p. 58, ? n. sp.

Ameloctonus popofensis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 237, n. sp.

Ancaria n. g. near *Mesostenus*, p. 204, for *A. fuscinervis*, n. sp., Khasia Hills, p. 205, CAMERON, Ann. Nat. Hist. ix.

Anisobas cincticornis, Sarawak, CAMERON, J. Straits Asiat. Soc. xxxvii, p. 51, n. sp.

Anomalini; table of the 17 genera, and of the palæarctic species, SCHMIEDEKNECHT, Zeitschr. Hym. Dipt. ii, pp. 356–368.

Anomalon perornatum, *fuscicorne*, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii, p. 50, n. spp.

Aphanoroptrum (*Leptacœnites* subg. n.), p. 39, *tscheki*, *sulphuripes*, p. 40, Styria, STROBL, Mt. Ver. Steiermark xxxviii, n. spp.

Arotes maculipennis, Styria, STROBL, t. c., n. sp.

Atractodes yakutatensis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 169, n. sp.

Atrometus alaskensis, Alaska, ASHMEAD, t. c. p. 233, n. sp.

Automalus nigropilosus, Alaska, ASHMEAD, t. c. p. 148, pl. ix, fig. 4, n. sp.

Bathymetis nigricornis, *imitator*, p. 177, *simulans*, *rubrocincta*, p. 178, *simillima*, pl. x, fig. 1, p. 179, *confusa*, *ungæ*, p. 180, *quadriceps*, *simulator*, p. 181, *bicolor*, p. 182, Alaska, ASHMEAD, t. c., n. spp.

Bioblapsis tricincta, Alaska, ASHMEAD, t. c. p. 224, n. sp.
Bodargus n. g. *Ophionides*, p. 52, for *B. rufus*, n. sp., Sarawak, p. 53, CAMERON, J. Straits Asiat. Soc. xxvii.
Brachypimpla, n. g., p. 15, for *B. brachyura*, n. sp., Styria, p. 16, STROBL, Mt. Ver. Steiermark xxxviii.
Buodias n. g. near *Mesostenoideus*, p. 65, for *B. ruficoxis*, n. sp., Sarawak, p. 66, CAMERON, J. Straits Asiat. Soc. xxxvii.
Bystra n. g. *Oxypygi*, for *B. testacea* n. sp., Khasia Hills, CAMERON, Ann. Nat. Hist. ix, p. 149.
Calliphrurus clypeatus, *alaskensis*, p. 220, *affinis*, *minor*, *popofensis*, p. 221, *kukakensis*, *perplexus*, *glacialis*, *frigidus*, p. 222, *confusus*, p. 223, Alaska, ASHMEAD, P. Washington Ac. iv, n. spp.
Camarotops kodiakensis, Alaska, ASHMEAD, t. c. p. 232, n. sp.
Campoplex bonaërensis, *lineola*, Argentina, SCHROTTKY, An. Mus. Buenos Aires viii, p. 92, n. spp.
Catastenus alaskensis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 240, n. sp.
Centeterus dorsator, Alaska, ASHMEAD, t. c. p. 160, n. sp.
Charitopimpla n. g. near *Erythropimpla*, p. 48, for *C. flavobalteata*, n. sp., Borneo, p. 49, CAMERON, J. Straits Asiat. Soc. xxxvii.
Chiaglas n. g. *Heresiarchini*, for *C. nigripes* n. sp., Khasia Hills, CAMERON, Ann. Nat. Hist. ix, p. 152.
Chrysocryptus n. g. *Cryptina*, p. 58, for *C. aureopilosa*, n. sp., Borneo, p. 59, CAMERON, J. Straits Asiat. Soc. xxxvii.
Cidaphurus cressonii, Massachusetts, VIERECK, Canad. Ent. xxxiv, p. 69, n. sp.
Colganta n. g. *Cryptina* ?, p. 20, for *C. nigromaculata*, *rufipes*, p. 21, Borneo, *fulvipennis*, *fulgidipennis*, *tibialis*, *tarsalis*, *tuberculata*, India, p. 22, n. spp., CAMERON, Entomologist 1902.
Cosmiocryptus n. g. *Cryptini*, p. 371, for *C. violaceipennis*, *ornatipennis*, n. spp., Peru, p. 374, CAMERON, Tr. Amer. ent. Soc. xxxv.
Cosmiojoppa n. g. *Joppini*, for *C. violaceipennis*, n. sp., Khasia Hills, CAMERON, Zeitschr. Hym. Dipt. ii, p. 395.
Cratichneumon pedalis varr. n. *pallidipennis*, *varitarsis*, VIERECK, Ent. News Philad. xiii, p. 87.
C. artemis, Colorado, id. l. c.; *C. alaskensis*, *kodiakensis*, *yakutatensis*, p. 157, *confusus*, p. 158, *popofensis*, p. 159, Alaska, ASHMEAD, P. Washington Ac. iv ; n. spp.
Cryptoideus sitkensis, Alaska, ASHMEAD, t. c. p. 193, n. sp.
Crypturus bonaërensis, S. America, SCHROTTKY, An. Mus. Buenos Aires viii, p. 100, n. sp.
Cryptus tarsoleucus and *fulvipes* distinguished, HABERMEHL, Zeitschr. Hym. Dipt. ii.
Cteniscus nigrofemoralis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 211, n. sp.
Cubocephalus atrocoxalis, *alaskensis*, *nigricornis*, Alaska, ASHMEAD, t. c. p. 203, n. spp.
Cyanojoppa n. g. *Joppini* [sp. not yet described], CAMERON, Zeitschr. Hym. Dipt. ii, p. 398.
Dallatorrea n. g. near *Gausocentrus*, for *D. armata*, pl. x, fig. 5, n. sp., Alaska, ASHMEAD, P. Washington Ac. iv, p. 205.
Dayro n. g. near *Etha*, p. 209, for *D. pilosus*, n. sp., Khasia Hills, p. 210, CAMERON, Ann. Nat. Hist. ix.
Deleter kincaidi, *flavifrons*, Alaska, ASHMEAD, P. Washington Ac. iv, p. 229, n. spp.
Diaborus sexmaculatus, *citrifrons*, Alaska, ASHMEAD, t. c. p. 212, n. spp.
Diapetus n. g. *Ophionides*, p. 53, for *D. nigroplagiatus*, n. sp., Borneo, p. 54, CAMERON, J. Straits Asiat. Soc. xxxvii.

Dyseidopus vancouverensis, N. America, BRADLEY, Ent. News Philad. xiii, p. 307, n. sp.
Eclytus yakutatensis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 204, n. sp.
Ecthrodoca clypearia, Alaska, ASHMEAD, t. c. p. 199, n. sp.
Enicospilus reticulatus, Maldives, CAMERON, Fauna Maldives i, p. 52, n. sp.
E. semirufus, p. 142, *dimidiatus*, Oahu, with var. *pallipes* Kauai, p. 143, PERKINS, Tr. ent. Soc. London 1902, n. spp.
Ephialtes atricoxatus, Styria, STROBL, Mt. Ver. Steiermark xxxviii, p. 4, n. sp.
Epiurus atrocoxalis, *bicoloripes*, Alaska, ASHMEAD, P. Washington Ac. iv, p. 201, n. spp.
Eriplatys sitkensis, Alaska, ASHMEAD, t. c. p. 162, n. sp.
Erromenus annulipes, Alaska, ASHMEAD, t. c. p. 212, n. sp.
Erythrojoppa n. g., p. 146, for *E. ferruginea*, n. sp., Khasia Hills, p. 147, CAMERON, Ann. Nat. Hist. ix.
Exochus appendiculatus, p. 430, *xanthopus*, *curvicarinatus*, p. 431, *erythropus*, India, CAMERON, J. Bombay Soc. xiv, n. spp.
Exolytus perplexus, p. 165, *popofensis*, *sanctipauli*, p. 166, *ungæ*, *alaskensis*, *kincaidi*, p. 167, *insularis*, *clypeatus*, pl. ix, fig. 5, *seldoviæ*, p. 168, *rubrocinctus*, *ungensis*, p. 169, Alaska, ASHMEAD, P. Washington Ac. iv, n. spp.
Fenenias n. g. near *Crypturopsis*, p. 211, for *F. albomaculatus*, n. sp., Khasia Hills, p. 212, CAMERON, Ann. Nat. Hist. ix.
Fislistina n. g. *Mesostenini*, p. 56, for *F. maculipennis*, n. sp., Borneo, p. 57, CAMERON, J. Straits Asiat. Soc. xxxvii.
Friona n. g. *Mesosteni*, for *F. striolata*, n. sp., Borneo, CAMERON, t. c.
Gemophaga rufa, Alaska, ASHMEAD, P. Washington Ac. iv, p. 223, n. sp.
Glodianus n. g. *Mesostenini*, for *G. bombycivorus*, n. sp., Peru, CAMERON, Tr. Amer. ent. Soc. xxxv.
Glypta mensurator, habits, PIERRE, Echange xvii, p. 31.
G. biauriculata, p. 18, *nigripes*, p. 19, *nigro-trochanterata*, p. 20, Styria, STROBL, Mt. Ver. Steiermark xxxviii; *G. nursei*, Simla, CAMERON, J. Bombay Soc. xiv, p. 425; *G. kukakensis*, *popofensis*, Alaska, ASHMEAD, P. Washington Ac. iv, p. 201 : n. spp.
Gonophonus = (*Gonophorus* Ashm.), characters, p. 279, *G. mokrzeckii*, Sympheropolis, p. 280, KOKUJEW, Rev. Russe Ent. ii, n. sp.
Gotra n. g. near *Mesostenus*, for *G. longicornis*, n. sp., Khasia Hills, CAMERON, Ann. Nat. Hist. ix, p. 206.
Habrojoppa n. g. for *H. rufopetiolata*, n. sp., Khasia Hills, CAMERON, Entomologist 1902, p. 179.
Hadrojoppa n. g. *Joppini*, p. 396, for *H. annulitarsis*, n. sp., Simla, p. 397, CAMERON, Zeitschr. Hym. Dipt. ii.
Habromma nigrum, Alaska, ASHMEAD, P. Washington Ac. iv, p. 188, n. sp.
Harrimaniella kukakensis, Alaska, ASHMEAD, t. c. p. 198, pl. x, fig. 2; *H. relativa*, New Jersey, VIERECK, Canad. Ent. xxxiv, pp. 67, 101 : n. spp.
Hemiteles fuegianus, p. 99, *venturii*, p. 100, S. America, SCHROTTKY, An. Mus. Buenos Aires viii, n. spp.
Himertosoma schmiedekneckti, Alaska, ASHMEAD, P. Washington Ac. iv, p. 194, n. sp.
Hiorada n. g. *Oxypygi*, p. 150, for *H. bilineata*, n. sp., Khasia Hills, p. 151, CAMERON, Ann. Nat. Hist. ix.
Hoeocryptus n. g. *Cryptidæ*, p. 138, for *H. undulatus*, n. sp., E. Africa, p. 139, HABERMEHL, Zeitschr. Hym. Dipt. ii.
Holcojoppa n. g., p. 180, for *H. flavipennis*, n. sp., Khasia Hills, p. 181, CAMERON, Entomologist 1902.
Homotropus alaskensis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 226, n. sp.

Hypocryptus kodiakensis, *variegatipes*, *popofensis*, p. 208, *seldoviæ*, *tibialis*, p. 209, Alaska, ASHMEAD, t. c., n. spp.
Hypoleptus alaskensis, p. 227, *glacialis*, p. 228, Alaska, ASHMEAD, t. c., n. spp.
Hyposyntactus n. g. near *Syntactus*, for *H. flavifrons*, n. sp., Alaska, pl. x, fig. 4, ASHMEAD, t. c. p. 217.
Hypothereutes annulipes, Alaska, ASHMEAD, t. c. p. 236, n. sp.
Ichneumon chevrieri, Switzerland, p. 57, *vaucheri*, Tangier, *bogharienses*, Algeria, p. 58, PIC, Echange xvii; *I. imitator*, p. 151, *sitkensis*, *kincaidi*, p. 152, *simulator*, *kodiakensis*, p. 153, *popofensis*, *glacialis*, p. 154, Alaska, ASHMEAD, P. Washington Ac. iv; *I. platensis*, Argentina, SCHROTTKY, An. Mus. Buenos Aires viii, p. 103 : n. spp.
Ilapinastes incertus, Alaska, ASHMEAD, P. Washington Ac. iv, p. 190, n. sp.
Ischnoceros lehmann-nitschei, T. del Fuego, SCHROTTKY, An. Mus. Buenos Aires viii, p. 101, n. sp.
Ischnoscopus yakutatensis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 236, n. sp.
Isochresta unicincta, Alaska, ASHMEAD, t. c. p. 190, n. sp.
Isurgus alaskensis, Alaska, ASHMEAD, t. c. p. 239, n. sp.
Jethsura n. g. *Stilpnini*, p. 373, for *J. ferruginea*, n. sp., New Mexico, p. 374, CAMERON, Tr. Amer. ent. Soc. xxxv.
Lactolus n. g. near *Mesostenoideus*, p. 62, for *L. albomaculatus*, p. 63, *ruficoxis*, *flavipes*, p. 64, n. spp., Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii.
Lampronota alpigena, *simplicicornis*, Styria, STROBL, Mt. Ver. Steiermark xxxviii, p. 37, n. spp.
Lapaphras n. g. *Tryphonides*, p. 428, for *L. nigriceps*, p. 429, s. sp., India, CAMERON, J. Bombay Soc. xiv.
Latteva n. g. *Hemitelini*, p. 59, for *L. albobalteata*, n. sp., Borneo, p. 60, CAMERON, J. Straits Asiat. Soc. xxxvii.
Leptacoenites subg. n. cf. *Aphanoroptrum*.
Limnerium yakutatense, Alaska, ASHMEAD, P. Washington Ac. iv. p. 237, n. sp.
Lissonota semirufa, Dalmatia, p. 23, *pygmæa*, *unicornis*, p. 26, *L.* (*Ensimus*) *obscuripes*, p. 29, *admontensis*, p. 30, *albobarbata*, p. 31, *L.* (*Meniscus*) *tauriscorum*, p. 32, *alpivaga*, p. 33, Styria, STROBL, Mt. Ver. Steiermark xxxviii; *L. apicipennis*, *zanthoria*, p. 426, *claripennis*, p. 427, India, CAMERON, J. Bombay Soc. xiv; *L. alaskensis*, St. Paul Is., ASHMEAD, P. Washington Ac. iv, p. 197 : n. spp.
Maraces n. g. *Listrodromini*, p. 68, for *M. flavobalteata*, Borneo, p. 69, *pectinata*, Khasia Hills, p. 70, CAMERON, J. Straits Asiat. Soc. xxxvii.
Melanichneumon seldoviæ, Alaska, ASHMEAD, P. Washington Ac. iv, p. 155, n. sp.
Melanocryptus n. g. *Cryptini*, p. 370, for *M. violaceipennis*, n. sp., Amazons, p. 371, CAMERON, Tr. Amer. ent. Soc. xxxv.
Melcha n. g. near *Mesostenus*, p. 153, for *M. varipes*, n. sp., Khasia Hills, p. 154, CAMERON, Ann. Nat. Hist. ix.
Mesochorus kincaidi, p. 238, *orcæ*, p. 239, Alaska, ASHMEAD, P. Washington Ac. iv, n. spp.
Mesoleptus unalaskæ, Alaska, ASHMEAD, t. c. p. 210, n. sp.
Mesostenus shelfordi, Sarawak, CAMERON, J. Straits Asiat. Soc. xxxvii, p. 67; *M. brethesi*, Buenos Aires, SCHROTTKY, An. Mus. Buenos Aires viii, p. 97 : n. spp.
Microcryptus trifasciatus, *alaskensis*, Alaska, ASHMEAD, P. Washington Ac. iv, p. 184, n. spp.
Microplectron alaskensis, Alaska, ASHMEAD, t. c. p. 210, n. sp.
Miojoppa n. g. *Heresiarchini*, p. 391, for *M. rufa*, n. sp., Simla, p. 392, CAMERON, Zeitschr. Hym. Dipt. ii.

Monoblastus niger, Alaska, ASHMEAD, P. Washington Ac. iv, p. 213, n. sp.
Nadia apalachia, Connecticut, VIERECK, Canad. Ent. xxxiv, p. 68, n. sp.
Neuroteles dubiosus, Alaska, ASHMEAD, P. Washington Ac. iv, p. 228, n. sp.
Nothaima n. g. *Tryphonides*, p. 429, for *N. bicarinata*, n. sp., India, p. 430, pl. fig. 10, CAMERON, J. Bombay Soc. xiv.
Nyxeophilus corsicus, ♂, MORLEY, Ent. Mag. xxxviii, p. 173.
Olesicampa alaskensis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 235, n. sp.
Ophion (*Enicospilus*) *arcuatum*, p. 307, *appendiculatum*, p. 308, N. America, FELT, Psyche ix, n. spp.
Orthocentrus nigritus, Alaska, ASHMEAD, P. Washington Ac. iv, p. 231, n. sp.
Osprynchotus peronatus, Khasia Hills, CAMERON, Entomologist 1902, p. 182, n. sp.
Paniscus alaskensis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 237; *P. gerlingi*, Argentina, SCHROTTKY, An. Mus. Buenos Aires viii, p. 91 : n. spp.
Perithous novakii, Styria, STROBL, Mt. Ver. Steiermark xxxviii, p. 6, n. sp.
Pezomachus nigrellus, p. 192, *obesus*, p. 193, Alaska, ASHMEAD, P. Washington Ac. iv, n. spp.
Phædroctonus minutus, Alaska, ASHMEAD, P. Washington Ac. iv, p. 235, n. sp.
Phænosemus sitkensis, Alaska, ASHMEAD, t. c. p. 231, n. sp.
Philonygus alaskensis, *glacialis*, Alaska, ASHMEAD, t. c. p. 189, n. spp.
Phthorina borealis, Alaska, ASHMEAD, t. c. p. 226, n. sp.
Phygadeuon antarcticus, T. del Fuego, SCHROTTKY, An. Mus. Buenos Aires viii, p. 103, n. sp.
Phytodietus clypearus, p. 195, *flavifrons*, p. 196, Alaska, ASHMEAD, P. Washington Ac. iv, n. spp.
Pimpla cupulifera, characters and synonymy, *P. rufata*, note, BENGTSSON, Zeitschr. Hym. Dipt. ii, p. 370; *P. brasiliensis*, ♂, SCHROTTKY, An. Mus. Buenos Aires viii, p. 46.
P. nigrohirsuta, p. 7, *interruptecallosa*, p. 14, Styria, STROBL, Mt. Ver. Steiermark xxxviii, No. 14; *P. yakutatensis*, Alaska, ASHMEAD, P. Washington Ac. iv, p. 200; *P. perpulchra*, *zenobia*, p. 94, *tomyris*, p. 95, *niobe*, p. 96, Argentina, SCHROTTKY, An. Mus. Buenos Aires viii : n. spp.
Pimplopterus yakutatensis, p. 197, *alaskensis*, pl. x, fig. 6, p. 198, Alaska, ASHMEAD, P. Washington Ac. iv, n. spp.
Platylabus latior, Algeria, PIC, Echange xvii, p. 58, n. sp.
Plectiscus orcæ, Alaska, ASHMEAD, P. Washington Ac. iv, p. 240, n. sp.
Plectocryptus yakutatensis, pl. ix, fig. 6, *popofensis*, Alaska, ASHMEAD, t. c. p. 183, n. spp.
Plesiognathus rubrocinctus, Alaska, ASHMEAD, t. c. p. 184, n. sp.
Polyblastus glacialis, Washington, ASHMEAD, t. c. p. 213, n. sp.
Polyterus sexcarinatus, Alaska, ASHMEAD, t. c. p. 217, n. sp.
Probolus subdentatus, Alaska, ASHMEAD, t. c. p. 160, n. sp.
Promethes unicinctus, Alaska, ASHMEAD, t. c. p. 224, n. sp.
Pseudolimerodes n. g. for *P. compressiventris*, n. sp., Styria, STROBL, Mt. Ver. Steiermark xxxviii, p. 46.
Rhyssa nigritarsis, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii, p. 45; *R. alaskensis*, Alaska, ASHMEAD, P. Washington Ac. iv, p. 199 : n. spp.
Schizoloma capitatum Desv. (as *Anomalon*) = (*bucephalum* Brauns), SCHMIEDEKNECHT, Zeitschr. Hym. Dipt. ii, p. 363.
Scorpiorus alaskensis, *niveicola*, Alaska, ASHMEAD, P. Washington Ac. iv, p. 214, n. spp.
Siphimedia n. g. near *Arotes*, p. 43, for *S. bifasciata*, n. sp., Sarawak, p. 44, CAMERON, J. Straits Asiat. Soc. xxxvii.

Spanoctenus flavopictus, Alaska, ASHMEAD, P. Washington Ac. iv, p. 204, n. sp.
Spinolia minuta, Alaska, ASHMEAD, t. c. p. 186, n. sp.
Stenichneumon unalaskæ, Alaska, ASHMEAD, t. c. p. 148, n. sp.
Stiboscopus sanctipauli, alaskensis, p. 171, *solitarius, mandibularis, sitkensis*, p. 172, *ferrugineus*, p. 173, Alaska, ASHMEAD, t. c., n. spp.
Sychnoportus longitarsis, Alaska, ASHMEAD, t. c. p. 216, n. sp.
Synoplus brevipennis, pl. xi, fig. 2, p. 226, *pleuralis*, p. 227, Alaska, ASHMEAD, t. c., n. spp.
Theronia levigata, Tschek (as *Pimpla*)=(*Pseudacænites moravicus* Kriechb.), KRIEGER, Zeitschr. Hym. Dipt. ii, p. 190.
Theroscopus rufipes, kukakensis, p. 191, *popofensis*, p. 192, Alaska, ASHMEAD, P. Washington Ac. iv, n. spp.
Thestis tricincta, Alaska, ASHMEAD, t. c. p. 187, n. sp.
Tlemon delicatus, Alaska, ASHMEAD, t. c. p. 216, n. sp.
Torbda n. g. *Xorides*?, p. 18, for *T. fulgidipennis, apicalis, geniculata*, p. 19, *violaceipennis, femorata, maculipennis*, p. 20, n. spp., India, CAMERON, Entomologist 1902.
Trematopygus kukakensis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 215, n. sp.
Trevoria yakutatensis, Alaska, ASHMEAD, t. c. p. 196, pl. x, fig. 3, n. sp.
Trichomma bituberculatum, Germany, SCHMIEDEKNECHT, Zeitschr. Hym. Dipt. ii, p. 365, n. sp.
Triclistus curvator, host, CECCONI, Bull. Soc. ent. Ital. xxxiv, p. 129.
Trophoctonus insularis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 216, n. sp.
Tryphon alaskensis, Alaska, ASHMEAD, t. c. p. 215, n. sp.
Umlima n. g. near *Mesostenus*, for *U. penetralis*, n. sp., Khasia Hills, CAMERON, Ann. Nat. Hist. ix, p. 208.
Venturia n. g. for *V. argentina*, n. sp., Buenos Aires, p. 102, with var. *rufiventris*, p. 103, SCHROTTKY, An. Mus. Buenos Aires viii.
Xanthopimpla labiata, p. 46, *nigrobalteata*, p. 47, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii, n. spp.
Xestophya polita, p. 162, *nigripes*, p. 163, Alaska, ASHMEAD, P. Washington Ac. iv, n. spp.
Xylonomus seticornis, Dalmatia, STROBL, Mt. Ver. Steiermark xxxviii, p. 45, n. sp.
Zachresta popofensis, p. 234, *kukakensis*, p. 235, Alaska, ASHMEAD, P. Washington Ac. iv, n. sp.
Zanthopimpla appendiculata, Laccadives, CAMERON, Fauna Maldive i, p. 51, n. sp.
Zonojoppa n. g. *Joppini*, p. 71, for *Z. violaceipennis*, n. sp., Sarawak, p. 72, CAMERON, J. Straits Asiat. Soc. xxxvii.
Zootrephes insularis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 225, n. sp.

BRACONIDÆ, ALYSSIIDÆ, MEGALYRIDÆ.

[Cf. ASHMEAD (38), BINGHAM (868), CAMERON (204, 206), DESTEFANI PEREZ (321), KOKUJEW (721), MORLEY (927), SCHROTTKY (1218), SZÉPLIGETI (1351, 1352), VAYSSIÈRE (1403).]

Acanthobracon n. g. *Exothecinæ*, for *A. fuscipennis*, Congo, p. 47, *striolatus*, Borneo, *australiensis*, Cooktown, p. 48, n. spp., SZÉPLIGETI, Termes. Fuzetek xxv.
Aërophilus n. g. *Agathidinæ*, p. 73, for *A. brullei*, n. sp., Pebas, p. 74, SZÉPLIGETI, t. c.
Agathiella n. g. *Agathidinæ*, for *A. pedunculata*, n. sp., New Guinea, SZÉPLIGETI, t. c.

Ahngeria n. g. *Agathidæ*, for *A. transcaspica*, n. sp., Askhabad, KOKUJEW, Rev. Russe Ent. ii, p. 6.
Allodorus venturii, Argentina, SCHROTTKY, An. Mus. Buenos Aires viii, p. 106, n. sp.
Anarcha coxalis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 242, n. sp.
Apanteles yakutatensis, Alaska, ASHMEAD, t. c. p. 249; *A. paphi*, Argentina, SCHROTTKY, An. Mus. Buenos Aires viii, p. 107 : n. spp.
Aphærete melanura, Buenos Aires, SCHROTTKY, t. c. p. 104, n. sp.
Aphidius rhopalosiphi, Palermo, DESTEFANI PEREZ, Zool. Jahrb. Syst. xv, p. 633; *A. propinquus*, *glacialis*, p. 245, *frigidus*, pl. xi, fig. 4, *paulensis*, p. 246, Alaska, ASHMEAD, P. Washington Ac. iv : n. spp.
Biroia xanthostigma, p. 72, *tarsalis*, *bicolor*, p. 73, S. America, SZÉPLIGETI, Termes. Fuzetek xxv, n. spp.
Bracon variator, habits, PIERRE, Echange xvii, p. 32.
B. marshalli, France mer., VAYSSIÈRE, Bull. Soc. ent. France 1902; *B. punjabensis*, p. 432, *deesæ*, p. 433, pl. fig. 11, India, CAMERON, J. Bombay Soc. xiv; *B. chinensis*, China, p. 39, *puellaris*, Borneo, *ornaticornis*, p. 40, *tropicus*, *vulpes*, *vulpinus*, p. 41, *bifoveolatus*, *flexuosus*, *errans*, p. 42, *errotus*, p. 43, S. America, SZÉPLIGETI, Termes. Fuzetek xxv : n. spp.
Calobracon n. g. for *C. bicolor*, n. sp., Brazil, SZÉPLIGETI, t. c. p. 39.
Cardiochiles testaceus, Malacca, p. 77, *albopilosus*, Singapore, p. 78, SZÉPLIGETI, t. c., n. spp.
Chelonus orientalis, Singapore, SZÉPLIGETI, t. c., n sp.
Cratospila testacea, Tres Marias Ids. America, SZÉPLIGETI, t. c. p. 84, n. sp.
Cremnops petiolatus, Brazil, p. 65, *similis*, New Guinea, p. 66, SZÉPLIGETI, t. c., n. spp.
Delocarpa sitkensis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 242, n. sp.
Desmiostoma kukakense, Alaska, ASHMEAD, t. c. p. 251, n. sp.
Dichelosus n. g. near *Disophrys*, for *D. fuscipennis*, p. 71, *peruensis*, *brasiliensis*, p. 72, n. spp., S. America, SZÉPLIGETI, Termes. Fuzetek xxv.
Diospilus biroi, New Guinea, SZÉPLIGETI, t. c. p. 81, n. sp.
Disophrys molukkensis, Eldos, *oculatus*, Singapore, p. 70, *major*, N. Guinea, *natalensis*, Natal, p. 71, SZÉPLIGETI, t. c., n. spp.
Ditherus n. g. *Polymorphi*, p. 434, for *D. ruficollis*, n. sp., Simla, p. 435, pl. fig. 14, CAMERON, J. Bombay Soc. xiv.
Dyscoletes alaskensis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 247, n. sp.
Ecclitura n. g. *Euphoridæ* for *E. primoris*, n. sp., Askhabad, KOKUJEW, Rev. Russe Ent. ii, p. 5.
Epitonychus n. g. *Doryctinæ*, for *E. variegatus*, n. sp., New Guinea, SZÉPLIGETI, Termes. Fuzetek xxv, p. 58.
Euagathis borneoensis, Borneo, *biroi*, Malacca, p. 67, *japonica*, Japan, *javana*, Java, *flava*, Celebes, *chinensis*, China, p. 68, *pilosus*, Borneo, *pulcha* (sic), *maculipennis*, N. Guinea, *punctata*, Celebes, p. 69, SZÉPLIGETI, t. c., n. spp.
Exothecus alaskensis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 252, n. sp.
Giardinai n. g., p. 631, new group *Hydroiketidæ*, p. 627, for *G. urinator*, n. sp., Palermo, with aquatic habits, DESTEFANI PEREZ, Zool. Jahrb. Syst. xv.
Goniarcha carinata, Brazil, SZÉPLIGETI, Termes. Fuzetek xxv, p. 84, n. sp.
Gymnobracon n. g. for *G. brasiliensis*, n. sp., Manaos, SZÉPLIGETI, t. c.
Gyrocampa alaskensis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 242, n. sp.
Histeromerus mystacinus attached to *Sinodendron*, BIGNELL, Ent. Mag. xxxviii, p. 288.
Holcotroticus n. g. near *Agathis*, p. 41, for *H. ruficollis*, n. sp., Sarawak, p. 42, CAMERON, J. Straits Asiat. Soc. xxxvii.

Ichneutes popofensis, p. 250, *alaskensis*, p. 251, Alaska, ASHMEAD, P. Washington Ac. iv, n. spp.
Iphiaulax ruber, Mashonaland, BINGHAM, Tr. ent. Soc. London 1902, p. 545, pl. xxiii, fig. 31; *I. acragas*, *ceressus*, p. 33, *astiochus*, p. 34, Borneo, CAMERON, J. Straits Branch xxxvii; *I. bonaërensis*, Argentina, SCHROTTKY, An. Mus. Buenos Aires vii, p. 108 : n. spp.
Leptospathius n. g. *Spathiinæ*, for *L. formosus*, n. sp., Australia, SZÉPLIGETI, Termes. Fuzetek xxv, p. 49.
Liposcia dubiosa, Alaska, ASHMEAD, P. Washington Ac. iv, p. 243, pl. xi, fig. 1, n. sp.
Macrobracon n. g. for *M. concolor*, Amboina, *similis*, Celebes, SZÉPLIGETI, Termes. Fuzetek xxv, p. 44.
Macrocentrus brevicaudis, Malacca, p. 80, *nova-guineensis*, Sattelberg, p. 81, SZÉPLIGETI, t. c., n. spp.
Macrodyctium politum, Alaska, ASHMEAD, P. Washington Ac. iv, p. 252, n. sp.
Megalyra rufiventris, N. Guinea, *candata*, Australia, *longiseta*, Ceram, SZÉPLIGETI, Termes. Fuzetek xxv, p. 527, n. spp.
Megaproctus brasiliensis, p. 59, *peruiensis*, p. 60, S. America, SZÉPLIGETI, t. c., n. spp.
Mesobracon n. g. *Exothecinæ*, for *M. pulchripennis*, n. sp., Congo, SZÉPLIGETI, t. c. p. 46.
Mesocentrus pusillus, New Guinea, SZÉPLIGETI, t. c. p. 61, n. sp.
Metriosoma n. g. *Agathidinæ* for *M. munda*, n. sp., New Guinea, SZÉPLIGETI, t. c. p. 74.
Microdus dallatorrei, Amboina, p. 75, *nigritulus*, *semialbus*, *ochrosus*, *testaceus*, Brazil, p. 76, SZÉPLIGETI, t. c., n. spp.
Microgaster suffolciensis, England, MORLEY, Ent. Mag. xxxviii, p. 4, n. sp.
Microplitis pallidipes, Singapore, SZÉPLIGETI, Termes. Fuzetek xxv, p. 64; *M. alaskensis*, Alaska, ASHMEAD, P. Washington Ac. iv, p. 249 : n. spp.
Myosoma forticarinata, *brevicarinata*, p. 38, *trichiura*, p. 39, *longicarinata*, *fuscipennis*, p. 40, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii, n. spp.
Neorhyssa n. g. *Doryctinæ*, for *N. nigra*, n. sp., Fonteboa, SZÉPLIGETI, Termes. Fuzetek xxv, p. 57.
Oligoneurus n. g. *Cardiochilinæ* for *O. concolor*, n. sp., Fonteboa, SZÉPLIGETI, t. c. p. 77.
Opius (*Utetes*) *palpalis*, Ashanti, p. 82, *brasiliensis*, *areolatus*, p. 83, Brazil, SZÉPLIGETI, t. c.; *O. obscuripennis*, Buenos Aires, SCHROTTKY, An. Mus. Buenos Aires viii, p. 105 : n. spp.
Orgilus unicolor, Buenos Aires, SCHROTTKY, t. c. p. 106, n. sp.
Osmophila n. g. *Rhyssaloinæ*, p. 51, for *O. hyalinipennis*, *fasciipennis*, p. 52, *grandis*, *stigmatica*, p. 53, *caudata*, p. 54, n. spp., S. America, SZÉPLIGETI, Termes. Fuzetek xxv.
Pedinotus n. g. *Doryctinæ*, for *P. brasiliensis*, n. sp., Fonteboa, SZÉPLIGETI, t. c. p. 56.
Perilitus brasiliensis, Blumenau, SZÉPLIGETI, t. c. p. 80, n. sp.
Phanerotoma transcaspica, Aidin, KOKUJEW, Rev. Russe Ent. ii, p. 7; *P. orientalis*, Malacca, SZÉPLIGETI, Termes. Fuzetek xxv, p. 63 : n. spp.
Phanomeris dubius, Mashonaland, BINGHAM, Tr. ent. Soc. London 1902, p. 546, pl. xviii, fig. 59, n. sp.
Praon alaskensis, Alaska, ASHMEAD, P. Washington Ac. iv, pl. xi, fig. 3, p. 243, n. sp.
Protapanteles alaskensis, p. 247, *glacialis*, *alticola*, p. 248, Alaska, ASHMEAD, t. c., n. spp.
Proterops borneoensis, Borneo, SZÉPLIGETI, Termes. Fuzetek xxv, p. 80, n.sp.
Pselaphanus n. g. near *Diospilus*, for *P. trogoides*, n. sp., Brazil, SZÉPLIGETI, t. c. p. 82.

Psenobolus caudatus, Brazil, SZÉPLIGETI, t. c. p. 49, n. sp.
Pseudospathius, n. g. for *Spathius tricolor* Sz. 1900, SZÉPLIGETI, t. c.
Psilophthalmus n. g. *Cardiochilinæ*, for *P. nigripennis*, n. sp., Fonteboa, SZÉPLIGETI, t. c. p. 79.
Pycnobracon n. g. *Cyclostomi*, for *P. niger*, n. sp., Simla, pl. fig. 13, CAMERON, J. Bombay Soc. xiv, p. 436.
Rhizarcha harringtoni, Alaska, ASHMEAD, P. Washington Ac. ix, p. 242, n. sp.
Rhogas oculatus referred to *Leluthia*, SZÉPLIGETI, Termes. Fuzetek xxv, p. 60; *R. circumscriptus* habits, CHARBONNIER, Ent. Mag. xxxviii, p. 11.
R. harrimani, Alaska, ASHMEAD, P. Washington Ac. iv, p. 253; *R. maculipennis*, p. 61, *pulchricornis*, *brasiliensis*, p. 64, Fonteboa, SZÉPLIGETI, Termes. Fuzetek xxv : n. spp.
Semirhytus n. g. *Rhyssaloinæ*, for *S. filicornis*, *crassicornis*, n. spp., Brazil, SZÉPLIGETI, t. c. p. 54.
Shelfordia n. g. near *Myosoma*, p. 35, for *S. ruficeps*, n. sp., Sarawak, p. 36, CAMERON, J. Straits Asiat. Soc. xxxvii.
Sigalphus semiglaber, N. Guinea, p. 62, *tarsalis*, Brazil, p. 63, SZÉPLIGETI, Termes. Fuzetek xxv, n. spp.
Spathius diversus, Brazil, *testaceus*, N. Guinea, SZÉPLIGETI, t. c. p. 50, n. spp.
Spinaria curvispina, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii, p. 34; *S. mutica*, Celebes, *bicolor*, Borneo, SZÉPLIGETI, Termes. Fuzetek xxv, p. 46 : n. spp.
Syntomomelus n. g. near *Cœloides*, p. 163, for *S. rossicus*, n. sp., Central Russia, p. 164, KOKUJEW, Rev. Russe Ent. ii.
Vipio (*Pseudovipio transcaspicus*, Merv, KOKUJEW, t. c. p. 8, n. sp.
Velicones cameroni, Fonteboa, SZÉPLIGETI, Termes. Fuzetek xxv, p. 60, n. sp.

EVANIIDÆ, STEPHANIDÆ, TRIGONALIDÆ.

[Cf. CAMERON (204), KIEFFER (684), MELANDER & BRUES (890), SZÉPLIGETI (1352).]

Trigonalidæ; systematic position is near *Bethylidæ*, table of genera, ASHMEAD, Canad. Ent. xxxiv, p. 290.
Evania borneana, Sarawak, CAMERON, J. Straits Asiat. Soc. xxxvii, p. 30, n. sp.
Fœnatopus fasciatus, Sumbava, *nova-guineensis*, p. 529, *biroi*, *similis*, p. 530, N. Guinea, *celebesiensis*, Celebes, *nigripes*, Sumbava, p. 531, SZÉPLIGETI, Termes. Fuzetek xxv, n. spp.
Gasteruption (*Fœnus*) *pattersonæ*, California, MELANDER & BRUES, Biol. Bull. iii, p. 35, n. sp.
Megiselens longicollis, p. 31, *maculifrons*, p. 32, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii, n. spp.
Pseudofœnus n. g. for N. Zealand species of *Gasteruption*, KIEFFER, in Wytsman gen. ins. Evaniidæ, p. 7.
Stephanus rufofemoratus, New Georgia, *lucidus*, New Guinea, p. 532, *intermedius*, Brazil, p. 533, SZÉPLIGETI, Termes. Fuzetek xxv, n. spp.
Trigonalys hahnii, note on, STECK, Mt. Schweiz. ent. Ges. x, p. 374; *T. pullatus* var. n. *hollensis*, MELANDER & BRUES, Biol. Bull. iii, p. 36.
T. celebiensis, Celebes, SZÉPLIGETI, Termes. Fuzetek xxv, p. 525, n. sp.
Zeuxevania n. g. for *E. dinarica* Schlett., KIEFFER, p. 2 in Wytsman gen. ins. Evaniidæ.

Chalcididæ.

[Cf. Ashmead (38, 40, 42, 43), Bingham (868), Cameron (206), Embleton (392), Mayr (878), Rübsaamen (1178), Schrottky (1218), Destefani Perez (323).]

Aditrochus n. g. *Pteromalides* for *A. fagicolus*, n. sp., Tierra del Fuego, in galls on *Fagus*, Rübsaamen, Ergebn. Magalhæns. Sammelreise vi, Pteromaliden, 4 pp., 1 pl.

**Beatomus lionatus*, Sicily, Destefani Perez (323) n. sp.

Blepyrus phenacocci, New Mexico, Ashmead, Canad. Ent. xxxiv, p. 301, n. sp.

Brachistes albipes, Argentina, Schrottky, An. Mus. Buenos Aires viii, p. 108, n. sp.

Bruchophagus herreræ, Mexico, Ashmead, Psyche ix, p. 324, n. sp.

Catolaccus cerealellæ, N. America, Ashmead, t. c. p. 345, n. sp.

Chalcis bicolor, Mashonaland, Bingham, Tr. ent. Soc. London 1902, p. 544, pl. xxiii, fig. 10, n. sp.

Comys infelix, Britain, on *Lecanium*, Embleton, Trans. ent. Soc. London 1902, p. 223, n. sp.

Copidosoma buyssoni, Palermo, Mayr, Verh. Ges. Wien lii, p. 290, n. sp.

Elachistus glacialis, Alaska, Ashmead, P. Washington Ac. iv, p. 147, n. sp.

Eulophus kukakensis, Alaska, Ashmead, t. c. p. 147, n. sp.

Eutelus confusus, Alaska, Ashmead, t. c. p. 145, n. sp.

Halticella ornatipennis, India, Cameron, J. Bombay Soc. xiv, p. 439, n. sp.

Isosoma sp., gall, Tavares, Broteria i, p. 5.

I. stipæ, Sicily, Destefani Perez (323), n. sp.

Podagrion macrurum, Buenos Aires, Schrottky, An. Mus. Buenos Aires viii, p. 110, n. sp.

Pteromalus myopites, Sicily, Destefani Perez (323), n. sp.

Spilochalcis simlaensis, India, Cameron, J. Bombay Soc. xiv, p. 438; *S. paranensis*, S. America, Schrottky, An. Mus. Buenos Aires viii, p. 110 : n. spp.

Syntomosphyrum esurus, habits, Marlatt & Howard, P. ent. Washington v, pp. 138, 139; *S. esurus*, parasitic habits, Marlatt, Bull. U. S. Dep. Agric. Ent. No. 37, pp. 86, 87.

Terobia vulgaris, Alaska, Ashmead, P. Washington Ac. iv, p. 144, pl. ix, fig. 3, n. sp.

Tetrastichus anthracinus, alaskensis, Alaska, Ashmead, t. c. p. 146; *T. blepyri*, New Mexico, Ashmead, Canad. Ent. xxxiv, p. 302 : n. spp.

Xanthoencyrtus n. g. for *X. nigroclavatus*, n. sp., Indiana, Ashmead, t. c. p. 302.

Proctotrypidæ.

[Cf. Ashmead (36–40), Brues (169), Marchal (856), Destefani Perez (321).]

Classification of *Proctotrypidæ*, tabulation of subfamilies and genera, Ashmead, J. N. York Ent. Soc. x, pp. 240–247.

Bethylidæ; classification, Ashmead, Canad. Ent. xxxiv, pp. 268–273.

Adeliopria n. g. for *A. longii*, n. sp., Texas, on *Ceratopogon*, Ashmead, Biol. Bull. iii, p. 15.

Ceraphron croceipes, Texas, Brues, Amer. Natural. xxxvi, p. 369, n. sp.

Ecitonetes n. g. near *Lagynodes*, for *E. subapterus*, n. sp., Texas, Brues, t. c. p. 370.

---

* I have not seen this description and cannot find this genus in any list.

Gonatopus pedestris, notes, BUTLER, Knowledge xxv, pp. 258, 259.
Inostemma; habits, oviposition, metamorphosis, MARCHAL, Bull. Soc. zool. France xxvii, pp. 78–81.
Limnodyles setosus, Palermo, DESTEFANI PEREZ, Zool. Jahrb. Syst. xv, p. 632, n. sp.
Lygocerus alaskensis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 140, n. sp.
Phænopria acutiventris, Texas, BRUES, Amer. Natural. xxxvi, p. 372, n. sp.
Probethylus n. g. for *P. schwarzi*, not described, ASHMEAD, Canad. Ent. xxxiv, p. 270.
Proctotrypes nigripes, Alaska, ASHMEAD, P. Washington Ac. iv, p. 136, n. sp.
Spilomicrus alaskensis, Alaska, ASHMEAD, t. c. p. 140, n. sp.
Telenomus texanus, Austin, BRUES, Amer. Natural. xxxvi, p. 372, n. sp.
Zelotypa scutellata, p. 137, *borealis*, p. 138, *alaskensis*, p. 139, Alaska, ASHMEAD, P. Washington Ac. iv, n. spp.

CYNIPIDÆ.

[Cf. ASHMEAD (38), CAMERON (202), COCKERELL (256), DALLA TORRE & KIEFFER (301), DESTEFANI PEREZ (323), GILLETTE (539), KIEFFER (683, 689), MAYR (878), NIELSEN (964), RÜBSAAMEN (1175), TAVARES (1354).]

KIEFFER completes the 1st Vol. of *Cynipides* (Vol. vii) and commences the 2nd Vol. (vii^{bis}) in André species des *Hyménoptères* d'Europe, referred to below as KIEFFER *Cynipides*.
Tabulation of genera of the family and lists of species, DALLA TORRE & KIEFFER, Wytsman gen. ins., 84 pp., 3 pls.

Acraspis villosus, Ohio, GILLETTE, P. Iowa Ac. i, p. 55, n. sp.
Allotria (*Bothrioxysta* subg. n., p. 45) *carpentieri*, p. 46, *foveigera*, p. 47, *curvata*, p. 48, *A. arcuata*, p. 54, Europe, KIEFFER, Cynipides vii^{bis}, n. spp.
Alloxysta alaskensis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 142, n. sp.
Amphiliolips cookii, Iowa, GILLETTE, P. Iowa Ac. i, p. 56, n. sp.
Andricus and *Callirhytis*, characters and composition, MAYR, Verh. Ges. Wien lii, p. 288; *A. sieboldii*, habits, NIELSEN, Ent. Meddel. i, p. 229; *A. fidelensis* ♂, TAVARES, Broteria i, p. 43; *A. burgundus* var. p. 9, *luteicornis* var. n. *niger*, p. 10, *trilineatus* var. n. *beirensis*, p. 11, TAVARES, t. c.
A. fidelensis, p. 12, *bocagei*, p. 13, *girardi*, p. 14, Portugal, TAVARES, t. c.; *A. foliaformis*, Iowa, GILLETTE, P. Iowa Ac. i, p. 53 : n. spp.
Antistrophus, distinguished from *Aulax*, p. 287, *A. rufus* and *silphii* referred to *Aulax*, p. 288, MAYR, Verh. Ges. Wien lii.
Aulax hypochœridis ♂, TAVARES, Broteria i, p. 43; *A. glechomæ* (=*Diastrophus similis* Bass.), MAYR, Verh. Ges. Wien lii.
Biorhiza (=*Sphæroteras* Ashm.), MAYR, p. 290, t. c.
B. rubinus, Iowa, GILLETTE, P. Iowa Ac. i, p. 54, n. sp.
Bothrioxysta subg. n., cf. *Allotria*.
Callirhytis meunieri (sexual form of *C. marianii*), Velletri, KIEFFER, Allg. Zeitschr. Ent. vii, p. 495; *C. semicarpifoliæ*, Himalaya, CAMERON, Entomologist 1902, p. 38 : n. spp.
Cothonaspis (*Adieris*) *apicalis*, Bitche, KIEFFER, Cynipides vii^{bis}, p. 158, n. sp.
Cynips korlevici, Croatia, KIEFFER, Allg. Zeitschr. Ent. vii, p. 496; *C. nigricens*, Iowa, GILLETTE, P. Iowa Ac. i, p. 55; *C. dimorphus*, N. America, GILLETTE, t. c. pt. 2, p. 112 : n. spp.

Eucœla alaskensis, Alaska, ASHMEAD, P. Washington Ac. iv, p. 142, n. sp.
Holcaspis basettii, Iowa, GILLETTE, P. Iowa Ac. i, p. 54; *H. arizonica*, Arizona, COCKERELL, Canad. Ent. xxxiv, p. 183 : n. spp.
Neuroterus læviusculus var. n. *lusitanicus*, TAVARES, Broteria i, p. 20.
N. nigrum, Iowa, GILLETTE, P. Iowa Ac. i, p. 56, n. sp.
Plagiotrochus fusifex var. n. *ilicinus*, TAVARES, Broteria i, p. 18.
P. burnayi, p. 16, *amenti*, p. 17, Portugal, TAVARES, t. c., n. spp.
Sapholytus lusitanicus, Portugal, TAVARES, t. c. p. 8, n. sp.
Synergus umbraculus var. *histrio*, sexes, TAVARES, t. c. p. 43; *S. incrassatus*, habits, NIELSEN, Ent. Meddel. i, p. 230.
Tetrarhapta alaskensis, Alaska, ASHMEAD, p. 141, pl. ix, fig. 2, P. Washington Ac. iv, n. sp.
Trigonaspis bruneicornis, Portugal, TAVARES, Broteria i, p. 15, n. sp.

HYMENOPTERA SESSILIVENTRES.

[Cf. ASHMEAD (38), CAMERON (204, 206), COCKERELL (255), HARRINGTON (582), KIAER (682), KONOW (728–732), MARCHAND (858), POMERANTZEW (1076), THEOBALD (1362).]

KONOW's synopsis of *Chalastogastra* is continued in connection with Zeitschr. Hym. Dipt. ii, separate pag. pp. 81–128.

CEPHIDÆ.

[Vacant.]

SIRICIDÆ.

Brachyriphus merged in *Dereeyrta*, SCHROTTKY, An. Mus. Buenos Aires viii, p. 91.

TENTHREDINIDÆ.

Tenthredinidæ, larvæ at Nantes, MARCHAND, Bull. Soc. Ouest France (2) ii, pp. 273–296.
Sawflies feeding on *Ribes*, THEOBALD, J. S.-East. Agric. Coll. No. 11, pp. 34–45.

Abia spissicornis, Greece, KONOW, Zeitschr. Hym. Dipt. ii, p. 384, n. sp.
Amauronematus variator Ruthe, characters, KONOW, t. c. p. 96.
A. moricei, Europe, KONOW, t. c. p. 388, n. sp.
Anoplonyx canadensis, Ottawa, HARRINGTON, Canad. Ent. xxxiv, p. 94, n. sp.
Aprosthema carpentieri, Amiens, KONOW, Zeitschr. Hym. Dipt. ii, p. 386, n. sp.
Arge carinicornis, Tonkin, KONOW, t. c. p. 386, n. sp.
Athalia nigromaculata, pp. 446, *antennata*, p. 447, Simla, CAMERON, J. Bombay Soc. xiv, n. spp.
Bactroceros palachei, Alaska, ASHMEAD, P. Washington Ac. iv, p. 254, n. sp.
Busarbia, albipes, Simla, CAMERON, J. Bombay Soc. xiv, p. 445, n. sp.
Cladiucha n. g. near *Athalia*, for *C. insolita*, n. sp., Tonkin, KONOW, Zeitschr. Hym. Dipt. ii, p. 389.
Cladius nigricans, Simla, CAMERON, J. Bombay Soc. xiv, p. 449, n. sp.
Clavellaria tonkinensis, Tonkin, KONOW, Zeitschr. Hym. Dipt. ii, p. 384, n. sp.

Eriocampa disjunctiva, Peru, KONOW, t. c. p. 140, n. sp.
Fethalia n. g. *Tenthredina*, p. 439, for *T. nigra*, n. sp., Simla, p. 440, pl., fig. 15, CAMERON, J. Bombay Soc. xiv.
Haplostegus discalis, Peru, KONOW, Zeitschr. Hym. Dipt. ii, p. 103, n. sp.
Holcocneme jakowleffi, Irkutsk, KONOW, t. c. p. 104, n. sp.
Hylotoma pruinosa, Borneo, CAMERON, J. Straits Asiat. Soc. xxxvii, p. 29, n. sp.
Lithracia n. g. near *Macrophya*, for *L. flavipes*, n. sp., Simla, CAMERON, J. Bombay Soc. xiv, p. 441.
Lyda fasciata, life-history, PEARSALL, Canad. Ent. xxxiv, p. 214.
Monophadnus simlaensis, India, CAMERON, J. Bombay Soc. xiv, p. 446, n. sp.
Nematides; suggestions as to 10 species described by Förster, KONOW, Zeitschr. Hym. Dipt. ii, pp. 12, 13.
Nematus suessionensis, *laevis*, v-*flavum*, *nitens*, *pachycerus*, notes on, KONOW, t. c. pp. 10, 11; *N. abietum*, early stages, POMERANTZEW, Zool. Anz. xxv, p. 260.
Pachyprotasis antennata, coloration, MORICE, Ent. Mag. xxxviii, p. 158.
P. dorsivittata, India, CAMERON, J. Bombay Soc. xiv, p. 442, n. sp.
Pamphilus flaviventris, life-history, THEOBALD, J. S.-East. Agric. Coll. No. 11, pp. 27–31.
Pœcilosoma nigriceps, Simla, CAMERON, J. Bombay Soc. xiv, p. 442, n. sp.
Pontania leucosticta=(*N. klugi* Gimm.), KONOW, Zeitschr. Hym. Dipt. ii, p. 139.
Pristiphora; monograph of palæarctic, KONOW, Annuaire Mus. St. Petersb. vii, pp. 161–187.
Prist. adelungi, Spitzbergen, p. 167, *henschi*, Austria, p. 168, *viridana*, Centr. Europe, p. 176, *carpentieri*, Germany, *pallidula*, Centr. Eur., p. 178, *inocreata*, Moravia, p. 181, *parnasia*, Greece, p. 182, KONOW, t. c., n. spp.
Selandria trifoveata, Simla, CAMERON, J. Bombay Soc. xiv, p. 445, n. sp.
Strongylogaster desbrochersi var. n. *lepticus*, KONOW, Zeitschr. Hym. Dipt. ii, p. 390; *S. cingulatus*, ♂ abundant, MORICE, Ent. Mag. xxxviii, p. 159.
Taxonus nigritarsis, *melanopodus*, p. 443, *labiatus*, *foveifrons*, p. 444, Simla, CAMERON, J. Bombay Soc. xiv, n. spp.
Xyela luteopicta, New Mexico, COCKERELL, Canad. Ent. xxxiv, p. 194, n. sp.

(c.) *LEPIDOPTERA.*

Classification ; importance of alimentary canal and sexual system, PETERSEN (1012).
Classification ; Mesosternum, JORDAN (661).
The *Lepidoptera* of the Nord, France, PAUX (1005).
Census of *Lep.* in the U. S. National Mus., DYAR, Canad. Ent. xxxiv, p. 36.
The sense hairs of larvæ, HILTON (600).
Physiology of metamorphosis, several species, BERLESE, Riv. Patol. Veg. ix, pp. 184–211.
The Lepidopterous wing, ENDERLEIN (399).
Nature of coloration, VON LINDEN (816).
The development of wing-pattern, VON LINDEN (815).
Lepidoptera as mimics, SHELFORD, P. Zool. Soc. London 1902, ii, pp. 252–260, pl. xxi.
Coloration of silks, LEVRAT & CONTE (811).

RHOPALOCERA.

[The following memoirs, indicated by the names of authors with their title numbers, refer to *Rhopalocera*, viz. :—AUEL (44), BARTEL (70), BUTLER (185, 186), CANNAVIELLO (210), DIXEY (340), H. DRUCE (351), H. H. DRUCE (352), EHRMANN (388), FAWCETT (428), FOUNTAINE (473), FRUHSTORFER (498–505), GEEST (521), GILLMER (540), GOELDI (546), GRUM-GRSHIMAILO (568), HELLER (587), JORDAN (661), MABILLE (849), MARSHALL (870), MENGEL (897), MEYRICK & LOWER (914), MOORE (925), MURILLO (939), NICÉVILLE (957, 958), NICHOLL (959–961), C. OBERTHÜR (969, 970), PABST (992), PAGENSTECHER (996, 997), POULTON & MARSHALL (868), REBEL (1106), RHÉ-PHILIPE (1149), RIFFARTH (1154), RIPPON (1155, 1156), ROTHSCHILD (1172), SCHAUS (1193), SCHULTZ (1223), SCUDDER (1240), SHARPE (1259–1262), SHELFORD (1263), SKINNER (1280, 1282, 1283), STICHEL (1332, 1333), THIEME (1368, 1369), WALSINGHAM & DURRANT (1440), WATERHOUSE (1463), WEEKS (1470–1473), WYTSMAN (1504).]

181 species *Rhopalocera* from Abyssinia and neighbourhood, PAGENSTECHER, Jahrb. nassau. Ver. lv, pp. 113–204.
South Ural *Rhopalocera*, 80 spp., BARTEL (70).
Larvæ and food-plants of Hongkong butterflies, NICÉVILLE, J. Asiat. Soc. Bengal lxxi, pp. 1–36.
Seasonal dimorphism in various genera, experiments, DIXEY, Tr. ent. Soc. London 1902, pp. 189 etc.
Edibility of butterflies, experiments, MARSHALL & POULTON (868).

PAPILIONIDÆ.

MOORE describes the *Papilionidæ* of India, Lep. ind. v, pp. 102–241, pls. 406–466.

Byasa pembertoni, ? n. n. for *Papilio plutonius* auctt., MOORE, Lep. ind. v, p. 170.
Iliades polymnestoroides, India, MOORE, t. c. p. 202, pl. 451, figg. 1, 2, n. sp.

Kailasius n. g. for part of *Parnassius*, type *P. charltonius*, MOORE, t. c. p. 118.

Koramius n. g., p. 120, type *Parnassius stoliczkanus*, p. 120, with *K. atkinsoni*, n. sp., Kashmir, p. 121, pl. 412, fig. 2, MOORE, t. c.

Leptocircus; list, WYTSMAN, gen. ins. i, 3 pp., 1 pl.

Losaria n. g. for *Papilio* group 2, Rothsch., MOORE, Lep. ind. v, p. 184.

Ornithoptera subdivisions tabulated with list of species, RIPPON in Wytsman gen. ins. i, 14 pp., 2 pls. Indian species described and figured, MOORE, Lep. ind. v, pp. 138–152, pls. 418–422; *O. cassandra* and *richmondia*, distinctions, DODD, Entomologist 1902, p. 17.

Papilio; type of, WALSINGHAM & DURRANT, Ent. Mag. xxxviii, p. 169; Enumeration of forms from Tonkin, with subspp. n., varr. n. and new nomenclature, FRUHSTORFER, Berlin. ent. Zeitschr. 1902, pp. 169–234; New forms from Trop. Asia and Malay Archipelago, FRUHSTORFER, Deutsche ent. Zeitschr. Iris xv, pp. 306–315; Indo-Australian varieties, FRUHSTORFER, Soc. ent. xvii, pp. 57, 58, 65, 66, Asiatic varieties, id. t. c. pp. 73, 74; Varr. n. viz., *meagrus megapenthes*, p. 161, *mendicus* and *martinus*, p. 162, subspp. n., *aristeus aristinus* subsp. n., p. 163, *rhesus rhesulus*, p. 164, *ulysses tetephanes*, *ægeus ormenulus*, p. 166, n. subspp., *cloanthus cloanthulus*, p. 168, FRUHSTORFER, Deutsche ent. Zeitschr. Iris xv; *P. echerioides oscari*, p. 597, *leucospilus*, p. 598, subspp. n., ROTHSCHILD, Nov. Zool. ix; *P. antiphates antiphonus* subsp. n., FRUHSTORFER, Soc. ent. xvi, p. 170; *P. xenocles*, *kephisos* and *lindos* subspp. n., FRUHSTORFER, Soc. ent. xvi, p. 146; *P. polyxenes* var. n. *curvifascia*, SKINNER, Ent. News Philad. xiii, p. 183; *P. polytes* ♀ forms, RHÉ-PHILIPE, J. Bombay Soc. xiv, p. 492; *P. podalirius*, variation, varr. n., SCHULTZ, Berlin. ent. Zeitschr. 1902, pp. 119–133, pl. ii; *P. podalirius* varr., STICHEL, Berlin. ent. Zeitschr. 1902, SB. pp. 4, 5, cuts; *P. arycles*, variation, FRUHSTORFER, Berlin. ent. Zeitschr. 1902, SB. p. 25; *P. dardanus*, metamorphoses, FAWCETT, P. Zool. Soc. London 1902, ii, p. 304, pl. xxvi, figg. 6–13; *P. cochabamba*, figure, WEEKS, Ent. News Philad. xiii, pl. v.

P. "*nireus* var. *abyssinica* now. sp." Erythrea, CANNAVIELLO, Misc. ent. x, p. 2; *P. tahmourath*, S. China, EHRMANN, Ent. News Philad. xiii, p. 291; *P. socama*, Bolivia, SCHAUS, P. U. S. Mus. xxiv, p. 424: n. spp.

Parnassius chitralensis, Chitral, p. 107, pl. 406, fig. 2, *nirius*, Ladak, p. 408, pl. 407, fig. 1, MOORE, Lep. ind. v, n. spp.

Sadengia n. g. for *Papilio* group 7 Rothsch., MOORE, t. c. p. 213.

Tadumia n. g. for part of *Parnassius*, type *P. acco*, MOORE, t. c. p. 116.

PIERIDÆ.

Pieridæ of Tonkin & Siam, with new forms, FRUHSTORFER, Deutsche ent. Zeitschr. Iris xv, pp. 269–305.

Colour variation, especially of the sexes, GEEST, Allg. Zeitschr. Ent. vii, pp. 529–534.

Appias nyassana ♀, pl. ii, fig. 4, PAGENSTECHER, Jahrb. nassau. Ver. lv, p. 164.

Belenois calypso and *formosa* varr., BUTLER, P. Zool. Soc. London 1902, i, pp. 49, 50.

Catopsilia pomona and *pyranthe* seasonal dimorphism, DIXEY, Tr. ent. Soc. London 1902, pp. 189–194; *C. statira* etc., habits on Amazons, GOELDI (546).

Colias eogene, synonymy, dimorphic ♀, NICÉVILLE, J. Bombay Soc. xiv, p. 249, pl. FF, fig. 12.

Delias agostina infumata subsp. n., FRUHSTORFER, Deutsche ent. Zeitschr. Iris xv, p. 174.
D. nausicaa, Borneo, FRUHSTORFER, Stettin Ent. Zeit. 1902, p. 358, n. sp.
Euchloë cardamines, hermaphrodite, GILLMER, Allg. Zeitschr. Ent. vii, p. 208, cut.
Gonepteryx cleopatra, hermaphrodite, GILLMER, Allg. Zeitschr. Ent. vii, p. 209, cuts.
Huphina timnatha filia subsp. n., FRUHSTORFER, Deutsche ent. Zeitschr. Iris xv.
Leodonta marginata, Venezuela, SCHAUS, P. U. S. Mus. xxiv, p. 423, n. sp.
Leptidia Billb. discussed and rejected, WALSINGHAM & DURRANT, Ent. Mag. xxxviii, p. 165.
Mylothris rubricosta ♂, pl. ii, fig. 1, PAGENSTECHER, Jahrb. nassau. Ver. lv, p. 163.
M. erlangeri, Abyssinia, PAGENSTECHER, t. c. p. 163, pl. ii, figg. 7, 8, n. sp.
Pieris napi varr., SEVERIN, Ann. Soc. ent. Belgique xlvi, p. 9, and CROMBRUGGHE, t. c. p. 20; *P. brassicæ*, natural history, generations, AUEL, Allg. Zeitschr. Ent. vii, pp. 113 etc.; *P. manni*, note, ALPHÉRAKY, Rev. Russe Ent. ii, p. 33; *P. teutonia micronesia* subsp. n., p. 357, *P. peristhene vitiensis* subsp. n., p. 358, FRUHSTORFER, Stettin Ent. Zeit. 1902; *P. calypso* ♀, var. pl. ii, fig. 5, p. 166, *raffrayi* ♂, fig. 6, p. 164, PAGENSTECHER, Jahrb. nassau. Ver. lv; *P. aspasia* ♂, SNELLEN, pl. viii, fig. 2, p. 83, Tijdschr. Ent. xlv.
P. sublineata, Peru, SCHAUS, P. U. S. Mus. xxiv, p. 424, n. sp.
Rhodocera rhamni var. n. *progressiva*, GEEST, Allg. Zeitschr. Ent. vii, p. 529, cut.
Tachyris cardena perakana, *T. hombroni sulanorum*, p. 175, *T. nero hainanensis*, p. 178, subspp. n., FRUHSTORFER, Deutsche ent. Zeitschr. Iris xv.
Teracolus; seasonal forms, experiments, *T. topha* and *auxo* one species, DIXEY, Tr. ent. Soc. London 1902, pp. 200–202, *T. zephyrus*, pl. ii, fig. 2, PAGENSTECHER, Jahrb. nassau. Ver. lv, p. 183.
T. semiramis, Persia, GRUM-GRSHIMAILO, Annuaire Mus. St. Petersb. vii, p. 191, n. sp.

DANAIDÆ and ITHOMIIDÆ.

Anosia archippus, migration, MOFFAT, Rep. ent. Soc. Ontario xxii, pp. 51–53; habits, MOFFAT, t. c. pp. 78–82.
Calloleria tosca, Colombia, SCHAUS, P. U. S. Mus. xxiv, p. 386, n. sp.
Ceratinia acceptabilis, Bolivia, WEEKS, P. New England Zool. Club iii, p. 1, n. sp.
Danaus formosa neumanni subsp. n., ROTHSCHILD, Nov. Zool. ix, p. 596.
Dircenna hugia, Bolivia, SCHAUS, P. U. S. Mus. xxiv, p. 383, n. sp.
Episcada pascua, *carcinia*, Brazil, SCHAUS, t. c. p. 384, n. spp.
Euplœa (Chirosia) era, Solomon Islds., NICÉVILLE, J. Bombay Soc. xiv, p. 237, pl. FF, fig. 2, n. sp.
Hymenitis andreas, figure, WEEKS, Ent. News Philad. xiii, pl. xiii, fig. 4.
Ithomia salcata, Colombia, SCHAUS, P. U. S. Mus. xxiv, p. 386; *I. sarcinarius*, Colombia, WEEKS, P. New England Zool. Club iii, p. 9: n. spp.
Leucothyris manora, Rio Janeiro, SCHAUS, P. U. S. Mus. xxiv, p. 383, n. sp.
Limnas chrysippus, varr. ætiology, POULTON, Tr. ent. Soc. London 1902, pp. 473–484; courtship, MARSHALL, t. c. p. 538.
Pteronymia minna, p. 384, *calgiria*, *ilsia*, Bolivia, *carlia*, Petropolis, p. 385, SCHAUS, P. U. S. Mus. xxiv, n. spp.
Tithorea anachoreta, Peru, THIEME, Berlin. ent. Zeitschr. 1902, p. 282, n. sp.

Acræidæ and Heliconiidæ.

Heliconia thelxiope and *vesta*, variation, C. Oberthür, Études xxi, 11 pls.
Riffarth criticises Oberthür's Études xxi, and assigns names to his figures, Berlin. ent. Zeitschr. 1902, pp. 157–166.
Criticism of Oberthür, with synonymy, Stichel, Berlin. ent. Zeitschr. 1902, pp. 147–152.
Heliconius spadicarius, figure, Weeks, Ent. News Philad. xiii, pl. vii.

Acræa perenna kaffana subsp. n., *A. pharsalus rhodina* subsp. n., Rothschild, Nov. Zool. ix, p. 595; *A. orinata* ♀, Butler, P. Zool. Soc. London 1902, i, p. 48, pl. i, fig. 1.
A. oscari, N. E. Africa, Rothschild, Nov. Zool. ix, p. 595; *A. baxteri*, p. 40, *ochrascens*, p. 41, E. Africa, Sharpe, Entomologist 1902; *A. sykesi*, Wadelai, Sharpe, t. c. p. 279; *A. ozinta*, Venezuela, *dognini*, Ecuador, *mitama*, p. 391, *surima*, *quadra*, p. 392, Brazil, Schaus, P. U. S. Mus. xxiv : n. spp.
Planema arenaria, *dorotheæ*, Uganda, Sharpe, Entomologist 1902, p. 135, n. spp.

Nymphalidæ.

Adelpha gryama, Brazil, p. 395, *barnesia*, Bolivia, p. 396, Schaus, P. U. S. Mus. xxiv, n. spp.
Agrias narcissus, pl. iii, fig. 1, p. 179, Fruhstorfer, Deutsche ent. Zeitschr. Iris xv.
Araschnia prorsa var. n. *weismanni*, Fischer, Soc. ent. xvii, p. 50.
Argynnis hyperbius L.=(*niphe* L.), Joannis, Bull. Sci. France Belgique xxxv, p. 323; *A. hyperbius neumanni* subsp. n., Rothschild, Nov. Zool. ix, p. 596; *A. vitatha*, melanic ♀, Nicéville, J. Bombay Soc. xiv, p. 245, pl. ff, fig. 6; *A. adippe* var. n. *taurica*, Kroulikowsky, Rev. Russe Ent. ii, p. 74; *A. paphia* ab. n. *marillæ*, Aigner, Rov. Lapok ix, p. 141; *A. pales arsiloche*, aberration, Galvagni, Verh. Ges. Wien lii, p. 586; *A. nitocris nigrocærulea*, figures, W. P. Cockerell, pl. p. 83, Birds and Nature xii.
Atella ariel, New Guinea, Nicéville, J. Bombay Soc. xiv, p. 242, n. sp.
Athyma punctata ♀, Oberthür, Bull. Soc. ent. France 1902, p. 161.
Brenthis; synopsis of N. American, Dyar, P. ent. Soc. Washington v, p. 130.
Byblia götzius and *ilythia*, distinctions, early stages, Marshall, Ent. Mag. xxxviii, p. 46.
Cethosia; catalogue of the forms with numerous new names, Fruhstorfer, Stettin Ent. Zeit. 1902, pp. 330–349; *C. cydippe iphigenia* subsp. n., Fruhstorfer, Berlin. ent. Zeitschr. 1902, p. 21; *C. cydippe cleanthis*, *alkmene*, subspp. n., Fruhstorfer, Deutsche ent. Zeitschr. Iris xv, p. 173.
Charaxes numenes neumanni, subsp. n., Rothschild, Nov. Zool. ix, p. 597.
Chlorippe laurona, Brazil, Schaus, P. U. S. Mus. xxiv, p. 397, n. sp.
Cyrestis periander vatinia, p. 169, *enganica*, p. 171, *martinus*, p. 172, subspp. n., Fruhstorfer, Deutsche ent. Zeitschr. Iris xv; *C. irmæ martini* subsp. n., Hartert, Nov. Zool. ix, p. 232, cut.
[*Cystineura corviana* misplaced in *Satyridæ* last year.]
C. aurantia, Bolivia, Weeks, P. New England Zool. Club iii, p. 5, n. sp.
Diestogyna amaranta ♀, Butler, P. Zool. Soc. London 1902, i, p. 47, pl. i, figg. 2, 3.
Doleschallia bisaltide romana subsp. n., Fruhstorfer, Stettin Ent. Zeit. 1902, p. 354.
Dynamine albidula, figure, Weeks, Ent. News Philad. xiii, pl. xiii, fig. 1.

Eresia crina, Ecuador, SCHAUS, P. U. S. Mus. xxiv, p. 392, n. sp.
Ergolis merione, note on, RHÉ-PHILIPE, J. Bombay Soc. xiv, p. 484.
Euphædra sarita abyssinica subsp. n., ROTHSCHILD, Nov. Zool. ix, p. 596.
E. neumanni, N. E. Africa, ROTHSCHILD, t. c. p. 596; *E. crossei*, Nigeria, SHARPE, Entomologist 1902, p. 68; *E. ellenbecki*, Abyssinia, PAGENSTECHER, Jahrb. nassau. Ver. lv, p. 147, pl. ii, fig. 3 : n. spp.
Euthalia lepidea, at Kumaon, RHÉ-PHILIPE, J. Bombay Soc. xiv, p. 595.
Harma johnstoni, Uganda, BUTLER, P. Zool. Soc. London 1902, i, p. 47, pl. i, figg. 4, 5, n. sp.
Hypolimnas pandarus, junia, subsp. n., FRUHSTORFER, Berlin. ent. Zeitschr. 1902, p. 234; *H. bolina*, p. 485, *misippus*, p. 486, notes, RHÉ-PHILIPE, J. Bombay Soc. xiv.
Junonia erigone leucophora, gardineri, subspp. n., FRUHSTORFER, Deutsche ent. Zeitschr. Iris xv, p. 313.
Kallima; mimicry, behaviour of the species, BASHFORD DEAN, Science xvi, pp. 832, 833.
Limenitis albomaculata ♀, OBERTHÜR, Bull. Soc. ent. France 1902, p. 161.
Melitæa phæton var. n. *streckeri*, ELLSWORTH, Ent. News Philad. xiii, p. 104.
M. damætas, Colorado, SKINNER, Ent. News Philad. xiii, p. 304, n. sp.
Phyciodes fellula, Colombia, *sejona*, p. 393, *brancodia, orticas*, Brazil, p. 394, *cariga*, Colombia, p. 395, SCHAUS, P. U. S. Mus. xxiv, n. spp.
Potamis ambica miranda, p. 176, *claribella*, p. 177, subspp. n., FRUHSTORFER, Deutsche ent. Zeitschr. Iris xv.
Precis; seasonal phases, POULTON, Tr. ent. Soc. London 1902, pp. 414–460; *P. gregorii* ♀, BUTLER, Ann. Nat. Hist. ix, p. 31.
P. adulatrix, Sumba, FRUHSTORFER, Deutsche ent. Zeitschr. Iris xv, p. 312, n. sp.
Pseudathyma plutonica, Uganda, BUTLER, P. Zool. Soc. London 1902, i, p. 48, pl. i, fig. 6, n. sp.
Pyrameis cardui, migration etc., FLETCHER, Rep. ent. Soc. Ontario xxxii, pp. 54–57.
Symbrenthia; enumeration of the forms, with discussion of the synonymy of Fruhstorfer and of Moore, NICÉVILLE, J. Bombay Soc. xiv, pp. 450–457.
Terinos wahnesi, New Guinea, HELLER, Deutsche ent. Zeitschr. Iris xv, p. 127, pl. iii, fig. 5, n. sp.
Vanessa antiopa var. n. *dorfmeisteri*, p. 49, *urticæ* var. n., FISCHER, pp. 49, 50, Soc. ent. xvii; *V. io* ab. nov. *pavo*, STICHEL, Berlin. ent. Zeitschr. 1902, SB. p. 11; *V. l-album* var. n. *chelone*, SCHULTZ, Deutsche ent. Zeitschr. Iris xv, p. 324; *V. urticæ* var. *violescens*, *V. polychloros* var. *pygmæa*, p. 74, KROULIKOWSKY, Rev. Russe Ent. ii, p. 73; *V. xanthomelas japonica* subsp. n., STICHEL, Berlin. ent. Zeitschr. 1902, SB. p. 6; *V. cardui*, migration, ROCQUIGNY ADANSON, Rev. Sci. Bourbonnais xv, p. 120.

BRASSOLIDÆ, MORPHIDÆ, AMATHUSIIDÆ, DISCOPHORIDÆ.

Morphidæ, Amathusiidæ, Discophoridæ, characterised as three families, STICHEL, Deutsche ent. Zeitschr. Iris xv, pp. 56–59.

Caligo agesilaus, p. 321, *zeuxippus*, p. 322, Ecuador, DRUCE, Ann. Nat. Hist. ix; *C. gerhardi*, Bolivia, P. New England Zool. Club iii, p. 3 : n. spp.
Discophora; revision of the genus, STICHEL, Deutsche ent. Zeitschr. Iris xv, pp. 59–95, pls. i, ii; *D. deo fruhstorferi* subsp. n., *D. lepida significans* subsp. n., STICHEL, Berlin. ent. Zeitschr. 1902, SB. p. 11.
Narope marmorata, Bolivia, SCHAUS, P. U. S. Mus. xxiv, p. 390, n. sp.
Opsiphanes tamarindi, early stages, STICHEL, Berlin. ent. Zeitschr. 1903, p. 21.

Tenaris domitilla agrippa subsp. n., FRUHSTORFER, Deutsche ent. Zeitschr. Iris xv, p. 311.
T. nox, hab.?, KIRBY, in Wytsman's Hübner, p. 47, n. sp.
Thaumantis aliris lathyi subsp. n., FRUHSTORFER, Deutsche ent. Zeitschr. Iris xv, p. 177.

SATYRIDÆ.

Cærois vespertilio, Ecuador, THIEME, Berlin. ent. Zeitschr. 1902, p. 281, n. sp.
Callerebia nirmal var., NICÉVILLE, J. Bombay Soc. xiv, p. 238, pl. FF, fig. 3.
Chionobas; the N. American species, DYAR, P. ent. Soc. Washington v, pp. 41, 42.
Cœlites nothis sylvarum subsp. n., FRUHSTORFER, Berlin. ent. Zeitschr. 1903, SB. p. 26.
Cœnonympha pamphilus, albinic var., BARRETT, Ent. Mag. xxxviii, p. 245.
Cosmosatyrus nilesi, Bolivia, WEEKS, Ent. News Philad. xiii, p. 105, n. sp.
Epinephele lycaon, variation, JAKONTOW, Rev. Russe Ent. ii, pp. 172–174; *E. jurtina*, variation, SLEVOGT, Soc. ent. xvii, p. 114.
Erebia; synopsis of N. American, DYAR, P. ent. Soc. Washington v, p. 129; *E. stygne* var. n. *bejarensis*, CHAPMAN, Tr. ent. Soc. London 1902, xxxvi.
Euptychia ocelloides, *castrensis*, p. 387, *narapa*, *moneca*, *burgia*, p. 388, *morima*, Brazil, *pallema*, Peru, *borasta*, Brazil, p. 389, SCHAUS, P. U. S. Mus. xxiv, n. spp.
Lasiophila piscina, Bolivia, THIEME, Berlin. ent. Zeitschr. 1902, p. 282, n. sp.
Lethebaucis philemon subsp. n., FRUHSTORFER, Berlin. ent. Zeitschr. 1902, p. 20.
Lymanopoda varola, Peru, SCHAUS, P. U. S. Mus. xxiv, p. 390, n. sp.
Manataria n. n. for *Tisiphone* Hübn., KIRBY in Wytsman Hübner, p. 57.
Pedaliodes mariona, Colombia, WEEKS, P. New England Zool. Club iii, p. 10, n. sp.
Satyrus pumilus var. n. *nanschanica*, p. 192, *regeli* var. n. *latefasciata*, p. 193, GRUM-GRSHIMAILO, Annuaire Mus. St. Petersb. vii.
Taygetis puritana, Bolivia, WEEKS, P. New England Zool. Club iii, p. 2, n. sp.
Tisiphone, cf. *Manataria*.

ERYCINIDÆ (or *Riodinidæ*), *s. l.*

Libytheidæ; genera, with lists of species, PAGENSTECHER, Wytsman gen. ins., 4 pp., 1 pl.

Abisara abbuna, New Guinea, HELLER, Deutsche ent. Zeitschr. Iris xv, p. 131, pl. iii, fig. 7, n. sp.
Amarynthis muscolor, figure, WEEKS, Ent. News Philad. xiii, pl. xiii, fig. 2.
Anatole modesta, Paraguay, MENGEL, Ent. News Philad. xiii, p. 176, pl. viii, n. sp.
Apodemia multiplaga, Mexico, SCHAUS, P. U. S. Mus. xxiv, p. 404; *A. ochracea*, Paraguay, MENGEL, Ent. News Philad. xiii, p. 176, pl. viii : n. spp.
Aricoris aurigera, Colombia, WEEKS, P. New England Zool. Club iii, p. 11, n. sp.
Bæotis bacœnita, Peru, SCHAUS, P. U. S. Mus. xxiv, p. 402; *B. bifasciata*, Paraguay, MENGEL, Ent. News Philad. xiii, p. 177, pl. viii : n. spp.
Barisana n. g. for *Zemeros emesoides* Feld., MOORE, Lep. ind. v, p. 100.
Calydna zea, Peru, SCHAUS, P. U. S. Mus. xxiv, p. 403, n. sp.

Caria tabrenthia, Peru, SCHAUS, t. c. p. 403, n. sp.
Chamælimnas joviana, p. 401, *similis*, p. 402, Peru, SCHAUS, t. c., n. spp.
Charis incoides, Peru, *dukinfieldia*, Brazil, SCHAUS, t. c. p. 401, n. spp.
Elymnias vordermanni, pl. viii, fig. 1, p. 77, SNELLEN, Tijdschr. Ent. xlv; *E. meletus* n. n. for part of *melane* Hew., p. 241, *melitia* n. n. for part of *melane* Hew., p. 242, NICÉVILLE, J. Bombay Soc. xiv; *E. lais apelles* subsp. n., FRUHSTORFER, Deutsche ent. Zeitschr. Iris xv, p. 314; *E. undularis meridionalis* subsp. n., *E. lais apelles* subsp. n., FRUHSTORFER, Soc. ent. xvi, p. 169.
E. (*Dyctis*) *mela*, Ké ids., NICÉVILLE, J. Bombay Soc. xiv, p. 238, pl. FF, figg. 4, 5; *E. rattrayi*, Uganda, SHARPE, Entomologist 1902, p. 41; *E. aroa*, Borneo, SHELFORD, P. Zool. Soc. London 1902, ii, p. 272: n. spp.
Eucora n. g. for *E. sanarita*, n. sp., Brazil, SCHAUS, P. U. S. Mus. xxiv, p. 400.
Eurybia hari, figure, WEEKS, Ent. News Philad. xiii, pl. xii.
Eurygona micæla, Peru, *cucuta*, p. 397, *rasonea*, Venzuela, *tarinta*, Colombia, p. 398, SCHAUS, P. U. S. Mus. xxiv, n. spp.
Hamearis dovina, Bolivia, SCHAUS, t. c. p. 404, n. sp.
Ithomeis lauronia, Peru, SCHAUS, t. c. p. 406, n. sp.
Lemonias malca, Brazil, SCHAUS, t. c. p. 405, n. sp.
Lepricornis tristis, Peru, SCHAUS, t. c. p. 405, n. sp.
Lymnas ? pelta, Brazil, SCHAUS, t. c. p. 399, n. sp.
Mesene strigulata, Brazil, *martha*, Peru, SCHAUS, t. c. p. 402, n. spp.
Mesosemia mathania, Peru, p. 398, *friburgensis*, Brazil, p. 399, SCHAUS, t. c., n. spp.
Necyria gerhardi, Peru, MENGEL, Ent. News Philad. xiii, p. 177, pl. viii, n. sp.
Stalachtis sontella, *stellidia*, Brazil, SCHAUS, P. U. S. Mus. xxiv, n. spp.
Symmachia eurina, *satema*, Brazil, SCHAUS, t. c. p. 400, n. spp.

LYCÆNIDÆ.

Carnivorous larvæ, GREEN, Entomologist 1902, p. 202.

Aphnæus hollandi, Uganda, BUTLER, P. Zool. Soc. London 1902, i, p. 49, pl. i, fig. 7, n. sp.
Aphniolaus n. g. for *Myrina pallene* Wallengr., DRUCE, P. Zool. Soc. London 1902, ii, p. 117.
Argiolaus silas var. *lalos*, pl. xii, figg. 3, 4, *lukabas*, fig. 5, *paneperata*, fig. 7, *menas*, figg. 8, 9, *julius*, fig. 6, DRUCE, t. c. p. 117.
Axiocerses argenteo-maculata, Abyssinia, PAGENSTECHER, Jahrb. nassau. Ver. lv, p. 154, n. sp.
Candalides helenita Semper, pl. xi, figg. 7, 8, DRUCE, P. Zool. Soc. London 1902, ii, p. 119.
Chrysophanus virgaureæ var., KROULIKOWSKY, Rev. Russe Ent. ii, p. 75; *C. phlæas* varr., nomenclature, SPEISER, Berlin. ent. Zeitschr. 1902, p. 135; *C. dispar* in Britain, CHARNLEY, Field Nat. Quart. i, 8 pp.
Chrysophanus evansii, Chitral, NICÉVILLE, J. Bombay Soc. xiv, p. 249, pl. FF, fig. 11, n. sp.
Curetis paracuta, Japan, NICÉVILLE, t. c. p. 248, n. sp.
Cyaniris argiolus var., KROULIKOWSKY, Rev. Russe Ent. ii, p. 75.
C. shelfordii, Borneo, NICÉVILLE, J. Bombay Soc. xiv, p. 245, pl. FF, fig. 7, n. sp.
Epamera mermis, pl. xii, fig. 2, DRUCE, P. Zool. Soc. London 1902, ii, p. 117.
E. sappirus, Sierra Leone, DRUCE, t. c. p. 117, pl. xii, fig. 1, n. sp.
Euchrysops nigeriæ, Africa, SHARPE, Entomologist 1902, p. 102, n. sp.

Eumæus debora, habits, early stages, MURILLO, Ent. News Philad. xiii, pp. 35–37.
Holochila cyprotus (= *purpurea*) *helenita*, (= *androdus* = *subargentea*), WATERHOUSE, P. Linn. Soc. N. S. Wales xxvii, p. 333.
Horaga amethystus, Borneo, DRUCE, P. Zool. Soc. London 1902, ii, p. 118, pl. xi, figg. 4, 5, n. sp.
Hypochrysops rex var. n. *brunnea*, DRUCE, t. c. p. 113.
Ialmenus dameli, pl. xi, figg. 10, 12, *eichorni*, fig. 11, DRUCE, t. c. p. 120.
I. clementi, W. Australia, DRUCE, t. c. p. 120, pl. xi, fig. 9, n. sp.
Iraota nicevillei queried, MANDERS, J. Bombay Soc. xiv, p. 182.
Lampides phaseli referred to *Jamides*, DRUCE, P. Zool. Soc. London 1902, ii, p. 114.
Liphyra brassolis, life history, DODD, Entomologist 1902, pp. 153–156, 184–188; larvæ, CHAPMAN, Entomologist 1902, pp. 225–228, 252–255.
Lycæna argus var. n. *bejarensis*, CHAPMAN, P. ent. Soc. London 1902, p. xxxv; *L. corydon* var. *minor*, CRUTTWELL, Ent. Mag. xxxviii, p. 244; *L. lucifera* var. n. *lucina*, GRUM-GRSHIMAILO, Annuaire Mus. St. Petersb. vii, p. 193; *L. panagæa* var. n. *taygetica*, REBEL, Berlin. ent. Zeitschr. 1902, p. 90; *L. bellargus krodeli*, and *L. corydon cinnus*, synonomy, GILLMER, Allg. Zeitschr. Ent. vii, pp. 338–340; *L. argus*, hermaphrodite, GILLMER, t. c. p. 211, cuts; *L. alcon*, early stages, GILLMER, Soc. ent. xvii, p. 92; *L. scudderi*, natural history, LYMAN, Canad. Ent. xxxiv, p. 126.
L. berezowskii, p. 194, *serica*, *aricia*, p. 195, W. China, GRUM-GRSHIMAILO, Annuaire Mus. St. Petersb. vii; *L. neurona*, *chlorina*, California, SKINNER, Ent. News Philad. xiii, p. 15; *L. maritima*, Lower California, WEEKS, P. New England Zool. Club iii, p. 12; *L. ruberrothei*, Bolivia, WEEKS, Ent. News Philad. xiii; *L. griqua*, *cogina*, Brazil, SCHAUS, P. U. S. Mus. xxiv, p. 407 : n. spp.
Lycænesthes suquala, p. 155, *dulcis*, *nigrocaudata*, p. 156, Abyssinia, PAGENSTECHER, Jahrb. nassau. Ver. lv, n. spp.
Megisba nigra, sexes, WATERHOUSE, P. Linn. Soc. N. S. Wales xxvii, p. 331.
Nacaduba ni, Java, Sumatra, NICÉVILLE, J. Bombay Soc. xiv, p. 247, pl. FF, fig. 8: *N. atromarginata*, Celebes, DRUCE, P. Zool. Soc. London 1902, ii, p. 113, pl. xi, figg. 1, 2, n. spp.
Ogyris oroetes ♂ ♀, pl. xiv, figg. 1, 2, p. 335, *amaryllis*, figg. 3, 4, p. 336, WATERHOUSE, P. Linn. Soc. N. S. Wales xxvii.
O. hewitsoni, pl. xiv, figg. 5–8, p. 338, *ænone*, fig. 9, p. 339, Australia, WATERHOUSE, t. c., n. spp.
Philiris innotatus Misk., distinctive characters, DRUCE, P. Zool. Soc. London 1902, ii, p. 115.
Pseudalmenus n. g. for *Theela myrsilus* Doubl. & Hew., DRUCE, t. c. p. 116.
Spindasis; variation in Ceylon, MANDERS, J. Bombay Soc. xix, p. 183.
Tajuria thyia var. n. *pallens*, DRUCE, P. Zool. Soc. London 1902, ii, p. 116.
Talicada nyseus var. *khasia*, DRUCE, t. c. p. 113.
Theela infrequens, figure, WEEKS, Ent. News Philad. xiii, pl. xiii, fig. 3.
T. giapor, p. 407, *xorema*, Brazil, *carla*, Colombia, *nugar*, Mexico, p. 408, *atrana*, *talama*, Brazil, p. 409, *normahal*, *malta*, Peru, *vomiba*, Brazil, p. 410, *vieca*, Venezuela, *rickmani*, Colombia, p. 411, *zurkvitzi*, Brazil, *epopeoides*, Mexico, p. 412, *conoceria*, *tella*, Brazil, *curtira*, Venezuela, p. 413, *chaluma*, *taminella*, *rana*, p. 414, *muattina*, Brazil, *biangula*, Peru, p. 415, *bolima*, *polama*, Brazil, p. 416, *foyi*, Peru, *aritides*, Venezuela, p. 417, *echinita*, *guadala*, Mexico, p. 418, *tigonia*, Peru, *illex*, Colombia, p. 419, *hostis*, *gentilla*, Brazil, *guzauta*, Mexico, p. 420, *fostera*, *farmina*, Brazil, p. 421, *lanckena*, Peru, *chilica*, Brazil, *lumber*, Venezuela, p. 422, SCHAUS, P. U. S. Mus. xxv, n. spp.
Una purpurea, Lifu, DRUCE, P. Zool. Soc. London 1902, ii, p. 114, pl. xi, fig. 3, n. sp.

Uranotes melinus, food-plant and chrysalis, RIVERS, Bull. S. Calif. Ac. i, p. 41.
Waigeum ceramicum, Ceram, DRUCE, P. Zool. Soc. London 1902, ii, p. 115, pl. xi, fig. 6, n. sp.

HESPERIIDÆ.

Revision of Australian *Hesperiidæ*, MEYRICK & LOWER, Tr. R. Soc. S. Austral. xxvi, pp. 38–129.

Adopæa commodus n. n. for *Thymelicus vitellius*, KIRBY in Wytsman's Hübner, p. 110.
Anisochosia subpicta, Brazil, SCHAUS, P. U. S. Mus. xxiv, p. 432, n. sp.
Atrytone urqua, paranensis, brasina, Brazil, SCHAUS, t. c. p. 436, n. spp.
Augiades chalcone, anita, tania, turbis, A. ? aligula, Brazil, SCHAUS, t. c. p. 438, n. spp.
Barca n. n. for *Dejeania* Oberth., NICÉVILLE, J. Bombay Soc. xiv, p. 251.
Butleria arpia, Brazil, SCHAUS, P. U. S. Mus. xxiv, p. 435, n. sp.
Callimormus diæses, Brazil, *verames*, Peru, SCHAUS, t. c. p. 456, n. spp.
Catia minaya, Brazil, SCHAUS, t. c. p. 446, n. sp.
Celænorrhinus bettoni, East Africa, BUTLER, Ann. Nat. Hist. ix, p. 32, n. sp.
Cercropterus ochrilinea, Peru, SCHAUS, P. U. S. Mus. xxiv, p. 429, n. sp.
Chiomara marthona, Peru, SCHAUS, t. c. p. 435, n. sp.
Cobalopsis duspecca, Bolivia, WEEKS, Ent. News Philad. xiii, p. 105, n. sp.
Cobalus fortis, rastaca, p. 440, Brazil, *arita*, Trinidad, p. 441, SCHAUS, P. U. S. Mus. xxiv, n. spp.
Cyclosemia trigonilla, Brazil, SCHAUS, t. c. p. 430, n. sp.
Cymænes nux, dubitans, p. 457, *intermedia, occulta*, p. 458, Brazil, SCHAUS, t. c., n. spp.
Dejeania cf. *Barca*.
Dichelura n. g. near *Garga*, p. 179, for *D. tricuspidata*, n. sp., Ecuador, p. 180, MABILLE, Bull. Soc. ent. France 1902.
Eudamidas obscurior, Peru, SCHAUS, P. U. S. Mus. xxiv, p. 431, n. sp.
Eudamus proteus, life-history, CHITTENDEN, Bull. U. S. Dep. Agric. Ent. No. 33, pp. 92–96, cuts.
E. calicina, Honduras, p. 425, *janita, pythis*, Brazil, p. 426, SCHAUS, P. U. S. Mus. xxiv, n. spp.
Euphyes menopis, Peru, SCHAUS, t. c. p. 446, n. sp.
Euroto etelka, Trinidad, *purgis, coler, ritans*, Brazil, SCHAUS, t. c. p. 443, n. spp.
Eutychide astiga, petrovna, p. 441, *barnesi*, p. 442, Brazil, SCHAUS, t. c., n. spp.
Flaccilla ? coatepeca, Mexico, p. 458, *ergola*, Brazil, p. 459, SCHAUS, t. c., n. spp.
Gorgythion beggoides, Trinidad, *marginata*, Peru, SCHAUS, t. c. p. 431, n. spp.
Graius choricus, Mexico, SCHAUS, t. c. p. 429, n. sp.
Heliopetes purgia, Brazil, *sublinea*, Orizaba, SCHAUS, t. c. p. 434, n. spp.
Hesperia ? sucova, altama, p. 455, *caligula, misera*, p. 456, Brazil, SCHAUS, t. c., n. spp.
Jemadia brevipennis, p. 425, *paulensis*, p. 424, Brazil, SCHAUS, t. c., n. spp.
Kedestes ? mirandus, East Africa, BUTLER, Ann. Nat. Hist. ix, p. 33, n. sp.
Lerema coyana, stacara, algina, Brazil, SCHAUS, P. U. S. Mus. xxiv, p. 453, n. spp.
Lerodea tesera, Brazil, SCHAUS, t. c. p. 448, n. sp.
Lignyostola cydana, Brazil, SCHAUS, t. c. p. 430, n. sp.
Megathymus, see *Bombyces*.
Megistias corius, ranesus, p. 449, *polistion, monestes*, Brazil, *miaba*, hab.?,

p. 450, *chula*, *vanilia*, *gispara*, *vorgia*, p. 451, *sancoya*, *carinna*, *M.*? *corescene*, Brazil, *M. jamaca*, Jamaica, p. 452, SCHAUS, t. c., n. spp.
Mesodina n. g. MEYRICK, for *M. œluropis*, n. sp., Australia, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 46.
Mnasalcas amatala, Brazil, SCHAUS, P. U. S. Mus. xxiv, p. 447, n. sp.
Mnestheus petrovna, Brazil, SCHAUS, t. c. p. 457, n. sp.
Mucia matalma, Petropolis, SCHAUS, t. c. p. 446, n. sp.
Nascus orima, Brazil, *orita*, Peru, SCHAUS, t. c. p. 428, n. spp.
Nennius n. n. for *Polygonus* Hübn., KIRBY in Wytsman's Hübner, p. 105.
Nisionades menuda, Bolivia, WEEKS, P. New England Zool. Club iii, p. 4, n. sp.
N. merendula, Brazil, SCHAUS, P. U. S. Mus. xxiv, p. 439, n. sp.
Œonus garima, Trinidad, SCHAUS, t. c. p. 445, n. sp.
Padraona sartia, *calcarea*, p. 454, *P.* ? *radiata*, p. 455, Brazil, SCHAUS, t. c., n. spp.
Pamphila palæmon var. n. *melicertes*, p. 321, *silvius* var. n. *catella*, p. 322, SCHULTZ, Deutsche ent. Zeitschr. Iris xv; *P. palæmon*, larva, PABST (992).
P. vierecki, New Mexico, SKINNER, Ent. News Philad. xiii, p. 213; *P. barbara*, Bolivia, WEEKS, Canad. Ent. xxxiv, p. 138 : n. spp.
Papias tristissimus, Peru, *ctyanus*, Trinidad, p. 447, *sobrinus*, Brazil, p. 447, SCHAUS, P. U. S. Mus. xxiv, n. spp.
Pellicia bipuncta, *vecina*, Brazil, *capitans*, Venezuela, SCHAUS, t. c. p. 430, n. spp.
Phanis cumbre, Brazil, *tavola*, Trinidad, SCHAUS, t. c. p. 445, n. spp.
Phemiades jamaicensis, Jamaica, SCHAUS, t. c. p. 440, n. sp.
Phlebodes chittara, Trinidad, *gulala metonidia*, p. 444, *fartuga*, p. 445, Brazil, SCHAUS, t. c., n. spp.
Phœnicops porphyropis, Queensland, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 43, n. sp.
Polygonus cf. *Nennius*.
Prenes californica, Lower California, WEEKS, P. New England Zool. Club iii, p. 11; *P. diduca*, Brazil, SCHAUS, P. U. S. Mus. xxiv, p. 439 : n. spp.
Rhinthon bomax, *tanaris*, Brazil, SCHAUS, t. c. p. 442, n. spp.
Staphylus scoramus, *minor*, Peru, *anginus*, *tudus*, Brazil, p. 432, *terrens*, Venezuela, *alicus*, Brazil, *subapicatus*, Mexico, p. 433, SCHAUS, t. c., n. spp.
Syrichthus nigella, Bolivia, WEEKS, Ent. News Philad. xiii, p. 107, n. sp.
Telegonus janeira, Brazil, *hurga*, Peru, SCHAUS, P. U. S. Mus. xxiv, p. 427, n. spp.
Telemiades megaloides, Peru, SCHAUS, t. c. p. 428, n. sp.
Telesto chrysotricha, p. 59, *cyclospila*, p. 63, *tymbophora*, p. 70, *leucostigma*, p. 73, *xanthomera*, p. 80, *crypsigramma*, p. 81, *bathrophora*, p. 82, Australia, LOWER, Tr. R. Soc. S. Austral. xxvi, n. spp.
Thanaos austerus, Peru, SCHAUS, P. U. S. Mus. xxiv, p. 435, n. sp.
Thoon lugens, Petropolis, SCHAUS, t. c. p. 442, n. sp.
Thracides orusca, *bajula*, p. 459, *triplaga*, Brazil, *biserta*, Trinidad, p. 460, SCHAUS, t. c., n. spp.
Thymele subvirescens, Brazil, p. 426, *grenadensis*, W. Indies, p. 427, SCHAUS, t. c.; *T. bridgmani*, Bolivia, WEEKS, P. New England Zool. Club iii, p. 6 : n. spp.
Thymelicus vitellius cf. *Adopœa commodus*.
T. bahiensis, Brazil, SCHAUS, P. U. S. Mus. xxiv, p. 436, n. sp.
Trapezites heteromacula, p. 84, *sphenosema*, p. 92, *paraphœs*, p. 93, Australia, LOWER, Tr. R. Soc. S. Austral. xxvi, n. spp.
Vehilius almoneus, Peru, *carasta*, p. 448, *chinta*, p. 449, Brazil, SCHAUS, P. U. S. Mus. xxiv, n. spp.

HETEROCERA.

SPHINGIDÆ.

[Cf. BORDAS (132), CHAPMAN (225), COBELLI (246), DISTANT (332), FAWCETT (428), GILLMER (540), PÜNGELER (1099), ROTHSCHILD (1172), SMYTH (1309), TUTT (1393).]

The *Sphingidæ* of S. Africa, DISTANT, Ins. transvaal. pp. 64–80. In this work all the species are figured, so that it is not necessary here to record each figure.

Sphingidæ of Britain, etc., TUTT (1393).

The larvæ in classification, BACOT, Tr. City London Soc. 1902, pp. 60–70.

The stridulation of *Acherontia*, COBELLI, Verh. Ges. Wien lii, p. 572.

Acherontia atropos, pupa, alimentary canal, BORDAS (132).

Hemarine and other *Sphinges*, genitalia ♂, CHAPMAN, Tr. ent. Soc. London 1902, pp. 679–693, pls. xxiv, xxv.

Deilephila siehei, Asia Minor, PÜNGELER, Berlin ent. Zeitschr. 1902, p. 235, pl. iii, n. sp.

Hemaris tenuis and *affinis*, experiments showing them conspecific, SMYTH, Ent. News Philad. xiii, p. 82.

Leucophlebia neumanni, N. E. Africa, ROTHSCHILD, Nov. Zool. ix, p. 598, n. sp.

Panacra lignaria, pupation, DODD, Entomologist 1902, p. 73.

Philampelus megæra, metamorphoses, FAWCETT, P. Zool. Soc. London 1902, ii, p. 306, pl. xxvi, figg. 3–5.

Smerinthus populi var. n. *subflava*, GILLMER, Allg. Zeitschr. Ent. vii, pp. 375–378; *S. populi* ab. n. *decorata*, SCHULTZ, Berlin. ent. Zeitschr. 1902, p. 288; *S. populi*, hermaphrodite, GILLMER, Allg. Zeitschr. Ent. vii, p. 211, cuts.

SESIIDÆ (or ÆGERIIDÆ).

Cryptomima n. g. for *C. hampsoni*, n. sp., Uganda, pl. i, fig. 8, BUTLER, P. Zool. Soc. London 1902, i, p. 50.

Sesia palmii, Arizona, BEUTENMÜLLER, J. N. York Ent. Soc. x, p. 126, cut, n. sp.

BOMBYCES.

[(*s. l.*, including CASTNIIDÆ, PSYCHIDÆ, HEPIALIDÆ, COSSIDÆ, and various families more or less doubtful in position. URANIIDÆ see GEOMETRIDÆ, THYRIDIDÆ see PYRALIDÆ.

[Cf. AIGNER-ABAFI (8, 9), AURIVILLIUS (45, 47), BARTEL (70), CHAPMAN (226, 229), DEEGENER (310), DISTANT (332, 338), DODD (341), DOGNIN (343, 345), DRUCE (351), DYAR (368, 369), DZIURZYNSKI (382), FAWCETT (428), GROTE (558, 561), GRUM-GRSHIMAILO (568), HABERHAUER (574), HAMPSON (577), JORDAN (1263), KORB (733), LOWER (830, 831), LUCAS (834), LYMAN (847, 848), NENTWIG (948), PACKARD (993–995), POLING (1075), PÜNGELER (1096–1098), SCHAUS (1194), SEIFERT (1243), SEMPER (1253), SHARPE (1260), SOULE (1316), SWINHOE (1344, 1347–1349), TURNER (1392), TUTT (1393), WARREN, W. (1445, 1446).]

Descriptions of larvæ of N. American, DYAR, P. U. S. Mus. xxv, pp. 371 etc.

Acanthocampa n. g. for *Antheræa* (*Nudaurelia*) *belina* etc., PACKARD, J. N York Ent. Soc. x, p. 100.

Acanthopsyche atra L.=(*opacella* auctt.), CHAPMAN, Ent. Rec. xiv, p. 58.

Acnissa n. g. near *Euproctis*, for *A. pyrrhias*, n. sp., Queensland, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 180.

Acrojana n. g. *Janinæ*, for *Seiron* Druce, ♂ figured, pl. ii, fig. 3, ♀ pl. i, fig. 1, AURIVILLIUS, Bih. Svenska Ak. xxvii, No. 7, p. 26.

Adlullia oreosaura, referred to *Euproctis*, ♂, SWINHOE, Ann. Nat. Hist. x, p. 496.

Aglia tau var. *cupreola*, WERNER, Soc. ent. xvii, p. 129; *A. tau*, life-history, BACOT, Ent. Rec. xiv, pp. 237 etc.

Agyrta collaris n. n. for *Hipocrita tineiformis auxo* ♀, KIRBY in Wytsman's Hübner, p. 119.

Amsacta lactinea, larva, DUDGEON, J. Bombay Soc. xiv, p. 552.

Andraca adoxima, Queensland, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 184, n. sp.

Angelica n. n. for *Thyella* Feld., *A. zambesina*, pl. v, fig. 4, *tyrrhea*, pl. vi, fig. 2, DISTANT, Ins. transvaal., p. 59.

Anthela phœnicias, *aspilota*, *neurospasta*, Queensland, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 182, n. spp.

Antheræa; emergence, BRADLEY, Entomologist, p. 143; Cocoon cutter, DODD, Entomologist 1902, p. 16.

Anisobathra n. g. *Limacodidæ*, for *A. actinias*, n. sp., Queensland, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 221.

Apodecta n. g. *Limacodidæ*, for *A. monodisca*, n. sp., Queensland, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 189.

Apterona helix, notes on, DÖNITZ, Berlin. ent. Zeitschr. 1902, SB. pp. 9, 10.

Arachnis dilecta, note, DYAR, P. ent. Soc. Washington v, p. 94.

Archidrepana n. g. *Drepanulidæ*, for *A. saturniata*, n. sp., Comoro Islds., WARREN, Nov. Zool. ix, p. 487.

Arctia serum, corrected name for *A. serarum*, GRUM-GRSHIMAILO, Annuaire Mus. St. Petersb. vii, p. 204; *A. maculosa* var. n. *stertzi*, SCHULZ, Deutsche ent. Zeitschr. Iris xv, p. 328; *A. maculosa* var. n., FUCHS, Jahrb. nassau. Ver. lv, p. 71; *A. arge*, *nais*, larvæ, pupæ, varr., SEIFERT, pp. 1–9, pls. i, ii, J. N. York Ent. Soc. x, *A. radians*, pp. 82–89, pl. xi; *A. virgo*, larva, GIBSON, Canad. Ent. xxxiv, p. 23; *A. phalerata*, larva, id. t. c. p. 50.

Noctuid *Ariolica chinensis*, Omei-shan, SWINHOE, Ann. Nat. Hist. x. p. 49, n. sp.

Aroa flavofusca, Borneo, SWINHOE, op. cit. ix, p. 80, n. sp.

Attacus cynthia, food-plants in France, BOUDIER, Bull. Soc. ent. France 1902, p. 110.

Aurivillius n. g., p. 104, with the alternative *Euaurivillius*, p. 105, for *Nudaurelia arata*, PACKARD, J. N. York Ent. Soc. x.

Automolis iragorri, *coacta*, p. 231, *pseudelissa*, p. 232, S. America, DOGNIN, Ann. Soc. ent. Belgique xlvi, n. sp.

Azygophleps leopardina, Transvaal, DISTANT, Entomologist 1902, p. 213, n. sp.

Belemnia dubia n. n. for *Chrysaor gemmans eryx* Hübn., KIRBY in Wytsman's Hübner, p. 123.

Billetia rubripuncta, characters, JOANNIS, Bull. Sci. France Belgique xxxv, p. 354, pl. xvii, fig. 3.

Birthama plagioscia, *discotypa*, Queensland, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 190, n. spp.

Bombyx (*Cosmotriche*) *oxygramma*, N. S. Wales, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 213, n. sp.

Bunæa tyrrhena, pl. vi, fig. 1, *alcinoe*, pl. iv, fig. 7, DISTANT, Ins. transvaal., p. 58.

Burtia=(*Gundlachia*), COCKERELL & GROTE, Canad. Ent. xxxiv, p. 66.

Callimorpha principalis var. n. *fedtschenkoi*, GRUM-GRSHIMAILO, Annuaire Mus. St. Petersb. vii, p. 197.
Callosamia ; cocoon, classification, GROTE, Canad. Ent. xxxiv, p. 314.
Camerunia albida, E. Africa, AURIVILLIUS, Bih. Svenska Ak. xxvii, No. 7, p. 27, n. sp.
Campylopteryx n. g. *Drepanulidæ*, for *C. sublignata*, n. sp., Watochela, and *Drepana fleximargo* Warr., WARREN, Nov. Zool. Tring ix, p. 340.
Caprimima scripta, Queensland, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 640, n. sp.
Carama cretata, larva, SCHAUS, J. N. York Ent. Soc. x, p. 54.
Catalebeda n. g. for *Lebeda producta* Walk., larva described, p. 277, AURIVILLIUS, Ent. Tidskr. xxiii, p. 275.
Ceranchia apollina, at Paris, POUJADE, Bull. Mus. Paris vii, p. 343.
Cerura swierstræ, Transvaal, DISTANT, Entomologist 1902, p. 213, n. sp.
Charagia daphnandri and other Australian Hepialids, scent organs, DODD, Entomologist 1902, p. 73.
Chondrostega aurivillii, Palestine, PÜNGELER, Deutsche ent. Zeitschr. Iris xv, p. 143, pl. vi, fig. 16, n. sp.
Chrysaor gemmans cf. *Belemnia dubia*.
Chrysopsyche mirifica, synonymy, larva, AURIVILLIUS, Ent. Tidskr. xxiii, p. 274.
Cinabra hyperbius, pl. v, fig. 1, *bracteata*, pl. iii, fig. 5, *pygmæa*, pl. v, fig. 5, DISTANT, Ins. transvaal., p. 60.
Cirina similis, ♂ fig. 1, ♀ fig. 2, pl. iii, DISTANT, t. c. p. 62.
Clathe fola, W. Australia, SWINHOE, Ann. Nat. Hist. ix, p. 82 ; *C. edna*, W. Australia, SWINHOE, t. c. p. 166 ; *C. pyrsocoma*, p. 185, *anthracica*, p. 186, Queensland, TURNER, Tr. R. Soc. S. Austral. xxvi : n. spp.
Clemensia urucata, Costa Rica, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 230, n. sp.
Clisiocampa tigris, Colorado, DYAR, P. ent. Soc. Washington v, p. 38, new race or n. sp.
Cobanilla, cf. *Holoreta*.
Comarchis epigypsa, S. Australia, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 212, n. sp.
Cosmosoma plebecula, *lucens*, Colombia, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 226, n. spp.
Cossedia ; referred to *Noctuidæ*, SWINHOE, p. 420, Ann. Nat. Hist. ix, n. sp.
Cossus aries, Palestine, PÜNGELER, Deutsche ent. Zeitschr. Iris xv, p. 145, pl. vi, fig. 22, n. sp.
Crexa hyaloessa, Brisbane, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 184, n. sp.
Ctenosia infuscata, N. S. Wales, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 639, n. sp.
Ctenucha cressonana, distinctions, GROTE, Canad. Ent. xxxiv, p. 104.
Culama expressa, Queensland, LUCAS, P. Linn. Soc. N. S. Wales xxvii, p. 246, n. sp.
Cyanopepla girardi, Tucuman, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 229, n. sp.
Darala figlina, *clementi*, W. Australia, SWINHOE, Ann. Nat. Hist. ix, p. 81 ; *D. adriana*, *rubicunda*, *pudica*, W. Australia, SWINHOE, t. c. p. 419 ; *D. heliopa*, *callixantha*, Australia, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 214 : n. spp.
Dasychira benthalli, Canaries, KIRBY, Butt. moths Europe, p. 116, n. sp.
Dasycomota n. g. near *Lethocephala*, for *D. pyrrhæa*, n. sp., Queensland, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 220.
Datana robusta, larva, KUNZE, Canad. Ent. xxxiv, p. 216.
Diacrisia flavens, *indica*, queried as sexes, DUDGEON & ELWES, J. Bombay Soc. xiv, p. 549.

Diamuna acdessa, cf. *Fenaria* in *Noctuidæ*.
Dicranura bicuspis, larva, DOLLMAN, Ent. Rec. xiv, p. 197, pl. iv.
Diptilon sylpha, Ecuador, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 228, n. sp.
Dirphia carminata, Mexico, SCHAUS, J. N. York Ent. Soc. x, p. 54, n. sp.
Doratifera unicolora, W. Australia, SWINHOE, Ann. Nat. Hist. ix, p. 418 ; *D. stenosa*, Queensland, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 189 : n. spp.
Doratiphora hemistaura, p. 215, *amphibrota*, *perixera*, p. 216, *D.? liosarca*, *D. sphenosema*, p. 217, *aspidophora*, *nephrochrysa*, p. 218, Australia, LOWER, Tr. R. Soc. S. Austral. xxvi, n. spp.
Drapetodes magnifica, Singapore, *obliquifascia*, Pulo Laut, SWINHOE, Tr. ent. Soc. London 1902, p. 589, n. spp.
Drepanojana fasciata ♀, pl. v, fig. 2, AURIVILLIUS, Bih. Svenska Ak. xxvii, p. 30.
Drepanulidæ : for much synonymy not given below see SWINHOE, Tr. ent. London 1902, pp. 586–593.
Dudgeona actinias, Queensland, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 202, n. sp.
Duomitus squameus, Transvaal, DISTANT, Entomologist 1902, p. 213, n. sp.
Eacles imperialis, young larva, SOULE, Psyche ix, p. 299.
Ectothyris n. g. *Drepanulidæ*, for *E. trifenestrata*, n. sp., Pulo Laut, SWINHOE, Tr. ent. Soc. London 1902, p. 590.
Ectothyris quadrangulus, Perak, SWINHOE, Ann. Nat. Hist. x, p. 48, n. sp.
Ecpantheria theophila, Colombia, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 233, n. spp.
Ellida caniplaga, life-history, DYAR, J. N. York Ent. Soc. x, pp. 143–146.
Elysius insulsa, Ecuador, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 232, n. sp.
Entometa cycloloma, Queensland, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 186, n. sp.
Epicoma zelotes, *asbolina*, Queensland, TURNER, t. c. p. 184, n. sp.
Epiphora mythimnia, pl. v, fig. 3, DISTANT, Ins. transvaal. p. 54.
Epipyrops barberiana, N. Mexico (larva on a *Fulgorid*), DYAR, P. ent. Soc. Washington v, p. 43, n. sp.
Euaurivillius n. n., see *Aurivillius*.
Eucereon popayanum, Colombia, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 229, n. sp.
Euchætes and allies, variation in generic characters, LYMAN, Canad. Ent. xxxiv, pp. 187–192.
Euchætias n. n. for *Euchætes* Harris, LYMAN, pp. 27, 52, 187, t. c.
Euchelia jacobeæ var. n. *gilleti*, ANDRÉ, Ann. Soc. ent. Belgique xlvi, p. 19.
Euproctis calesia, Borneo, SWINHOE, Ann. Nat. Hist. ix, p. 81 ; *E. chionitis*, *amphideta*, p. 177, *holoxutha*, *scotochyta*, p. 178, *habrostola*, *niphobola*, p. 179, Australia, TURNER, Tr. R. Soc. S. Austral. xxvi ; *E. euryzona*, S. Australia, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 213 : n. spp.
Eupterote axesta ♂, SWINHOE, Ann. Nat. Hist. x, p. 47.
Eurota tisamena, Brazil, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 227, n. sp.
Euschemon rafflesiæ, a separate family, MEYRICK, Tr. R. Soc. S. Austral. xxvi, p. 39.
Eusemia solicita, Borneo, SWINHOE, Ann. Nat. Hist. x, p. 495, n. sp.
Gogana placida, Borneo, SWINHOE, Tr. ent. Soc. London 1902, p. 591, n. sp.
Gonobombyx, characters, AURIVILLIUS, Ent. Tidskr. xxiii, p. 284.
Gonometa sjöstedti, imago, pl. iv, larva, pp. 282, 283, fig. 6, AURIVILLIUS, t. c.

Gonometa christyi, Nigeria, Sharpe, Entomologist 1902, p. 106, n. sp.
Gonoreta n. g. *Drepanulidæ*, for *G. ansorgei*, n. sp., Niger, WARREN, Nov. Zool. ix, p. 488.
Goodia kuntzei, pl. v, fig. 6, DISTANT, Ins. transvaal. p. 64.
Graellsia isabellæ, larva, habits, CHAPMAN, Ent. Rec. xiv, pp. 126–128.
Gynanisa maia, pl. vi, fig. 3, DISTANT, Ins. transvaal. p. 61.
Haploa; review of the species, DYAR, P. ent. Soc. Washington v, pp. 6–9.
Hemihyalea erganoides, Venezuela, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 232, n. sp.
Hemijana n. g. *Janinæ*, for *subrosea* Auriv., ♂ figured, pl. iii, fig. 3, AURIVILLIUS, Bih. Svenska Ak. xxvii, No. 7, p. 21.
Heniocha flavida, pl. iv, fig. 11, *dyops*, pl. iii, fig. 9, DISTANT, Ins. transvaal. p. 63.
Hepialus humuli var., ANNANDALE, Ent. Mag. xxxviii, p. 263; *H. hectus*, scent-organ, DEEGENER (310).
H. ombroloma, S. Australia, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 212.
Heterogynis paradoxa varr. n. *bejarensis*, *candelariæ*, *piedrahitæ*, larva, habits, CHAPMAN, Tr. ent. Soc. London 1902, pp. 717–729, pl. xxviii.
Hipocrita tineiformis, cf. *Agyrta collaris*.
Holcocerus mus, p. 198, Persia, *sacarum*, Transcaspian, p. 199, *zarudnyi*, p. 200, *drangianicus*, p. 201, Persia, GRUM-GRSHIMAILO, Annuaire Mus. St. Petersb. vii, n. spp.
Holoreta n. g. *Drepanulidæ* for part of *Cobanilla*, p. 340, with *H. rubicunda*, n. sp., Solomon Ids., p. 341, WARREN, Nov. Zool. ix.
Hoplojana n. g. *Janinæ* for *indecisa* Aur., etc., *H. tripunctata* Aur., ♂ figured, p. iv, fig. 4, AURIVILLIUS, Bih. Svenska Ak. xxvii, No. 7, p. 24.
Hyarias metarhoda, distinctions, SEMPER, Schmett. Philipp. ii, p. 709.
Hyphantria cunea, synonymy, variation, LYMAN, Rep. ent. Soc. Ontario xxxii, pp. 57–62.
Hypopta cæstrum var. n. *caucasica*, GRUM-GRSHIMAILO, Annuaire Mus. St. Petersb. vii, p. 202.
H. zoroastres, Persia, id., l. c., n. sp.
Idalus suanus, Venezuela, DRUCE, Ann. Nat. Hist. ix, p. 322, n. sp.
Ino duskei, Persia, p. 197, with var. *ærea*, p. 198, GRUM-GRSHIMAILO, Annuaire Mus. St. Petersb. vii, n. sp.
Jana gracilis ♂, fig. 1, *obscura* ♂, fig. 2, AURIVILLIUS, pl. iii, Bih. Svenska Ak. xxvii, No. 7, p. 24.
Janomima n. g. *Striphnopteryginæ*, p. 9, for *J. westwoodi*, n. sp., Africa, p. 10, AURIVILLIUS, Bih. Svenska Ak. xxvii, No. 7.
Lachneides, *Dimorphides*, *Attacides*, TUTT (1393).
Lachneis lanestris, irregular emergence, CHAPMAN, Ent. Rec. xiv, pp. 122–124.
Lælia ostracina, Queensland, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 181, n. sp.
Lebeda producta, cf. *Catalebeda*.
Leipoxais siccifolia, Cameroons, AURIVILLIUS, Ent. Tidskr. xxiii, p. 274, n. sp.
Lemonia pia, p. 143, pl. vi, fig. 17, *sacrosancta*, fig. 14, p. 144, Palestine, PÜNGELER, Deutsche ent. Zeitschr. Iris xv, n. spp.
Lethocephala eremospila, Queensland, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 219, n. sp.
Lichenopteryx despecta ♀, pl. v, fig. 1, AURIVILLIUS, Bih. Svenska Ak. xxvii, No. 7, p. 11.
Liparidæ; various notes on some British, LISTER, P. Cambridge Soc. xii, p. 16.
Lithosia deplana, variation and habits, BANKES, Ent. Mag. xxxviii, pp. 229, 230; note, PROUT, t. c., p. 263.
Ludia delegorguei, pl. v, fig. 8, DISTANT, Ins. transvaal. p. 54.

Mænas venosa, taxonomy queried, DUDGEON, J. Bombay Soc. xiv, p. 547.
Mallocampa n. g. for *Eutricha audea* Druce, larva, pl. 5, fig. 1, AURIVILLIUS, Ent. Tidskr. xxiii.
Marane rubricorpus, W. Australia, SWINHOE, Ann. Nat. Hist. ix, p. 420, n. sp.
Marmaroplegma paragarda, pl. vii, fig. 4, DISTANT, Ins. transvaal. p. 80.
Megathymus ursus, Arizona, POLING, Ent. News Philad. xiii, p. 97, pl. iv, n. sp.
Melanocera menippe, pl. v, fig. 10, DISTANT, Ins. transvaal. p. 59.
Mesolasia hampsoni, Venezuela, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 228, n. sp.
Metacrias strategica, life-history, QUAIL, Tr. N. Zealand Inst. xxxiv, pp. 227–232, pl. xiii.
Metareva flavescens, *albescens*, Tucuman, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 230, n. sp.
Mimeuplœa tristis, Borneo, JORDAN, p. 274, pl. xxi, fig. 12, P. Zool. Soc. London 1902, ii, n. sp.
Momopola cosmocalla, Queensland, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 220, n. sp.
Monoschalis mimetica, Queensland, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 200, n. sp.
Nagoda francesca, Java, SWINHOE, Ann. Nat. Hist. x, p. 47, n. sp.
Nearcha ophla, *alba*, W. Australia, SWINHOE, op. cit. ix, p. 79, n. spp.
Nemeophila metelkana, characters, life-history, AIGNER, Rov. Lapok ix, pp. 156 etc.; *N. metelkana*, early stages, AIGNER-ABAFI, Termes. Fuzetek xxv, pp. 417–435, pl. xviii.
Neritos sorex, Bolivia, DRUCE, Ann. Nat. Hist. ix, p. 323, n. sp.
Nishada melanistis, Borneo, SWINHOE, Ann. Nat. Hist. ix, p. 80, n. sp.
Nola crambiformis, Ural, REBEL, Deutsche ent. Zeitschr. Iris xv, p. 223; *N. tigranula*, Armenia, PÜNGELER, t. c. p. 141; *N. acutula*, Centr. Asia, PÜNGELER, t. c. p. 159, pl. vi, fig. 8, n. sp.
Nolinæ; revision of Indian completed, HAMPSON, J. Bombay Soc. xiv, pp. 103–117.
Norraca uncinata, pl. lxvi, fig. 18, p. 706, SEMPER, Schmett. Philipp. ii.
Notodonta angulosa, *georgica*, synonymy, LYMAN, Canad. Ent. xxxiv, p. 27 and GROTE, t. c. p. 76; *N. dryinopa*, emergence from pupa, DODD, Entomologist 1902, p. 193.
N. tiefi, Ural, BARTEL, Deutsche ent. Zeitschr. Iris xv, p. 196, n. sp.
Nudaurelia arabella, pl. iii, fig. 6, *cytherea*, pl. v, fig. 9, *wahlbergi*, fig. 2, *arata*, pl. vii, fig. 1, *belina*, pl. vi, fig. 4, DISTANT, Ins. transvaal. pp. 55–57.
Ocinara lewinæ, synonomy, described by Walker seven times in six genera and four families, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 184.
Opharus melas, Colombia, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 232, n. sp.
Oreta loochooana, Loochoo, p. 591, *rubromarginata*, Borneo, p. 592, SWINHOE, Tr. ent. Soc. London 1902, n. spp.
Orgyia splendida, life-history, CHAPMAN, Ent. Rec. xiv, pp. 41–45.
Orthocraspeda trima, metamorphosis, ZEHNTNER, Bull. Proefstat. Salatiga, No. 2, pp. 12–22, figg. 14–16.
Pachypasa, cf. *Taragama*.
P. (*Pachyna*) *marshalli*, Mashonaland, AURIVILLIUS, Ent. Tidskr. xxiii, p. 281, n. sp.
Parasa ostia, Khasia Hills, SWINHOE, Ann. Nat. Hist. x, p. 48; *P. corallina*, *atmodes*, p. 192, *lozogramma*, p. 193, Queensland, TURNER, Tr. R. Soc. S. Austral. xxvi : n. spp.
Phalacra tenera, *kerara*, Pulo Laut, SWINHOE, Tr. ent. Soc. London 1902, p. 592, n. spp.
Phalacrothyris smithi, Congo, WARREN, Nov. Zool. ix, p. 488, n. sp.

Phasienecus sigyna ♂, fig. 2, *preussi* ♂, fig. 3, pl. iv, AURIVILLIUS, Bih. Svenska Ak. xxvii, No. 7, p. 29.
Phiala bistrigata, Cape Colony, AURIVILLIUS, Bih. Svenska Ak. xxvii, No. 7, p. 16, n. sp.
Phanicoprocta chamboni, San Salvador, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 473, n. sp.
Phyllalia thunbergi ♂, pl. ii, fig. 1, AURIVILLIUS, Bih. Svenska Ak. xxvii, No. 7, p. 14.
Poloma nigromaculata ♂, pl. ii, fig. 2, AURIVILLIUS, t. c.
P. castanea, Natal, AURIVILLIUS, t. c. p. 12, n. sp.
Porthesia rebeli, Slivno, HABERHAUER, Soc. ent. xvii, p. 82; *P. euthysana*, p. 175, *panabra*, *galactopis*, p. 176, Australia, TURNER, Tr. R. Soc. S. Austral. xxvi : n. spp.
Pseudaphelia apollinaris, pl. v, fig. 7, DISTANT, Ins. transvaal. p. 62.
Pseudometa, characters, AURIVILLIUS, Ent. Tidskr. xxiii, p. 284.
Pseudomya ochreicentris, Ecuador, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 227, n. sp.
Pseudosterrha n. g. for *Sterrha oranaria* Luc., REBEL in Staudinger Cat. i, p. 373, and Verh. Ges. Wien lii, p. 569. Noctuidae
Psyche stettiniensis, *viadrina*, larval habits, NENTWIG, Mt. Ver. Troppau vi, pp. 235–241.
Psychophora, cf. *Geometridæ*.
Rabdosia clio, Natal, FAWCETT, P. Zool. Soc. London 1902, ii, p. 306, pl. xxvi, fig. 2, n. sp.
Rigema aurifodinæ, Transvaal, DISTANT, Entomologist 1902, p. 213, n. sp.
Rothschildia, characters, PACKARD, Psyche ix, pp. 322, 323.
Samia cynthia, notes on rearing, cocoons, HORNIG, Ent. News Philad. xiii, p. 132, pl. vi; *S. cecropia*, hermaphrodite, GROTE, P. Amer. Phil. Soc. xli, p. 405; *S. cynthia* and *Attacus promethea*, hybrids, SOULE, Psyche ix, p. 411.
Sarosa epona, Venezuela, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 226.
Saturniidæ; composition, PACKARD, Psyche ix, p. 321; of S. Africa, DISTANT, Ins. transvaal. pp. 49–64.
Saurita bicolor, Tucuman, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 227; *S. hamon*, Peru, DRUCE, Ann. Nat. Hist. ix, p. 322 : n. spp.
Schistissa n. g. *Striphnopteryginæ*, for *S. uniformis*, n. sp., Cape Colony, AURIVILLIUS, Bih. Svenska Ak. xxvii, No. 7, p. 8, pl. v, fig. 3.
Sciopsyche remissa, Venezuela, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 229, n. sp.
Setina irrorella var., FUCHS, Jahrb. nassau. Ver. lv, p. 70.
Sittina rhoda, W. Australia, SWINHOE, Ann. Nat. Hist. ix, p. 82, n. sp.
Sphingicampidæ, new family with groups *Citheroniinæ*, *Agliinæ*, *Urotinæ*, *Bunæinæ*, *Cyrtogoniinæ*, *Eudæmoniinæ*, PACKARD, Psyche ix, pp. 304–307.
Spiramiopsis referred to *Striphnopteryginæ*, AURIVILLIUS, Bih. Svenska Ak. xxvii, No. 7, p. 32.
Stauropus fagi, notes on larva, MERA, Tr. City London Soc. 1902, pp. 44–48; *S. fagi*, larval habits, SLEVOGT, Soc. ent. xvi, p. 185.
Streptopteras crenelata, Pulo Laut, SWINHOE, Tr. ent. Soc. London 1902, p. 590, n. sp.
Striphnopterygidæ defined with 2 subfamm. *Striphnopteryginæ* and *Janinæ*, AURIVILLIUS, Bih. Svenska Ak. xxvii, No. 7, pp. 3, 4.
Stygia ahngeri, Transcaspian, GRUM-GRSHIMAILO, Annuaire Mus. St. Petersb. vii, p. 203, n. sp.
Susica dochmosema, *miltocosma*, Queensland, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 191, n. sp.
Symphyta n. g. near *Eutometa*, for *S. psaropis*, *nyctopis*, n. spp., Queensland, TURNER, t. c. p. 187.

Syntomeida austera, Paraguay, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 228, n. sp.
Syntomis chroma = (*clementsi* and *annulata* Hamps.), SWINHOE, Ann. Nat. Hist. x, p. 49.
S. sala, Borneo, p. 77, *verecunda*, Jaintia Hills, *aureola*, Khasia Hills, p. 78, SWINHOE, op. cit. ix ; *S. amœnaria*, W. Australia, SWINHOE, op. cit. ix, p. 418 : n. spp.
Taragama lineatum and *imitans* referred to *Pachypasa*, AURIVILLIUS, Ent. Tidskr. xxiii, p. 280.
T. sjöstedti, p. 278, *camerunicum*, p. 279, Cameroons, AURIVILLIUS, t. c. n. spp.
Teldenia moniliata, Solomon Ids., WARREN, Nov. Zool. ix, p. 341, n. sp.
Telea polyphemus, cocoon, GROTE, P. Amer. Phil. Soc. xli, pp. 401–405.
Tetraphleps paroa, Brisbane, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 191, n. sp.
Thosea luxa, W. Australia, SWINHOE, Ann. Nat. Hist. ix, p. 165 ; *T. erecta*, W. Australia, SWINHOE, t. c. p. 418 ; *T. penthima*, Queensland, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 206 : n. spp.
Tissanga n. g. *Striphnopterygidæ*, for *Sangatissa pretoriæ* Dist., AURIVILLIUS in Distant, Ins. transvaal. p. 80 ; the insect figured pl. iii, fig. 8.
Trichophiala devylderi ♀, pl. iii, fig. 4, AURIVILLIUS, Bih. Svenska Ak. xxvii, No. 7, p. 14.
Triprocris smithsonianus, larva, DYAR, P. ent. Soc. Washington v, p. 33.
Trotothyris fragilis, Pulo Laut, SWINHOE, Tr. ent. Soc. London 1902, p. 591, n. sp.
Viana dimidiata ♂, pl. v, fig. 4, AURIVILLIUS, Bih. Svenska Ak. xxvii, No. 7, p. 32.
Xyleutes nephocosma, p. 201, *zophoplecta*, p. 202, Queensland, TURNER, Tr. R. Soc. S. Austral. xxvi, n. sp.
Zeuzera coffeæ, natural history, ZEHNTNER, Bull. Proefstat. Salatiga, No. 2, pp. 1–11, figg. 1–13.
Zygæna ; notes on varieties, some new, DZIURZYNSKI, Deutsche ent. Zeitschr. Iris xv, p. 338 ; *Z. carniolica* var. n. *ragonoti*, GIANELLI, Zool. Anz. xxv, p. 509 ; *Z. syracusæ*, characters, FUCHS, Jahrb. nassau. Ver. lv, p. 69.

NOCTUIDÆ.

[Cf. BARTEL (70), BIRD (109, 110), DISTANT (338), DOGNIN (346), DYAR (374, 377), FAWCETT (428), GROTE (557, 559), HAMPSON (576, 577), HOLLAND (610), HÖLTZERMANN (615), LOWER (830, 831), MEYRICK (907, 908, 911), OTTOLENGUI (990, 991), PÜNGELER (1098), REBEL (1107), SEMPER (1253), SMITH (1296, 1299–1301), SNELLEN (1311), SWINHOE (1344–1348), TURNER (1391).]

The types of *Noctua* L. and of other genera of *Noctuidæ* are discussed by GROTE, P. Amer. Phil. Soc. xli, pp. 4–20.
Criticism of generic nomenclature, European, with fixing of types, GROTE, Allg. Zeitschr. Ent. vii, pp. 395–400.
Noctuidæ ; revision of Indian, HAMPSON, J. Bombay Soc. xiv, pp. 198 etc.
The *Noctuidæ* of South Africa, HAMPSON, Ann. S. African Mus. ii, pp. 255–243.
Synonymy and taxonomy of numerous Australian species described by Lucas, TURNER, P. Linn. Soc. N. S. Wales xxvii, pp. 77–79.
Descriptions of larvæ of N. American, DYAR, P. U. S. Mus. xv, pp. 374–385.
Boring larvæ, brief note, BIRD (109).

Abrostola triopis, Natal, HAMPSON, Ann. S. African Mus. ii, p. 344, n. sp.

Acantholipes rufirena, S. Africa, HAMPSON, t. c. p. 367; *A. quadripuncta*, Palawan, SWINHOE, Ann. Nat. Hist. ix, p. 423; *A. toxica*, Brisbane, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 102 : n. spp.

Acanthonyx n. g. near *Homoptera*, for *marginalis* Walk., HAMPSON, Ann. S. African Mus. ii, p. 323.

Acontia gephyrias, Aden, MEYRICK, Ent. Mag. xxxviii, p. 175; *A. emboloscia*, Queensland, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 94; *A. niveicollis*, p. 51, California, *semiatra*, p. 52, Arizona, *tenuescens*, p. 53, Florida, SMITH, J. N. York Ent. Soc. x : n. spp.

Acrapex curvata, E. Africa, HAMPSON, Ann. S. African Mus. ii, p. 306; *A. exsanguis*, Queensland, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 655 : n. spp.

Acripia chloropera, Cape Colony, HAMPSON, Ann. S. African Mus. ii, p. 313; *A. semiviridis, poliopis*, Natal, id. p. 445, t. c. : n. spp.

Acronycta hamamelis, synonymical note, DYAR, P. ent. Soc. Washington v, p. 13.

Adisura straminea, N'Gamiland, HAMPSON, Ann. S. African Mus. ii, p. 258, n. sp.

Adrapsa editha, p. 502, *thermesia*, p. 503, Borneo, SWINHOE, Ann. Nat. Hist. x, n. spp.

Æthalina n. g., p. 107, *Noctuinæ*, for *Æ. asaphes*, n. sp., Queensland, p. 108, TURNER, P. Linn. Soc. N. S. Wales xxvii.

Agrotis comes varr., nomenclature, SPEISER, Berlin. ent. Zeitschr. 1902, p. 136; *A. xanthographa*, larva, UFFELN, Deutsche ent. Zeitschr. Iris xv, p. 316.

A. intolerabilis, Central Asia, PÜNGELER, Deutsche ent. Zeitschr. Iris xv, p. 147, pl. v, fig. 1; *A. deraiota*, Ceylon, HAMPSON, J. Bombay Soc. xiv, p. 198, pl. B, fig. 7; *A. atritegulata, bitriangula, isopleura*, p. 261, *oliveata, perirrorata, fumicolor*, p. 262, *mesomelana, puncticostata*, p. 263, *interstriata, strigibasis*, p. 264, S. Africa, HAMPSON, Ann. S. African Mus. ii; *A.? spilonata*, p. 641, *amaurodes, A. mniodes*, p. 642, *A.? paurogramma*, p. 643, Australia, LOWER, P. Linn. Soc. N. S. Wales xxvi; *A. hypochalcis*, Queensland, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 80 : n. spp.

Alapadna n. g. *Noctuinæ*, for *A. pauropis*, n. sp., Queensland, TURNER, t. c. p. 107.

Alelimma pallicostalis, Natal, HAMPSON, Ann. S. African Mus. ii, p. 439, n. sp.

Aleptina n. g. for *A. inca*, n. sp., Arizona, DYAR, Canad. Ent. xxxiv, p. 105.

Anachrostis aphanta, Brisbane, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 122, n. sp.

Ancara viridipicta, India, HAMPSON, J. Bombay Soc. xiv, p. 202, pl. B, fig. 6, n. sp.

Antiophlebia n. g. (Feld. not described) for *A. bracteata* Feld., HAMPSON, Ann. S. African Mus. ii, p. 351.

Anuga fida, p. 170, *juventa, fabrica*, p. 171, Perak, SWINHOE, Ann. Nat. Hist. ix, n. spp.

Aspidifrontia n. g. near *Mamestra*, for *A. semipallida*, p. 269, *rufescens*, p. 270, n. spp., Mashonaland, HAMPSON, Ann. S. African Mus. ii.

A. atavistis, Cape Colony, HAMPSON, t. c. p. 441, n. sp.

Asthala sphærula, Borneo, SWINHOE, Ann. Nat. Hist. x, p. 502, n. sp.

Audea subligata, Transvaal, DISTANT, Entomologist 1902, p. 212; *A. tegulata*, p. 325, *variegata, primulina*, p. 326, *tinctipennis, humeralis*, p. 327, *melanoplaga*, p. 328, *retracta, nigristia*, p. 329, S. Africa, HAMPSON, Ann. S. African Mus. ii : n. spp.

Anthadistus n. g. *Noctuinæ*, for *A. metaleuca*, n. sp., Mashonaland, HAMPSON, t. c. p. 361.

Autographa solida, Texas and Mexico, p. 64, pl. vi, fig. 5, *arctica*, Alaska,

p. 66, fig. 11, *rubidus*, Manitoba, p. 67, fig. 4, *alias*, pl. viii, figg. 7, 13, *altera*, fig. 9, Canada, p. 69, *zeta*, pl. vi, fig. 1, *variana*, fig. 10, p. 70, *pallida*, fig. 7, *excelsa*, fig. 3, p. 71, *v-alba*, fig. 2, *speciosa*, fig. 9, p. 73, *simplicima*, fig. 6, p. 74, *albavitta*, pl. viii, fig. 8, p. 75, N. America, OTTOLENGUI, J. N. York Ent. Soc. x, n. spp.

Avitta insignans, *pastea*, India, HAMPSON, J. Bombay Soc. xiv, p. 217, n. spp.

Axiocta n. g. *Noctuinæ*, p. 105, for *A. œnoplex*, n. sp., Queensland, p. 106, TURNER, P. Linn. Soc. N. S. Wales xxvii.

Axiorata n. g. near *Hyela*, p. 120, for *A. leucozona*, n. sp., Queensland, p. 121, TURNER, t. c.

Baniana hamifera, p. 401, *atripuncta*, *unipuncta*, p. 402, *flaviceps*, *pallidicosta*, p. 403, *parallela*, p. 404, S. Africa, HAMPSON, Ann. S. African Mus. ii, n. spp.

Bertula nigra, Pulo Laut, *invenusta*, Sumatra, SWINHOE, Ann. Nat. Hist. ix, p. 177, n. spp.

Blenina quadripuncta, Delagoa Bay, HAMPSON, Ann. S. African Mus. ii, p. 310; *B. metachrysa*, Queensland, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 89 : n. spp.

Bleptina inconspicua, p. 500, *erectilinea*, *carta*, *pulla*, p. 501, Borneo, SWINHOE, Ann. Nat. Hist. x, n. spp.

Brevipecten cornuta, Delagoa Bay, HAMPSON, Ann. S. African Mus. ii, p. 404, n. sp.

Bryomima n. g. near *Aræopteron*, for *B. clæodes*, p. 134, *ochlochlora*, p. 135, n. spp., Queensland, TURNER, P. Linn. Soc. N. S. Wales xxvii.

Bryophila ceratopyga, Centr. Asia, PÜNGELER, Deutsche ent. Zeitschr. Iris xv, p. 149, pl. v, fig. 16; *B. melanochlora*, p. 289, *melanoleuca*, p. 290, Natal, HAMPSON, Ann. S. African Mus. ii : n. spp.

Calesia canescens, Sikhim, HAMPSON, J. Bombay Soc. xiv, p. 215, n. sp.

Calliodes pallida, N'Gamiland, HAMPSON, Ann. S. African Mus. ii, p. 321, n. sp.

Callopistria nocturna, *harmonica*, p. 203, India, *cœlisigna*, Ceylon, p. 204, HAMPSON, J. Bombay Soc. xiv, n. spp.

Callyna nigerrima, p. 400, *cupricolor*, p. 401, Mashonaland, HAMPSON, Ann. S. African Mus. ii; *C. chalceola*, India, China, HAMPSON, J. Bombay Soc. xiv, p. 208 : n. spp.

Calocampa; figures of N. American, OTTOLENGUI, J. N. York Ent. Soc. x, pl. x.

C. brillians, Maine, OTTOLENGUI, t. c. p. 79, pl. x, fig. 3, n. sp.

Canthylidia mesoleuca, p. 640, *aleurota*, *anemodes*, p. 641, Australia, LOWER, P. Linn. Soc. N. S. Wales xxvi; *C. tenuistria*, Brisbane, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 79 : n. spp.

Capnodes purpurea, India, HAMPSON, J. Bombay Soc. xiv, p. 216; *C. pansa*, Perak, SWINHOE, Ann. Nat. Hist. ix, p. 175 : n. spp.

Caradrina respersa, larva, UFFELN, Deutsche ent. Zeitschr. Iris xv, p. 317.

C. cupricolor, p. 299, *micra*, *rufipuncta*, p. 300, *microtera*, *tenebrata*, p. 301, *satellitia*, *albirena*, p. 302, *atrirena*, *glauca*, p. 304, *xanthologha*, *smintha*, p. 305, S. Africa, HAMPSON, Ann. S. African Mus. ii; *C. leucopis*, *glaucistis*, Basutoland, id. t. c. p. 443; *C. discophora*, *tenebrosa*, India, HAMPSON, J. Bombay Soc. xiv, p. 204; *C. cæca*, W. Australia, SWINHOE, Ann. Nat. Hist. ix, p. 421; *C. atmoscopa*, *C.* ? *ochroleuca*, p. 223, *pelostieta*, *lichenophora*, p. 224, *callichroa*, p. 225, *melanops*, p. 226, Australia, LOWER, Tr. R. Soc. S. Austral. xxvi; *C. microspila*, p. 648, *microdes*, *etoniana*, p. 649, *paraggypsa*, *chrysospila*, p. 650, *oxygona*, *maculatra*, p. 651, *monochroa*, *porphyrescens*, p. 652, *atrisquamata*, *euchroa*, p. 653, *adelphodes*, *crypsicharis*, p. 654, *paratorna*, p. 655, Australia, LOWER, P. Linn. Soc. N. S. Wales xxvi; *C. chro-*

moneura, Tasmania, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 86 : n. spp.
Carea xanthia, Sikhim, HAMPSON, J. Bombay Soc. xiv, p. 213, n. sp.
Carneades infusa, Manitoba, SMITH, Canad. Ent. xxxiv, p. 30; *C. fusimacula*, California, SMITH, t. c. p. 125 : n. spp.
Catada atrata, Perak, SWINHOE, Ann. Nat. Hist. ix, p. 179, n. sp.
Catephia dulcistriga, cf. *Ecpatia*.
C. natalensis, p. 355, *striata*, p. 356, *virescens*, *bipuncta*, p. 357, S. Africa, HAMPSON, Ann. S. African Mus. ii; *C. runa*, Labuan, SWINHOE, Ann. Nat. Hist. ix, p. 174 : n. spp.
Catocala; notes on N. American, FRENCH, Canad. Ent. xxxiv, pp. 95–98; *C. puerpera*, larva, habits, JULLIEN, Soc. ent. xvii, p. 97.
Celæna calcirena, Centr. Asia, PÜNGELER, Deutsche ent. Zeitschr. Iris xv, p. 150, pl. v, fig. 11, n. sp.
Centropus, cf. *Scythocentropus*.
Cercobara longipennis, Java, SWINHOE, Ann. Nat. Hist. ix, p. 86, n. sp.
Cerynea xenia, *cithara*, p. 169, *jugosa*, p. 170, Perak, SWINHOE, t. c., n. spp.
Chaographis n. g. for *C. crystallodes*, n. sp., Queensland, MEYRICK, Tr. ent. Soc. London 1902, p. 42.
Chalciope pretoriæ, Transvaal, DISTANT, Entomologist 1902, p. 212; *C. carnicolor*, p. 329, *calida*, p. 331, *erecta*, p. 333, *rivulata*, *metaxantha*, p. 334, *harmonica*, p. 335, S. Africa, HAMPSON, Ann. S. African Mus. ii : n. spp.
Charidea vinosa, *divisa*, p. 292, *cauta*, *leucopis*, p. 293, S. Africa, HAMPSON, t. c.; *C. caeca*, Natal, id. t. c. p. 442 : n. spp.
Chusaris, *semialba*, *nigrisigna*, Sikhim, HAMPSON, J. Bombay Soc. xiv, p. 218, n. spp.
Cnodifrontia n. g. *Erastrianæ*, for *dissimilis* Dist., HAMPSON, Ann. S. African Mus. ii, p. 375.
Conicofrontia n. g. *Caradrininæ*, for *C. sesamoides*, n. sp., Cape Colony, HAMPSON, t. c. p. 296.
Conservula pulcherrima, Mashonaland, HAMPSON, t. c. p. 295, n. sp.
Corgatha producta, Natal, HAMPSON, t. c. p. 405; *C. olivata*, Sikhim, HAMPSON, J. Bombay Soc. xiv, p. 208; *C. dichionistis*, *dipyra*, Queensland, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 113 : n. spp.
Corrha pandesma, S. Australia, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 656, n. sp.
Corula octogesima, p. 97, *dispila*, *metableta*, p. 98, *mesospila*, p. 99, *stenophylla*, *eremna*, p. 100, *abebæa*, p. 101, Queensland, TURNER, P. Linn. Soc. N. S. Wales xxvii, n. spp.
Cosmia abluta var. n. *arenaria*, BARTEL, Deutsche ent. Zeitschr. Iris xv, p. 210; *C. punctirena*, larva, COQUILLETT, J. N. York Ent. Soc. x, p. 169.
Cosmophila psamathodes, Queensland, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 108, n. sp.
Crimona n. g. for *C. pallimedia*, n. sp., California, SMITH, J. N. York Ent. Soc. x, p. 49.
Crioa nycterina, p. 95, *leptochroma*, p. 96, Queensland, TURNER, P. Linn. Soc. N. S. Wales xxvii, n. spp.
Crypsiprora n. g. near *Prorocopis*, p. 29, for *C. ophiodesma*, n. sp., W. Australia, p. 30, MEYRICK, Tr. ent. Soc. London 1902.
Cucullia poliochiza, Tibet, HAMPSON, J. Bombay Soc. xiv, p. 202, pl. B, fig. 27; *C. hutchinsoni*, p. 276, *chrysota*, *brunnea*, p. 277, S. Africa, HAMPSON, Ann. S. African Mus. ii : n. spp.
Cyathissa pallida, California, SMITH, J. N. York Ent. Soc. x, p. 35, n. sp.
Cymatophora, see *Geometridæ*.
Dahlia capnobela, Brisbane, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 102, n. sp.

Daxata lilacina Butl., referred to *Erastria*, SWINHOE, Ann. Nat. Hist. ix, p. 168.

Dendrothripa mackwoodi, Ceylon, HAMPSON, J. Bombay Soc. xiv, p. 211; *D. clopæa*, p. 92, *bæota*, p. 93, Australia, TURNER, P. Linn. Soc. N. S. Wales xxvii : n. spp.

Dermaleipa daseia, Natal, FAWCETT, P. Zool. Soc. London 1902, ii, p. 307, pl. xxvi, fig. 1, n. sp.

Dinumma inangulata, India, HAMPSON, J. Bombay Soc. xiv, p. 208, n. sp.

Diomea livida, Simla, HAMPSON, t. c. p. 216; *D. eupsema*, Perak, SWINHOE, Ann. Nat. Hist. ix, p. 85 : n. spp.

Diparopsis n. g. *Caradrininæ*, for *D. castanea*, n. sp., Delagoa Bay, HAMPSON, Ann. S. African Mus. ii, p. 294.

Disticta n. g. *Hypeninæ*, for *atava* Feld., HAMPSON, t. c. p. 424.

Dnopheropis n. g. *Noctuinae*, p. 103, for *D. scotœa*, n. sp., Brisbane, p. 104, TURNER, P. Linn. Soc. N. S. Wales xxvii.

Dyschorista fissipuncta var. n. *orenburgensis*, BARTEL, Deutsche ent. Zeitschr. Iris xv, p. 211.

Dysmilichia n. n. for *Milichia* Sn., SPEISER, Berlin. ent. Zeitschr. 1902, p. 140.

Dyspessa cossoides, pl. vi, figg. 12, 13, p. 160, PÜNGELER, Deutsche ent. Zeitschr. Iris xv.

Earias ochrophylla, Victoria, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 108, n. sp.

E. limonia, *chlorodes*, Australia, MEYRICK, Tr. ent. Soc. London 1902, p. 44, n. spp.

Eccleta n. g. near *Caradrina*, p. 86, for *E. xuthophanes*, n. sp., Queensland, p. 87, TURNER, P. Linn. Soc. N. S. Wales xxvii.

Ecpatia n. g. for *Catephia dulcistriga* Walk., TURNER, t. c. p. 85.

Ectochela n. g. for *canina* Feld., HAMPSON, Ann. S. African Mus. ii, p. 279.

Ectolopha n. g. near *Megalodes*, p. 382, for *E. viridescens*, n. sp., p. 383, S. Africa, HAMPSON, t. c.

Elusa œnolopha, Brisbane, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 84, n. sp.

Entelia [?*Eutelia*] *moneida*, Queensland, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 659, n. sp.

Eosphoropteryx n. g. for *Plusia thyatiroides*, DYAR, J. N. York Ent. Soc. x, p. 80.

Episparis leucotessellis, Delagoa Bay, HAMPSON, Ann. S. African Mus. ii, p. 424; *E. jacquelina*, Perak, SWINHOE, Ann. Nat. Hist. ix, p. 174 : n. spp.

Epitripta n. g. near *Falcimala*, for *E. acosmopis*, n. sp., Australia, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 123.

Eporectis n. g. for *E. phenax*, n. sp., Queensland, MEYRICK, Tr. ent. Soc. London 1902, p. 30.

Erastria, cf. *Daxata*.

E. binorbis, Cape Colony, HAMPSON, Ann. S. African Mus. ii, p. 379; *E. dorata*, Ceylon, *niveigutta*, India, HAMPSON, J. Bombay Soc. xiv, p. 205: *E. bryistis*, Queensland, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 109 : n. spp.

Erastroides lichnomima, Brisbane, TURNER, t. c. p. 110, n. sp.

Ercheia multilinea, Perak, SWINHOE, Ann. Nat. Hist. ix, p. 84, n. sp.

Eremochroa paradesma, S. Australia, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 645, n. sp.

Erizada sericealis, *verna*, S. Africa, HAMPSON, Ann. S. African Mus. ii, p. 318; *E. viridifascia*, Perak, SWINHOE, Ann. Nat. Hist. ix, p. 172 : n. spp.

Essonistis n. g. for *E. micrœola*, n. sp., Queensland, MEYRICK, Tr. ent. Soc. London 1902, p. 36.

Esthlodora n. g. *Hypeninæ*, for *E. versicolor*, n. sp., Brisbane, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 130.

Eublemma punctilinea, p. 416, *flavida*, *bipartita*, p. 419, *leucomelana*, *plagiopera*, p. 420, *nigrivitta*, p. 421, *flaviceps*, *penicillata*, *uninotata*, p. 422, HAMPSON, Ann. S. African Mus. ii; *E. bilineata*, Simla, *vinotincta*, p. 206, *subangulata*, pl. B, fig. 5, Ceylon, *rubricilla*, India, Singapore, *rubra*, India, Singapore, Java, *semirufa*, India, New Guinea, p. 207, HAMPSON, J. Bombay Soc. xiv; *E. hemiplaca*, p. 32, *nymphodora*, *mormaropa*, p. 33, Australia, *iothicta*, New Guinea, p. 34, MEYRICK, Tr. ent. Soc. London 1902; *E. glaucochroa*, *sphragidota*, p. 116, *eurynipha*, *rufipuncta*, p. 117, *lozostropha*, p. 118, Australia, TURNER, P. Linn. Soc. N. S. Wales xxvii : n. spp.

Eublemmistis n. g. near *Metacrostis*, for *E. chlorozonea*, n. sp., Natal, HAMPSON, Ann. S. African Mus. ii, p. 406.

Eucalyptera strigata, Texas, SMITH, J. N. York Ent. Soc. x, p. 46, n. sp.

Euplexia melanoleuca, p. 284, *melanobasis*, p. 285, S. Africa, HAMPSON, Ann. S. African Mus. ii; *E. oxydata*, Sikhim, *purpurina*, Tibet, p. 199, *mesomelana*, *chlorogrammata*, p. 200, N. India, HAMPSON, J. Bombay Soc. xiv; *E. callisina*, p. 81, *leucostigma*, p. 82, *polycmeta*, p. 83, Australia, TURNER, P. Linn. Soc. N. S. Wales xxvii : n. spp.

Eurhipia fasciatrix, Philippines, pl. lxvi, fig. 20, p. 711, SEMPER, Schmett. Philipp. ii, n. sp.

Eutelia apifascia Hamps. referred to *Targalla*, SWINHOE, Ann. Nat. Hist. x, p. 496.

E. rivata, p. 307, *polychorda*, p. 308, *symphonica*, p. 309, S. Africa, HAMPSON, Ann. S. African Mus. ii; *E. albiapicata*, Natal, id. p. 444, t. c.; *E. diapera*, Bhutan, HAMPSON, J. Bombay Soc. xiv, p. 210; *E. catephiformis*, India, *pictatrix*, Ceylon, HAMPSON, t. c. p. 212; *E. oxylopha*, Brisbane, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 88; cf. also *Entelia* : n. spp.

Euthisanotia timais, larva, DYAR, J. N. York Ent. Soc. x, p. 125.

Euthyatira pudens var. n. *pennsylvanica*, SMITH, J. N. York Ent. Soc. x, p. 34.

Euxoa (*Agrotis*) *canariensis*, Canary Islands, REBEL, Ann. Hofmus. Wien xvii, Notizen p. 59, n. sp.

Feltia subgothica variation, SMITH, J. N. York Ent. Soc. x, p. 36.

F. edentata, Washington, id., p. 38, t. c., n. sp.

Fenaria sevorsa Gr. = (*Diamuna ædessa* Dr.), GROTE, Canad. Ent. xxxiv, p. 122.

Fodina embolophora, Delagoa Bay, HAMPSON, Ann. S. African Mus. ii, p. 364, n. sp.

Gortyna ærata, *niteta*, synonymy, GROTE, Canad. Ent. xxxiv, p. 75.

Grammodes schematica, Aden, MEYRICK, Ent. Mag. xxxviii, p. 175; *G. emathion*, *crestonion*, p. 90, Celebes, *imminua*, Wetter, p. 91, SNELLEN, Tijdschr. Ent. xlv; *G. hoplitis*, Queensland, MEYRICK, Tr. ent. Soc. London 1902, p. 28; *G. arenosa*, W. Australia, SWINHOE, Ann. Nat. Hist. ix, p. 422 : n. spp.

Gyrtona cristipennis, India, HAMPSON, J. Bombay Soc. xiv, p. 213; *G. tripartita*, Perak, SWINHOE, Ann. Nat. Hist. ix, p. 84 : n. spp.

Hadena maillardi var. n. *vicaria*, PÜNGELER, Deutsche ent. Zeitschr. Iris xv, p. 152, pl. v, fig. 22; *H. adusta*, *virgata*, synonymy, SLEVOGT, Soc. ent. xvii, p. 89, KUZNEZOW, t. c. p. 113; *H. miseloides* var. n. *miscellus*, SMITH, J. N. York Ent. Soc. x, p. 40.

H. dolia, Centr. Asia, PÜNGELER, Deutsche ent. Zeitschr. Iris xv, p. 151, pl. v, figg. 20, 21; *H. axylides*, India, HAMPSON, J. Bombay Soc. xiv, p. 198; *H. trichroma*, p. 26, *iorrhoa*, *andrias*, p. 27, Australia, MEYRICK, Tr. ent. Soc. London 1902; *H. macerata*, p. 40, *unicincta*, p. 41, N. America, SMITH, J. N. York Ent. Soc. x : n. spp.

Haplopseustis n. g. for *H. erythrias*, n. sp., N. Australia, MEYRICK, Tr. ent. Soc. London 1902, p. 34.

Heliophobus perrubra, p. 279, *fumea*, p. 280, S. Africa, HAMPSON, Ann. S. African Mus. ii, n. spp.

Heliothis eodora, *neurias*, Australia, MEYRICK, Tr. ent. Soc. London 1902, p. 26, n. spp.

Helotropha obtusa, N. America, SMITH, J. N. York Ent. Soc. x, p. 45, n. sp.

Hepsidera n. g. *Focillidæ*, for *H. lignea*, n. sp., Perak, SWINHOE, Ann. Nat. Hist. ix, p. 176.

Heteronota n. g. p. 47, *Sarrothripidæ*, for *H. ochthias*, n. sp., New Guinea, p. 48, MEYRICK, Tr. ent. Soc. London 1902.

Himerois n. g. near *Pachylepis*, for *H. thiochroa*, n. sp., Queensland, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 121.

Homodes erizesta, Queensland, TURNER, t. c. p. 110, n. sp.

Homoptera atrifusa, N'Gamiland, HAMPSON, Ann. S. African Mus. ii, p. 324, n. sp.

Hopetounia n. g. *Polydesminæ*, for *H. carda*, n. sp., W. Australia, SWINHOE, Ann. Nat. Hist. ix, p. 173.

Hyblæa canisigna, Borneo, SWINHOE, t. c. p. 83; *H. ibidias*, p. 135, *synæma*, p. 136, Queensland, TURNER, P. Linn. Soc. N. S. Wales xxvii : n. spp.

Hydrœcia nelita, synonymy, LYMAN, Canad. Ent. xxxiv, p. 274; *H. americana* or *atlantica* ?, SMITH, Canad. Ent. xxxiv, p. 32.

H. baptisiæ, p. 109, *insulidens*, p. 112, *duovata*, p. 115, N. America (figured with others on pl. iii), BIRD, Canad. Ent. xxxiv, n. spp.

Hyela tristigmatias, p. 392, *albifissa*, *albibasis*, p. 393, S. Africa, HAMPSON, Ann. S. African Mus. ii; *H. argotypa*, p. 111, *thapsina*, p. 112, Queensland, TURNER, P. Linn. Soc N. S. Wales xxvii : n. spp.

Hypena polycyma, p. 429, *megaproctis*, *mesomelœna*, p. 430, *holophæa*, *potamistis*, p. 431, *melanistis*, *ectoglauca*, p. 432, S. Africa, HAMPSON, Ann. S. African Mus. ii; *H. umbria*, Ceylon, HAMPSON, J. Bombay Soc. xiv, p. 218; *H. finga*, Lombok, *doda*, Perak, p. 180, *nuta*, Lombok, p. 181, SWINHOE, Ann. Nat. Hist. ix : n. spp.

Hypenodes porphyritica, p. 40, *micropa*, p. 41, Australia, MEYRICK, Tr. ent. Soc. London 1902, n. spp.

Hyperlopha aridela, Queensland, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 103, n. sp.

Hypothripa verna, Sikhim, HAMPSON, J. Bombay Soc. xiv, p. 211; *H. vallata*, Queensland, MEYRICK, Tr. ent. Soc. London 1902, p. 47 : n. spp.

Hyppa brunneicrista, Calgary, SMITH, Canad. Ent. xxxiv, p. 31, n. sp.

Hyptioxesta, note on, REBEL, Verh. Ges. Wien lii, p. 568.

Icasma n. g. near *Hypothripa*, p. 90, for *I. minutum*, n. sp., Queensland, p. 91, TURNER, P. Linn. Soc. N. S. Wales xxvii.

Ingura cyanodes, Queensland, TURNER, t. c. p. 87, n. sp.

Ischyja anna, *recta*, Borneo, p. 497, *ebusa*, Solomon Islands, *dispar*, Lombok, *inferna*, Borneo, p. 498, SWINHOE, Ann. Nat. Hist. x, n. spp.

Labanda bryochlora, Natal, HAMPSON, Ann. S. African Mus. ii, p. 352, n. sp.

Leiorhynx n. g. *Hypeninæ*, for *L. argentisfascia*, n. sp., N'Gamiland, HAMPSON, t. c. p. 436.

Leucania; SMITH revises the N. American spp. with the following new, P. U. S. Mus. xxv, pp. 159–209, pls. v, vi; *L. moorei* n. n. for *abdominalis* Moore, SWINHOE, Ann. Nat. Hist. x, p. 50.

L. deserticola, Ural, BARTEL, Deutsche ent. Zeitschr. Iris xv, p. 204; *L. interciliata*, *sarca*, p. 272, *rhabdophora*, p. 273, *usta*, *nigrisparsa*, *nebulosa*, p. 274, *atrimacula*, *phœa*, p. 275, S. Africa, HAMPSON, Ann.

S. African Mus. ii ; *L. præclara*, W. Australia, SWINHOE, Ann. Nat. Hist. ix, p. 422 ; *L. leucosta*, *eutherma*, S. Australia, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 644 ; *L. polysticha*, p. 80, *melanopasta*, p. 81, Brisbane, TURNER, P. Linn. Soc. N. S. Wales xxvii ; *L. lutina*, p. 176, *luteopallens*, p. 180, *rubripallens*, p. 182, *obscurior*, p. 185, *limitata*, *tetera*, p. 187, *neptis*, p. 188, *megadia*, p. 191, *anteroclara*, p. 200, *calgariana*, p. 201, *oregona*, p. 202, *palliseca*, p. 203, N. America, SMITH, P. U. S. Mus. xxv : n. spp.

Leucanitis rada, *roda*, distinguished, KIRBY, Butt. moths Europe, p. 280.

Lophotarsia n. g. near *Caradrina*, for *L. ochroprocta*, n. sp., Natal, HAMPSON, Ann. S. African Mus. ii, p. 299.

Lophotoma n. g. near *Marapana*, p. 128, for *L. diagrapha*, *metabula*, n. spp., Queensland, p. 129, TURNER, P. Linn. Soc. N. S. Wales xxvii.

Luperina trigona, Tennessee, SMITH, J. N. York Ent. Soc. x, p. 39, n. sp.

Maliattha plumbitincta, Tibet, HAMPSON, J. Bombay Soc. xiv, p. 205 ; *M. varicolora*, Natal, HAMPSON, Ann. S. African Mus. ii, p. 377 : n. spp.

Mamestra glauca var. n. *paupercula*, PÜNGELER, Deutsche ent. Zeitschr. Iris xv, p. 148, pl. v, fig. 6 ; *M. simplex*, pl. v, fig. 10, *M. armata* var. *hoplites*, fig. 7, p. 159, PÜNGELER, t. c. ; *M. atalantica*, life-history, FLETCHER & GIBSON, Canad. Ent. xxxiv, pp. 279–284.

M. demotica, p. 148, pl. v, figg. 8, 9, *bifida*, p. 149, fig. 3, Central Asia, PÜNGELER, Deutsche ent. Zeitschr. Iris xv ; *M. vittigera*, p. 266, *mesoglauca*, *dipterigidia*, p. 267, *furvilinea*, *poliastis*, p. 268, S. Africa, HAMPSON, Ann. S. African Mus. ii ; *M. dictyota*, Melbourne, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 643 ; *M. circumvadis*, *vau-orbicularis*, N. America, SMITH, J. N. York Ent. Soc. x, p. 42 : n. spp.

Marapana nycteropis, Brisbane, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 128, n. sp.

Matopo nigrivittata, Mashonaland, HAMPSON, Ann. S. African Mus. ii, p. 291, n. sp.

Maurilia patricula, Africa, HAMPSON, t. c. p. 314 ; *M. iocephala*, Queensland, TURNER, p. 94, P. Linn. Soc. N. S. Wales xxvii : n. sp.

Mecodina furcifera, Natal, HAMPSON, Ann. S. African Mus. ii, p. 363 ; *M. cyanodonta*, India, HAMPSON, J. Bombay Soc. xiv, p. 215 : n. spp.

Megalodes bucephalida, *galactiplaga*, p. 381, *similis*, p. 382, S. Africa, HAMPSON, Ann. S. African Mus. ii ; *M. pura*, W. Australia, SWINHOE, Ann. Nat. Hist. ix, p. 82 ; *M. radiata*, *lucala*, *tusa*, W. Australia, SWINHOE, t. c. p. 168 : n. spp.

Melanchra mutans, early stages, QUAIL, Tr. N. Zealand Inst. xxxiv, pp. 232–235, pl. xiii, figg. 1–7.

M. bromias, Chatham Islands, MEYRICK, Tr. ent. Soc. London 1902, p. 273, n. sp.

Melioptis juba, W. Australia, SWINHOE, Ann. Nat. Hist. ix, p. 174, n. sp.

Meranda holochrysa, Port Darwin, MEYRICK, Tr. ent. Soc. London 1902, p. 35, n. sp.

Mesogenea n. g. *Noctuinæ*, p. 363, for *M. varians*, *vinacea*, n. spp., Mashonaland, p. 364, HAMPSON, Ann. S. African Mus. ii.

Metachrostis orthozona, *cryptochrysea*, p. 409, *heliastis*, p. 410, *flavinia*, *bolinia*, *nigroviridis*, p. 411, *semipurpurea*, p. 412, *consanguis*, *bipartita*, p. 413, *inobtrusa*, *phæa*, p. 414, *tritonia*, *rubripuncta*, p. 415, S. Africa, HAMPSON, Ann. S. African Mus. ii ; *M. epichroma*, *camptozona*, Brisbane, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 114 : n. spp.

Methorasa manta, Perak, SWINHOE, Ann. Nat. Hist. ix, p. 173, n. sp.

Metopiora n. g. near *Leucania*, for *Charielea sanguinata* Lucas, MEYRICK, Tr. ent. Soc. London 1902, p. 25.

Milichia cf. *Dysmilichia*.

Micraeschus pyrrhantha, Sydney, MEYRICK, Tr. ent. Soc. London 1902, p. 31 ; *M. diacaustus*, Queensland, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 115 : n. spp.

Mionides n. g. *Caradrininæ*, for *M. lichenea*, n. sp., Natal, HAMPSON, Ann. S. African Mus. ii, p. 281.

Molopa n. g. *Gonopteridæ*, p. 420, for *M. planalis*, n. sp., W. Australia, p. 421, SWINHOE, Ann. Nat. Hist. ix.

Musgravia leighi, early stages, LEIGH, pp. xxviii–xxxi, P. ent. Soc. London 1902.

Naarda leucopis, *xanthopis*, p. 435, *melanomma*, p. 436, S. Africa, HAMPSON, Ann. S. African Mus. ii, n. spp.

Namangana contumax, Centr. Asia, PÜNGELER, Deutsche ent. Zeitschr. Iris xv, p. 151, pl. v, fig. 17, n. sp.

Neleucania n. g., p. 203, with *N. niveicosta*, p. 205, *citronella*, p. 206, n. spp., N. America, and including *Helophila bicolorata* Grote, etc., SMITH, P. U. S. Mus. xxv.

Neaxestis n. g. near *Acontia*, for *N. acutangula*, *griseata*, n. spp., S. Africa, HAMPSON, Ann. S. African Mus. ii, p. 316.

Neochrostis n. g. near *Metachrostis*, p. 406, for *N. diplogramma*, n. sp., Transvaal, p. 407, HAMPSON, t. c.

Netrocerocora n. g. near *Rusina*, p. 207, for *N. quadriplaga*, n. sp., Ural, p. 208, BARTEL, Deutsche ent. Zeitschr. Iris xv.

Nicevillea epiplemoides ♂, SWINHOE, Ann. Nat. Hist. ix, p. 86.

Noctua rubi, aberrations, WALKER, Ent. Rec. xiv, pp. 171–173.

N. spreta, Florida, SMITH, J. N. York Ent. Soc. x, p. 36, n. sp.

Nodaria perarcuata, *melaleuca*, p. 437, *luctuosa*, p. 438, Natal, HAMPSON, Ann. S. African Mus. ii ; *N. kona*, Perak, SWINHOE, Ann. Nat. Hist. ix, p. 179 ; *N. ctenucha*, p. 124, *acrosema*, p. 125, Queensland, TURNER, P. Linn. Soc. N. S. Wales xxvii : n. spp.

Nonagria sparganii, oviposition, JEFFREY, Ent. Mag. xxxviii, p. 67.

Octhophora n. g. *Sarrothripinæ*, p. 89, for *O. sericina*, n. sp., Queensland, p. 90, TURNER, P. Linn. Soc. N. S. Wales xxvii.

Œdebasis n. g. *Noctuinæ*, for *Œ. ovipennis*, n. sp., Delagoa Bay, HAMPSON, Ann. S. African Mus. ii, p. 352.

Œderastria n. g. *Erastrianæ*, for *Œ. ectorhoda*, n. sp., Mashonaland, HAMPSON, t. c. p. 375.

Oncocnemis balteata, p. 43, *regina*, p. 44, N. America, SMITH, J. N. York Ent. Soc. x, n. spp.

Ophideres hypermnestra, larva, HAMPSON, J. Bombay Soc. xiv, p. 214.

Ophiusa nocturnia, p. 338, *proxima*, p. 339, *bryoxantha*, p. 340, *erectata*, *palumbioides*, p. 341, *ignicans*, *umbrilinea*, p. 342, S. Africa, HAMPSON, Ann. S. African Mus. ii ; *O. violascens*, Natal, HAMPSON, p. 446, t. c. ; *O. trophidota*, Brisbane, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 95 : n. spp.

Oruza xanthoptera, India, HAMPSON, J. Bombay Soc. xiv, p. 208 ; *O. leptogramma*, Queensland, MEYRICK, Tr. ent. Soc. London 1902, p. 36 : n. spp.

Oxænanus hieroglyphica, Perak, SWINHOE, Ann. Nat. Hist. ix, p. 178 ; *O. marmorea*, SWINHOE, op. cit. x, p. 503, n. sp.

Oxycnemis fusimacula, Arizona, SMITH, J. N. York Ent. Soc. x, p. 50, n. sp.

Oxyodes billeti, characters, p. 345, pl. xvii, fig. 4, JOANNIS, Bull. Sci. France Belgique xxxv.

Ozarba alopecodes, Queensland, MEYRICK, Tr. ent. Soc. London 1902, p. 35, n. sp.

Pachylepis roseata, Simla, HAMPSON, J. Bombay Soc. xiv, p. 206, n. sp.

Palindia merricki, Pennsylvania, HOLLAND, Ent. News Philad. xiii, p. 172, n. sp.

Pancra n. g. *Deltoidinæ*, p. 177, for *P. sordida*, n. sp., Lombok, p. 178, SWINHOE, Ann. Nat. Hist. ix.

Panilla cautophanes, Brisbane, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 122, n. sp.

Paonidia n. g., p. 38, for *P. pentaptila*, n. sp., Richmond River, p. 39, MEYRICK, Tr. ent. Soc. London 1902.

Parathermes n. g. type *nigriceps* Walk., p. 368, with *P. digoniata*, n. sp., Natal, p. 369, HAMPSON, Ann. S. African Mus. ii.

Paratuerta n. g. *Caradrininæ* for *P. marshalli*, n. sp., Mashonaland, HAMPSON, t. c. p. 282.

Paraxestis n. g. near *Acontia*, for *P. rufescens*, n. sp., Natal, HAMPSON, t. c. p. 317.

Pardasena punctata, Natal, HAMPSON, p. 444, t. c., n. sp.

Paroruza n. g. for *subductata* Walk., HAMPSON, t. c. p. 406.

Pasipeda brandolina, Cape York, SWINHOE, Ann. Nat. Hist. ix, p. 175, n. sp.

Paurophylla n. g. near *Catada*, for *P. aleuropasta*, n. sp., Queensland, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 124.

Perciana torsivena, *lichenosa*, S. Africa, HAMPSON, Ann. S. African Mus. ii, p. 376, n. spp.

Peridroma canities, Buenos Ayres, GROTE, Canad. Ent. xxxiv, p. 295, n. sp.

Platysenta albipuncta, Texas, SMITH, J. N. York Ent. Soc. x, p. 46, n. sp.

Pleonectopoda cleiducha, Ecuador, DOGNIN, Naturaliste xxiv, p. 121, n. sp.

Plotheia polyhymnia, Natal, HAMPSON, Ann. S. African Mus. ii, p. 311; *P. virescens*, Sikhim, HAMPSON, J. Bombay Soc. xiv, p. 210, pl. B, fig. 25; *P. rhythmopis*, Brisbane, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 91 : n. spp.

Plusia and allies; revision of N. American with synonymical list and numerous figures, OTTOLENGUI, J. N. York Ent. Soc. x, pp. 57–77, pls. vi–ix; the subdivisions, cf. *Eosphoropteryx*, DYAR, J. N. York Ent. Soc. x, pp. 79–82; *P. chrysitis* varr., nomenclature, SPEISER, Berlin. ent. Zeitschr. 1902, pp. 137–140; *P. brassicæ*, early stages, natural history, CHITTENDEN, Bull. U. S. Dep. Agric. Ent. No. 33, pp. 60–69, cuts.

P. bellieri, Basses Alpes, KIRBY, Butt. moths Europe, p. 269, n. sp.; *P. chalcedona*, p. 346, *geminipuncta*, *lavendula*, p. 347, S. Africa, HAMPSON, Ann. S. African Mus. ii : n. spp.

Plusiodonta nictites, Cape Colony, HAMPSON, Ann. S. African Mus. ii, p. 371, n. sp.

Podagra n. g. for *P. crassipes*, n. sp., Arizona, SMITH, J. N. York Ent. Soc. x, p. 48.

Polia dubia var. n. *rondoui*, STERTZ, Deutsche ent. Zeitschr. Iris xv, p. 180, pl. vi, fig. 25.

P. miltina, p. 152, pl. v, fig. 25, *hæretica*, fig. 12, p. 153, Centr. Asia, PÜNGELER, Deutsche ent. Zeitschr. Iris xv; *P. scotomista*, *nigridentata*, S. Africa, HAMPSON, Ann. S. African Mus. ii; *P. obliquisigna*, *fumea*, India, *pyroxantha*, Tibet, HAMPSON, J. Bombay Soc. xiv, p. 202 : n. spp.

Poliothripa n. g. near *Plotheia*, p. 311, for *P. niphostena*, n. sp., Natal, p. 312, HAMPSON, Ann. S. African Mus. ii.

Polydesma basilinea, Natal, HAMPSON, t. c. p. 359; *P. pullaria*, W. Australia, SWINHOE, Ann. Nat. Hist. ix, p. 422; *P. igneipicta*, Australia, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 656 : n. spp.

Prionofrontia n. g. *Noctuinæ*, p. 350, for *P. erygidia*, n. sp., Natal, p. 351, HAMPSON, Ann. S. African Mus. ii.

Prionophora rhodinastis, p. 44, *taphrenta*, *allopis*, p. 45, *charactis*, p. 46, Australia, MEYRICK, Tr. ent. Soc. London 1902, n. spp.

Proconis n. g. *Noctuinæ*, for *P. abrostoloides*, n. sp., Cape Colony, HAMPSON, Ann. S. African Mus. ii, p. 362.

Prodenia leucophlebia, Natal, HAMPSON, t. c. p. 288, n. sp.
Prolophota bisignata, Ceylon, HAMPSON, J. Bombay Soc. xiv, p. 219; *P. camptoloma*, Brisbane, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 127 : n. spp.
Prometopus malacopis, p. 221, *heliosema*, *rhodocentra*, p. 222, Australia, LOWER, Tr. R. Soc. S. Austral. xxvi; *P. melodora*, p. 645, *cornuta*, *sarcomorpha*, p. 646, *cyanoloma*, *petrodora*, p. 647, *endesma*, p. 648, S. Australia, LOWER, P. Linn. Soc. N. S. Wales xxvi : n. spp.
Pronophora tritosticha, Queensland, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 107, n. sp.
Prorocopis tyra, W. Australia, SWINHOE, Ann. Nat. Hist. ix, p. 84; *P. euxantha*, *hypoxantha*, Queensland, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 657 : n. spp.
Proruaca n. g. *Noctuinæ*, for *P. recurrens*, n. sp., N'Gamiland, HAMPSON, Ann. S. African Mus. ii, p. 360.
Proscrana n. g. *Noctuinæ*, for *P. tephropis*, p. 104, *poliophylla*, p. 105, n. spp., Queensland, TURNER, P. Linn. Soc. N. S. Wales xxvii.
Pseudaglossa gigantalis, *auge*, p. 425, *pulverea*, *nubifera*, p. 426, S. Africa, HAMPSON, Ann. S. African Mus. ii, n. spp.
Pseudohadena commoda, pl. v, fig. 13, p. 160, PÜNGELER, Deutsche ent. Zeitschr. Iris xv.
Pterogonia nerissa, Perak, SWINHOE, Ann. Nat. Hist. ix, p. 83, n. sp.
Ptisciana scotia, Sikhim, HAMPSON, J. Bombay Soc. xiv, p. 211, n. sp.
Pyrrhia aconiti, Ural, HÖLTZERMANN, Allg. Zeitschr. Ent. vii, p. 212, cuts, n. sp.
Raghuva multiradiata, S. Africa, HAMPSON, Ann. S. African Mus. ii, p. 257, n. sp.
Raparna tritonias, Natal, HAMPSON, t. c. p. 396; *R. cyclostigma*, Queensland, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 111 : n. spp.
Reabotis n. g. for *immaculalis* Hulst, SMITH in Dyar, List, p. 206.
Rhæsena prunescens, Natal, HAMPSON, Ann. S. African Mus. ii, p. 435, n. sp.
Rhanidophora bidens, *aurantiaca*, S. Africa, HAMPSON, t. c. p. 370, n. spp.
Rhesala mediofascia, Borneo, SWINHOE, Ann. Nat. Hist. ix, p. 424, n. sp.
Rhizogramma curva, pl. v, fig. 24, p. 160, PÜNGELER, Deutsche ent. Zeitschr. Iris xv.
Rhynchina poliopera, S. Africa, HAMPSON, Ann. S. African Mus. ii, p. 433; *R. albiluna*, Sikhim, HAMPSON, J. Bombay Soc. xiv, p. 218; *R. comias*, New Guinea, MEYRICK, Tr. ent. Soc. London 1902, p. 41 : n. spp.
Rivula ommatopis, Australia, MEYRICK, t. c. p. 35, n. sp.
Sandava xylistis, p. 37, *spilotis*, p. 38, Australia, MEYRICK, t. c., n. spp.
Sarrothripa symmicta, Brisbane, TURNER, P. Linn. Soc. N. S. Wales xxvii; *S. crystallites*, Queensland, MEYRICK, Tr. ent. Soc. London 1902, p. 48 : n. spp.
Scythocentropus n. n. for *Centropus* Chr., SPEISER, Berlin. ent. Zeitschr. 1902, p. 140.
Selenophera lunigera var. n. *mongolica*, GRUM-GRSHIMAILO, Annuaire Mus. St. Petersb. vii, p. 196.
Semiophora youngii, Ottawa, SMITH, Canad. Ent. xxxiv, p. 29, n. sp.
Serrodes inara, larva, HAMPSON, J. Bombay Soc. xiv, p. 214.
Sesamia fusca, p. 296, *albipuncta*, *conista*, *albivena*, p. 297, *epunctifera*, *flavescens*, p. 298, S. Africa, HAMPSON, Ann. S. African Mus. ii; *S. rubritincta*, Natal, id. p. 442, t. c. : n. spp.
Simplicia selenitis, *micrastis*, Queensland, MEYRICK, Tr. ent. Soc. London 1902, p. 43; *S. phricozona*, Brisbane, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 125 : n. spp.
Sophta omopis, p. 31, *œluropis*, p. 32, Australia, MEYRICK, Tr. ent. Soc. London 1902, n. spp.

Sphingomorpha marshalli, Mashonaland, HAMPSON, Ann. S. African Mus. ii, p. 354, n. sp.

Spodoptera exigua, habits, synonymical note, CHITTENDEN, Bull. U. S. Dep. Agric. Ent. No. 33, pp. 37–46.

S. adela, N'Gamiland, HAMPSON, Ann. S. African Mus. ii, p. 287, n. sp.

Stictoptera methyalea, Mashonaland, HAMPSON, t. c. p. 309; *S. luctuosa*, Ceylon, *negretina*, Khasia Hills, HAMPSON, J. Bombay Soc. xiv, p. 212; *S. viridaria*, Perak, SWINHOE, Ann. Nat. Hist. ix, p. 172 : n. spp.

Sympis rufibasis ♂, HAMPSON, J. Bombay Soc. xiv, p. 214.

Symmolpis n. g. near *Orthozona*, p. 127, for *S. hyporrhoda*, n. sp., Queensland, p. 128, TURNER, P. Linn. Soc. N. S. Wales xxvii.

Syntheta n. g. near *Magusa*, p. 84, for *S. xylitis*, n. sp., Queensland, p. 85, and *Mamestra nigerrima* Gn., TURNER, t. c.

Sypna fenella, Borneo, SWINHOE, Ann. Nat. Hist. x, p. 496, n. sp.

Tæniocampa alurina, Illinois, SMITH, J. N. York Ent. Soc. x, p. 47, n. sp.

Talapa acypera, India, HAMPSON, J. Bombay Soc. xiv, p. 217, n. sp.

Tarache annulella, p. 383, *sphendonistis*, *semiplumbea*, p. 384, *chrysoproctis*, *hyperlophia*, p. 387, *bidentata*, p. 389, *nubilata*, *leucostigmata*, p. 390, *flavitermina*, *rectiradiata*, p. 391, *connectens*, p. 392, S. Africa, HAMPSON, Ann. S. African Mus. ii; *T. clerana*, *hieroglyphica*, Australia, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 658 : n. spp.

Tathorynchus homogyna, S. Africa, HAMPSON, Ann. S. African Mus. ii, p. 394; *T. fallax*, W. Australia, SWINHOE, Ann. Nat. Hist. ix, p. 423 : n. spp.

Tetracme n. g. *Hypeninæ* for *truncataria* Walk., HAMPSON, Ann. S. African Mus. ii, p. 439.

Thalpochares leucodesma, transferred to *Eublemma*, MEYRICK, Tr. ent. Soc. London 1902, p. 32.

Thelxinoa n. g. near *Aræopteron*, p. 131, for *T. epiphracta*, p. 132, *calliscia*, *pleurotypa*, p. 133, n. spp., Queensland, TURNER, P. Linn. Soc. N. S. Wales xxvii.

Thermesia loxogramma, Mashonaland, HAMPSON, Ann. S. African Mus. ii, p. 366, n. sp.

Thyas aellora, *hercodes*, Queensland, MEYRICK, Tr. ent. Soc. London 1902, p. 29, n. spp.

Timora leucosticta, N'Gamiland, HAMPSON, Ann. S. African Mus. ii, p. 256; *T. disticta*, Basutoland, id. p. 441; *T. transvaalica*, Johannesburg, DISTANT, Entomologist 1902, p. 212 : n. spp.

Timorodes n. g. *Sarrothripidæ*, for *T. blepharias*, n. sp., New Guinea, MEYRICK, Tr. ent. Soc. London 1902, p. 46.

Tipasa macrobela, Brisbane, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 126, n. sp.

Trigonistis n. g. for *T. demonias*, p. 39, *asthenopa*, p. 40, n. spp., Australia, MEYRICK, Tr. ent. Soc. London 1902.

Triorbis aureovitta, India, HAMPSON, J. Bombay Soc. xiv, p. 209, pl. B, fig. 16, n. sp.

Trissernis n. g. near *Aræopterum*, for *T. prasinoscia*, n. sp., Brisbane, MEYRICK, Tr. ent. Soc. London 1902, p. 37, n. sp.

Troctoptera erosides, Natal, HAMPSON, Ann. S. African Mus. ii, p. 422, n. sp.

Tumidifrontia n. g. *Caradrininæ*, p. 282, for *T. castaneotincta*, n. sp., Mashonaland, p. 283, HAMPSON, t. c.

Westermannia nivea, *convergens*, S. Africa, HAMPSON, t. c. p. 315; *W. ruficeps*, Natal, id. p. 446, t. c.; *W. euprepia*, India, Ceylon, HAMPSON, J. Bombay Soc. xiv, p. 209 : n. spp.

Xanthoptera griseocincta, p. 396, *grandirena*, p. 397, *tripuncta*, *unipuncta*, *genuflexa*, p. 398, S. Africa, HAMPSON, Ann. S. African Mus. ii, n. spp.

Xylocampa areola, larva, UFFELN, Deutsche ent. Zeitschr. Iris xv, p. 319.
Zagira polycesta, Brisbane, TURNER, P. Linn. Soc. N. S. Wales xxvii, p. 120, n. sp.
Zanclognatha adda, Perak, SWINHOE, Ann. Nat. Hist. ix, p. 179, n. sp.
Zethes arida, Natal, HAMPSON, Ann. S. African Mus. ii, p. 427; *Z. steniptera*, p. 215, *apicata*, *macariata*, p. 216, India, HAMPSON, J. Bombay Soc. xiv; *Z. cauxa*, *salsoma*, p. 499, *chilana*, p. 500, Borneo, SWINHOE, Ann. Nat. Hist. x : n. spp.
Zophochroa n. g. near *Eublemma*, for *Z. leucochorda*, p. 118, *anthracitis*, *melanica*, p. 119, n. spp., Queensland, TURNER, P. Linn. Soc. N. S. Wales xxvii.

GEOMETRIDÆ, EPIPLEMIDÆ, URANIIDÆ.

[Cf. BARTEL (70), DIETZE (330), DOGNIN (344, 345), ECKSTEIN (384), FUCHS (507, 508), GROTE (560), HAMPSON (577), LOWER (831, 832), MEYRICK (908), PÜNGELER (1095, 1097, 1098), REBEL (1106), ROBSON (1165), ROSTAGNO (1170), SCHRÖDER (1215), SEMPER (1253), SKINNER (1281), STERTZ (1330), SWINHOE (1344–1347, 1349), WARREN (1445, 1446).]

Nomenclature of European genera discussed, GROTE, Allg. Zeitschr. Ent. vii, pp. 470–472.
SWINHOE'S paper, Tr. ent. Soc. London 1902, p. 585 etc., includes much synonymy of *Geometridæ* and *Epiplemidæ*, which is not given below, there being no intimation of what is new.
Geometrina of Northumberland etc., ROBSON (1165).
Early stages of 6 N. American species, DYAR, P. U. S. Mus. xxv, pp. 388–393.

Abraxas expectata, Queensland, WARREN, Nov. Zool. ix, p. 365, n. sp.
Abraxesis n. g. near *Abraxas*, for *A. melaleucaria*, n. sp., Simla, HAMPSON, J. Bombay Soc. xiv, p. 510.
Acadra affinis, Usoga, WARREN, Nov. Zool. ix, p. 527, n. sp.
Acanthoscelis, cf. *Psilocerea*, *Xanthisthisa*.
Acidalia, *marginepunctata* var., SOUTH, Entomologist 1902, p. 156.
A. proclivata, Armenia, FUCHS, Stettin Ent. Zeit. 1902, p. 317; *A. lucellata*, Centr. Asia, PÜNGELER, Deutsche ent. Zeitschr. Iris xv, p. 154, pl. v, figg. 18, 19; *A. infantilaria*, p. 87, *afflata*, *salebrosaria*, p. 88, *remissata*, p. 89, *tenuispersata*, p. 90, Sumatra, FUCHS, Jahrb. nassau. Ver. lv : n. spp.
Acropteris munda, Larat, WARREN, Nov. Zool. ix, p. 344, n. sp.
Acrotomodes cretinotata, Bolivia, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 341, n. sp.
Adelphocrasta flavifrons, Solomon Ids., WARREN, Nov. Zool. ix, p. 371, n. sp.
Æthiopodes n. g. type *Azelina indecoraria* Wlk., WARREN, t. c. p. 530.
Agathia veneranda, N. Guinea, SWINHOE, Tr. ent. Soc. London 1902, p. 670, n. sp.
Agraptochlora differens, E. Africa, WARREN, Nov. Zool. ix, p. 493, n. sp.
Alcis smithi, Congo, WARREN, t. c. p. 519, n. sp.
Amphicrossa n. g., for *Stibaroma hemadelpha*, LOWER, Tr. R. Soc. S. Austral. xxvi, n. sp.
Amphidasys strataria, natural history, DOLLMAN, Ent. Rec. xiv, pp. 91–96.
Angerona prunaria var., Japan, FUCHS, Jahrb. nassau. Ver. lv, p. 72.
Anisobole n. g. *Hydriomeninæ*, for *A. transcissa*, n. sp., E. Africa, WARREN, Nov. Zool. ix, p. 514.
Anisodes ochraria, Singapore, p. 664, *gæta*, Borneo, p. 665, SWINHOE, Tr. ent. Soc. London 1902; *A. marginepunctata*, Ecuador, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 344 : n. spp.

Anisogama pagenstecheri, Philippines, p. 640, pl. lxv, fig. 11, SEMPER, Schmett. Philipp. ii, n. sp.
Anisoperas proxima, Ecuador, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 339, n. sp.
Anonychia trifasciata, Tibet, HAMPSON, J. Bombay Soc. xiv, p. 497, n. sp.
Antharmostes interalbicans, Congo, WARREN, Nov. Zool. ix, p. 493, n. sp.
Anthyperythra caladsaota, Simla, HAMPSON, J. Bombay Soc. xiv, p. 501, n. sp.
Arichanna plagiogramma, Tibet, HAMPSON, t. c. p. 509, pl. c, fig. 8, n. sp.
Asaphodes megaspilata, early stages, QUAIL, Tr. N. Zealand Inst. xxxiv, pp. 235–238.
Aspidoptera, cf. *Tetraspidoptera*.
Aspilates albaria, Ural, BARTEL, Deutsche ent. Zeitschr. Iris xv, p. 221, n. sp.
Asthenotricha serraticornis, E. Africa, WARREN, Nov. Zool. ix, p. 505, n. sp.
Asyngria n. g. *Epiplemidæ* near *Hemioplisis*, for *A. nigripuncta*, n. sp., Ecuador, DOGNIN, Ann. Soc. ent. Belgique xlvi.
Azata diffusata, Congo, WARREN, Nov. Zool. ix, p. 528, n. sp.
Azelina, cf. *Æthiopodes*.
Bapta pura, Sumatra, *albipuncta*, Burma, p. 602, *triseriata*, Solomon Ids., p. 603, SWINHOE, Tr. ent. Soc. London 1902; *B. pulverulenta*, Colombia, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 341 : n. spp.
Biston burmaensis, Burma, HAMPSON, J. Bombay Soc. xiv, p. 502, n. sp.
Boarmia consortaria var. n. *grisearia*, BARTEL, Deutsche ent. Zeitschr. Iris xv, p. 220; *B. crepuscularia* varr., nomenclature, SPEISER, Berlin. ent. Zeitschr. 1902, p. 141; *B. cinctaria* var., GALVAGNI, Verh. Ges. Wien lii, p. 70, cuts.
B. marventaria, Centr. Asia, PÜNGELER, Deutsche ent. Zeitschr. Iris xv, p. 157, pl. v, figg. 14, 15; *B. cyclophora*, p. 504, *subtochracea*, *discistigmaria*, *biserrata*, pl. c, fig. 20, p. 505, *longiramaria*, India, *hemiglaucaria*, Tibet, p. 506, *eurydiscaria*, India, *polysticta*, Ceylon, *arcearia*, Kashmir, p. 507, *cupriscotia*, Tibet, p. 508, HAMPSON, J. Bombay Soc. xiv; *B. inoffensa*, Java, *delika*, Borneo, p. 625, *lectonia*, Japan, p. 626, SWINHOE, Tr. ent. Soc. London 1902 : n. spp.
Bonatea undilinea, Colombia, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 478, n. sp.
Bordeta aperta, New Guinea, WARREN, Nov. Zool. ix, p. 365, n. sp.
Bracca lucida, Louisiade Arch., SWINHOE, Tr. ent. Soc. London, 1902, p. 635, n. sp.
Brachycola fimbripedata, Solomon Ids., WARREN, Nov. Zool. ix, p. 355, n. sp.
Brachyglene divisa, Colombia, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 474, n. sp.
Burzada colenda, Fergusson Is., *suspensa*, N. Guinea, p. 637, *curiola*, Talaut, p. 638, SWINHOE, Tr. ent. Soc. London 1902; *B. lativitta*, Solomon Ids., WARREN, Nov. Zool. ix, p. 366 : n. spp.
Bursadopsis circumducta, New Guinea, WARREN, Nov. Zool. ix, p. 366, n. sp.
Buzura eximia, Nias, SWINHOE, Ann. Nat. Hist. ix, p. 417, n. sp.
Bytharia uniformis, Sumatra, SWINHOE, Tr. ent. Soc. London 1902, p. 643, n. sp.
Callizzia amorata, life-history, DYAR, P. ent. Soc. Washington v, p. 131.
Calyptocome incarnata, Costa Rica, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 345, n. sp.
Carpella marginata, Ecuador, DOGNIN, t. c. p. 478, n. sp.
Catascia confusata, p. 523, *rufiplaga*, p. 524, E. Africa, WARREN, Nov. Zool. ix, n. spp.

Catoria canidentata, Brazil, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 480, n. sp.
Celerena nigripalpis, Borneo etc., SWINHOE, Tr. ent. Soc. London 1902, p. 642, n. sp.
Chloroclystis oblongipennis, *protrusata*, E. Africa, WARREN, Nov. Zool. ix, p. 507 ; *C. rotundaria*, *speciosa*, New Guinea, SWINHOE, Tr. ent. Soc. London 1902, p. 652 : n. spp.
Chlorodontopera suavis, China, SWINHOE, t. c. p. 670, n. sp.
Chrysocraspeda lunulata, *sanguinipuncta*, Borneo, *medioplaga*, Pulo Laut, p. 661, *galinaria*, New Guinea, *compularia*, Singapore, p. 662, SWINHOE, t. c., n. spp.
Cidaria bilineata ab. n. *bohatschi*, AIGNER, Rov. Lapok ix, p. 144.
C. deletaria, *nigrifulvaria*, Kashmir, p. 514, *cymatia*, pl. c, fig. 29, *cerva*, India, p. 515, *microgynaria*, Kashmir, p. 516, HAMPSON, J. Bombay Soc. xiv ; *C. rubicunda*, Borneo, SWINHOE, Tr. ent. Soc. London 1902, p. 647 : n. spp.
Cinglis persalsa, W. Australia, WARREN, Nov. Zool. ix, p. 356, n. sp.
Cistidia chinensis, W. China, SWINHOE, Tr. ent. Soc. London 1902, p. 632, n. sp.
Cledeobia moldavica, natural history, MOKRZECKI, Allg. Zeitschr. Ent. vii, pp. 85–89, cuts.
Cleodora cytisella, larval habits, CONNOLD, Ent. Mag. xxxviii, p. 256.
Cnemodes rubripuncta, Tucuman, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 344, n. sp.
Cœnocalpe marmorata, Ecuador, DOGNIN, t. c. p. 348, n. sp.
Collix elongata, p. 360, *sticticata*, p. 361, Solomon Ids., WARREN, Nov. Zool. ix, n. spp.
Comastolopsis n. g. for *C. cœrulea*, *simplex*, spp. n., E. Africa, WARREN, t. c. p. 494.
Comostola stillaria Feld. (as *Nemoria*) = (*Eucrostes rubristicta* Warr.), WARREN, t. c. p. 493.
Coremia, *didymata*, hibernation, PROUT, Ent. Mag. xxxviii, p. 87.
Corymica latimarginata, Borneo, SWINHOE, Ann. Nat. Hist. x, p. 47, n. sp.
Coryphista badiaria, life-history, DYAR, Psyche ix, p. 396.
Cosmorhoë annulifera, *submaculata*, E. Africa, WARREN, Nov. Zool. ix, p. 515, n. spp.
Craspedia natalica var. n. *obliterata*, WARREN, t. c. p. 500 ; *C. misera*, ♂ fig. 6, ♀ fig. 7, pl. lxv, SEMPER, p. 631, Schmett. Philipp. ii.
C. denubilata, Larat, *oppunctata*, Solomon Ids., WARREN, Nov. Zool. ix, p. 356 ; *C. agrapta*, *argentidisca*, p. 498, *fimbrilineata*, *muscosaria*, p. 499, E. Africa, WARREN, t. c., n. spp.
Craspedosis aurigutta, New Guinea, WARREN, t. c. p. 366 ; *C. delicata*, Louisiade Arch., SWINHOE, Tr. ent. Soc. London 1902, p. 635 : n. spp.
Crypsicœla n. g. *Epiplemidæ*, for *C. subocellata*, n. sp., Colombia, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 335.
Crypsimetalla n. g. *Trichopterygineæ*, p. 362, for *C. aurata*, n. sp., Solomon Ids., p. 363, WARREN, Nov. Zool. ix.
Cryptoloba olivescens, Sikhim, HAMPSON, J. Bombay Soc. xiv, p. 511, n. sp.
Crysiplocia n. g. *Periæra*, for *C. pulvinaris*, n. sp., Solomon Ids., WARREN, Nov. Zool. ix, p. 357.
Ctenaulis n. g. *Hydriomeninæ*, for *C. albirupta*, n. sp., E. Africa, WARREN, t. c. p. 516.
Cyphura n. g. near *Uranioides*, for *C. pieridaria*, New Guinea, *catenulata*, p. 344, *subsimilis*, p. 345, Solomon Ids., n. spp., New Guinea, WARREN, t. c.
Cymatophora ? subatrata, p. 348, *regularis*, *granillosa*, p. 349, S. America, DOGNIN, Ann. Soc. ent. Belgique xlvi ; *C. spatiosata*, Bolivia, DOGNIN, t. c. p. 479 : n. spp.

Darisa ochrimacula, E. Africa, WARREN, Nov. Zool. ix, p. 520, n. sp.
Dasyuris tridenta, W. Australia, SWINHOE, Tr. ent. Soc. London 1902, p. 649, n. sp.
Decetia dichromata var. n. *fuscibrunnea*, WARREN, Nov. Zool. ix, p. 346.
Dectochilus marginata, Araucania, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 339, n. sp.
Deilinia quadraria, life-history, DYAR, Psyche ix, p. 383; *D. carnearia*, life-history, DYAR, t. c. p. 419.
Dialephtis semimarginata, Colombia, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 342, n. sp.
Diastictis retinodes, p. 229, *pycnochroa*, p. 230, S. Australia, LOWER, Tr. R. Soc. S. Austral. xxvi, n. spp.
Dirades angulifera, E. Africa, WARREN, Nov. Zool. ix, p. 489, n. sp.
Dysphania plena, ♂, pl. lxv, fig. 8, larva and pupa, pl. U, figg. 14, 15, p. 635, *D. longimacula*, ♂, fig. 9, p. 636, SEMPER, Schmett. Philipp. ii; *D. contraria melleata* subsp. n., *D. cyane* var. n. *flavimargo*, p. 350, *D. tentans subalbata* subsp. n., p. 352, WARREN, Nov. Zool. ix.
D. auroguttata, Sula Mangoli, p. 350, *fulvilauta*, New Hanover, p. 350, *imperialis*, Suer, *isolata*, Theiping, *latiplaga*, Celebes, *longimacula*, Palawan, p. 351, *regnatrix*, Solomon Ids., p. 352, WARREN, t. c., n. spp.
Ectropis sabulosa var. n. *insulsa*, WARREN, t. c. p. 368.
E. zebrina, Congo, WARREN, t. c. p. 521; *E. terrestris*, Hong Kong, SWINHOE, Tr. ent. Soc. London 1902, p. 622; *E. lignifascia*, Solomon Ids., WARREN, Nov. Zool. ix, p. 368 : n. spp.
Emmiltis pinguis, Formosa, SWINHOE, Tr. ent. Soc. London 1902, p. 660; *E. achroa*, Tasmania, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 229 : n. spp.
Euconista amoritaria, Palestine, PÜNGELER, Deutsche ent. Zeitschr. Iris xv, p. 145, pl. vi, figg. 26, 27, n. sp.
Endropia duaria, life-history, DYAR, Psyche ix, p. 371.
Ennomos fuscantaria var. n. *destrigaria*, GALVAGNI, Verh. Ges. Wien lii, p. 712.
Eois stenozona, p. 248, *œnopus*, *polygramma*, p. 249, Australia, LOWER, Tr. R. Soc. S. Austral. xxvi, n. spp.
Epelis truncataria, life-history, DYAR, Psyche ix, p 298.
Epidesma unilinea, Tasmania, SWINHOE, Tr. ent. Soc. London 1902, p. 640, n. sp.
Epiplema inclarata var. n. *perclarata*, WARREN, Nov. Zool. ix, p. 346.
E. carbo, *nymphæata*, p. 490, *perpulchra*, *triumbrata*, p. 491, Africa, WARREN, t. c.; *E. falcata*, pl. c, fig. 1, *holosticta*, fig. 19, Ceylon, *rectimarginata*, India, fig. 27, p. 495, *nivea*, Tibet, fig. 10, p. 496, HAMPSON, J. Bombay Soc. xiv; *E. carmona*, N. Guinea, *cretosa*, Fiji, *labecula*, Pulo Laut, p. 595, *suffusca*, Fergusson Is., *amœna*, N. Guinea, *fucina*, Pulo Laut, p. 596, SWINHOE, Tr. ent. Soc. London 1902; *E. signifera*, Solomon Ids., WARREN, Nov. Zool. ix, p. 347; *E. raripuncta*, *lignicolor*, p. 336, *obliquifascia*, p. 337, S. America, DOGNIN, Ann. Soc. ent. Belgique xlvi; *E. brevidens*, Venezuela, DOGNIN, t. c. p. 473 : n. spp.
Epirrhoë bertha, Tasmania, *mœrens*, N. S. Wales, SWINHOE, Tr. ent. Soc. London 1902, p. 648; *E. respondens*, Ecuador, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 347 : n. spp.
Episothalma subfuscata, Niger, WARREN, Nov. Zool. ix, p. 494, n. sp.
Eubolia leucocypta, India, HAMPSON, J. Bombay Soc. xiv, p. 512, n. sp.
Euchlœna pectinaria, life-history, DYAR, Psyche ix, p. 344.
Euchloris paraphylla, W. Australia, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 229, n. sp.
Eucrostis (*Nemoria*?) *subtusumbrata*, Sumatra, FUCHS, Jahrb. nassau. Ver. lv, p. 84, n. sp.

Eudule semirubra, Ecuador, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 338; *E. atrimorsa*, Colombia, DOGNIN, t. c. p. 477 : n. spp.
Eugnesia balteata, Tondano, *parallelaria*, New Guinea, WARREN, Nov. Zool. ix, p. 364, n. spp.
Euippe subnubila, N. Guinea, SWINHOE, Tr. ent. Soc. London 1902, p. 615, n. sp.
Eulasia n. g. type *Himera villaria* Feld., WARREN, Nov. Zool. ix, p. 531.
Eupithecia; use of the name, GROTE, Canad. Ent. xxxiv, p. 104; Male genitalia of 10 European, SCHRÖDER, Allg. Zeitschr. Ent. vii, pp. 527–529; *E. denotata* var., FUCHS, Jahrb. nassau. Ver. lv, p. 78; Notes on various larvæ in S. France, DIETZE, Deutsche ent. Zeitschr. Iris xv, pp. 231–268; *E. dodoneata*, larva, MATHEW, Ent. Mag. xxxviii, p. 231; *E. liguriata*, metamorphoses, CHRÉTIEN, Naturaliste xxiv, p. 239.
E. lavicaria, Norway, FUCHS, Stettin Ent. Zeit. 1902, p. 318, n. sp.
Eupsamma, cf. *Psilocerea*.
Eusarca maculifascia, Paraguay, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 339, n. sp.
Eutomoplecta maculata referred to *Polyacme*, hab. is Larat, WARREN, Nov. Zool. ix, p. 372.
Fidonia piniaria, habits, ravages, ECKSTEIN (384).
Gastrophora henricaria, habits, larva, ANDERSON, Victorian Natural. xix, p. 59, plate.
Gathynia cesena, Pulo Laut, *cythera*, Fiji, SWINHOE, Tr. ent. Soc. London 1902, p. 598, n. sp.
Gnamptoloma aventiaria, larva and pupa, pl. U, figg. 12, 13, p. 633, SEMPER, Schmett. Philipp. ii.
G. viridaria, Bali, SWINHOE, Tr. ent. Soc. London 1902, p. 665, n. sp.
Gnamptonia n. g. near *Chloroclystis*, for *G. muscosa*, n. sp., E. Africa, WARREN, Nov. Zool. ix, p. 508.
Gnophos vasturia var. n. *rubefacturia*, PÜNGELER, Deutsche ent. Zeitschr. Iris xv, p. 158; *G. cœlibaria* var. n. *zirbitzensis*, PIESZCZEK, Verh. Ges. Wien lii, p. 11; *G. dumetata*, varr., FUCHS, Jahrb. nassau. Ver. lv, p. 73.
G. præstigiaria, Centr. Asia, PÜNGELER, Deutsche ent. Zeitschr. Iris xv, p. 158, pl. vi, figg. 4, 5; *G. orphninaria*, *rufitinctaria*, Kashmir, HAMPSON, J. Bombay Soc. xiv, p. 503 : n. spp.
Gonanticlea indentata, p. 516, *obtusa*, p. 517, E. Africa, WARREN, Nov. Zool. ix, n. spp.
Goniopteroloba pallida, Celebes, WARREN, t. c. p. 363, n. sp.
Gubaria contaminata, Africa, WARREN, t. c. p. 528, n. sp.
Gymnoscelis derogata, larva, pl. U, fig. 11, SEMPER, Schmett. Philipp. ii.
G. acutipennis, p. 508, *birivulata*, *carneata*, p. 509, Africa, WARREN, Nov. Zool. ix; *G. biangulata*, p. 650, *minutissima*, Sambawa, *concinna*, Tonga, p. 651, SWINHOE, Tr. ent. Soc. London 1902 : n. spp.
Hemerophila præstantaria, Centr. Asia, PÜNGELER, Deutsche ent. Zeitschr. Iris xv, p. 156, pl. vi, figg. 2, 3, n. sp.
H. obtusata with var. *regulata*, E. Africa, WARREN, Nov. Zool. ix, p. 521, n. sp.
Hemithea vacua, Japan, SWINHOE, Tr. ent. Soc. London 1902, p. 671, n. sp.
Heteresthes n. g. *Geometrinæ*, for *H. subaureata*, *subrubra*, n. spp., Solomon Ids., WARREN, Nov. Zool. ix, p. 354.
Heterolocha obliquaria, p. 497, *decoloraria*, Kashmir, *rubrifusa*, Tibet, p. 498, HAMPSON, J. Bombay, Soc. xiv, n. spp.
Heteroplema n. g. *Epiplemidæ*, for *H. dependens*, n. sp., E. Africa, WARREN, Nov. Zool. ix, p. 492.
Heterusia rubrimarmorata, Colombia, DOGNIN, Ann. Soc. ent. Belgique xlvi, p, 338, n. sp.

Himera, cf. *Eulasia*.
Holostixa n. g. *Monocteniidæ*, for *H. manca*, n. sp., Borneo, SWINHOE, Tr. ent. Soc. London 1902, p. 644.
Hybernia erectaria, Centr. Asia, PÜNGELER, Deutsche ent. Zeitschr. Iris xv, p. 155, pl. vi, fig. 1, n. sp.
Hydrelia sanguiniplaga, W. China, SWINHOE, Tr. ent. Soc. London 1902, p. 655, n. sp.
Hydriomena actinipha, N. S. Wales, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 248, n. sp.
Hygrochroa syringaria, habits, MERRIFIELD, P. ent. Soc. London 1902, p. xxiv.
Hypochroma viridicoma interrupta subsp. n., WARREN, Nov. Zool. ix, p. 352.
H. basinigra, New Guinea, WARREN, t. c. p. 352, n. sp.
Hypochrosis annulata Pag. referred to *Omiza*, ♀, WARREN, t. c. p. 372.
H. languidata, Perak, SWINHOE, Ann. Nat. Hist. ix, p. 416; *H. albodecorata*, Borneo, SWINHOE, Tr. ent. Soc. London 1902, p. 608 : n. spp.
Hypographa ? pallida, W. Australia, WARREN, Nov. Zool. ix, p. 347, n. sp.
Hyposidra flaccida var. n. *grisea*, *H. incomptaria* var. n. *purpurea*, WARREN, t. c. p. 372.
Jodis (*Nemoria* vel potius *Hemithea* ?) *pariciliata*, Sumatra, FUCHS, Jahrb. nassau. Ver. lv, p. 86, n. sp.
Josia subcuneifera, Ecuador, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 342, n. sp.
Laophila fokia, p. 628, *modesta*, p. 629, Australia, SWINHOE, Tr. ent. Soc. London 1902, n. spp.
Larentia scripturata var. n. *dolomitana*, HABICH, Ver. Ges. Wien lii, p. 13.
L. pungeleri, Zermatt, STERTZ, Deutsche ent. Zeitschr. xv, p. 96, pl. vi, figg. 28, 29; *L. bastelbergeri*, Centr. Asia, PÜNGELER, Deutsche ent. Zeitschr. xv, p. 155, pl. v, figg. 25, 26; *L. rectifasciata*, Sikhim, *subviridis*, Tibet, *poliotaria*, *fulvipennis*, Kashmir, p. 517, HAMPSON, J. Bombay Soc. xiv : n. spp.
Leptomeris tetrasticha, W. Australia, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 250, n. sp.
Leptomiza rufitinctaria, Simla, HAMPSON, J. Bombay Soc. xiv, p. 502, pl. c, fig. 3, n. sp.
Leucesthes n. g. *Œnochrominæ*, for *L. margarita*, n. sp., W. Australia, WARREN, Nov. Zool. ix, p. 348.
Lipomelia kuehni, Larat, WARREN, t. c. p. 357, n. sp.
Lissoblemma n. g. for *L. viridifusa*, n. sp., Congo, and *Somatina lunuliferata* Walk., WARREN, t. c. p. 500, n. spp.
Lobidiopteryx n. g. *Trichopterygidæ*, for *L. reninotata*, n. sp., E. Africa, WARREN, t. c. p. 513.
Lomographa tenebrosa, Singapore, SWINHOE, Tr. ent. Soc. London 1902, p. 605, n. sp.
Lophosticha n. g. near *Stibaroma*, for *L. psorallodes*, n. sp., Victoria, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 232.
Loxaspilates seriopuncta, Tibet, HAMPSON, J. Bombay Soc. xiv, p. 498, pl. c, fig. 28, n. sp.
Lycauges (?) *desueta*, W. Australia, WARREN, Nov. Zool. ix, p. 358, n. sp.
Lygris peloponnesiaca, Morea, REBEL, Berlin. ent. Zeitschr. 1902, p. 97, n. sp.
Macaria lautusaria, Sumatra, SWINHOE, Tr. ent. Soc. London 1902, p. 616, n. sp.
Medasina nepalensis, Nepal, HAMPSON, J. Bombay Soc. xiv, p. 509, n. sp.
Melanthia albicillata, food-plant, MATHEW, Ent. Mag. xxxviii, p. 264.
Mesocœla n. g. near *Autophylla*, for *M. obscura*, n. sp., E. Africa, WARREN, Nov. Zool. ix, p. 531.

Metallochlora rubripuncta, Solomon Islands, WARREN, t. c. p. 355, n. sp.
Miantonota punctilinea, Venezuela, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 337, n. sp.
Microdes arcuata, Australia, SWINHOE, Tr. ent. Soc. London 1902, p. 652, n. sp.
Mariaba medioplaga, Borneo, SWINHOE, t. c. p. 652, n. sp.
Micronia dilatistriga, Solomon Islands, *obliterata*, Larat, WARREN, Nov. Zool. ix, p. 345, n. sp.
Micronissa tristis, Talaut, SWINHOE, Tr. ent. Soc. London 1902, p. 604, n. sp.
Microsema attenuata, Ecuador, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 340, n. sp.
Monoctenia subcarnea, Queensland, WARREN, Nov. Zool. ix, p. 348; *M. minuta*, *ozora*, W. Australia, SWINHOE, Ann. Nat. Hist. ix, p. 167: n. spp.
Nadagarodes subpulchrata, Solomon Islands, WARREN, Nov. Zool. ix, p. 369, n. sp.
Nearcha pseudophaes, varr. n., WARREN, t. c. p. 349.
N. caronia, Port Darwin, SWINHOE, Tr. ent. Soc. London 1902, p. 641; *N. anemodes*, W. Australia, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 227: n. spp.
Nipteria ellopiata, *differens*, Ecuador, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 346, n. spp.
Nyssia lapponaria; habits, oviposition, REID, Ent. Mag. xxxviii, p. 222.
Ochyria tricolorata, Ecuador, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 347, n. sp.
Odontoptila mimica, Ecuador, DOGNIN, t. c. p. 343, n. sp.
Œdicentra n. g., p. 524, *Scolopterygineæ*, for *Œ. albipennis*, n. sp., E. Africa, p. 525, WARREN, Nov. Zool. ix.
Œnone xenopis, N. S. Wales, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 227, n. sp.
Œnoptila vulpina, Solomon Islands, WARREN, Nov. Zool. ix, p. 369, n. sp.
Omphacodes (?) *anomala*, E. Africa, WARREN, t. c. p. 495, n. sp.
Oncodocnemis n. g. for *Phasiane boarmiata* Graes., REBEL in Staudinger Cat. i, p. 354, and Verh. Ges. Wien lii, p. 569.
Onychodes ? *rhodoscopa*, W. Australia, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 228, n. sp.
Ophthalmodes striatifera, pl. c, fig. 14, p. 503, *poliaria*, p. 504, India, HAMPSON, J. Bombay Soc. xiv, n. spp.
Orthofidonia vestaliata, life-history, DYAR, Psyche ix, p. 336.
Osteodes exumbrata Wlk., a valid species, WARREN, Nov. Zool. ix, p. 529.
Ourapteryx cretea, Japan, SWINHOE, Tr. ent. Soc. London 1902, p. 601, n. sp.
Oxymacaria ceylonica, Ceylon, p. 500, *pectinata*, India, pl. c, fig. 33, p. 501, HAMPSON, J. Bombay Soc. xiv, n. spp.
Ozola leptogonia, Ceylon, HAMPSON, t. c. p. 511; *O. exigua*, Claremont Island, SWINHOE, Tr. ent. Soc. London 1902, p. 645: n. spp.
Palæacrita vernata, life-history, DYAR, Psyche ix, p. 428.
Paradecetia vicina, *myra*, West China, SWINHOE, Tr. ent. Soc. London 1902, p. 593, n. spp.
Paragathia n. g. for *P. albimarginata*, n. sp., Delagoa Bay, WARREN, Nov. Zool. ix, p. 495.
Parallage intricata, Colombia, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 346, n. sp.
Parasthena n. g. *Asthenineæ*, p. 361, for *P. flexilinea*, n. sp., Celebes, p. 362, WARREN, Nov. Zool. ix.
Pareuchloris (?) *simplex*, E. Africa, WARREN, t. c. p. 496, n. sp.

Paurocoma n. g. near *Amelora*, for *P. molybdina*, n. sp., N. S. Wales, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 230.
Peratophyga venetia, Perak, SWINHOE, Ann. Nat. Hist. ix, p. 416 ; *P. flavomaculata*, Borneo etc., SWINHOE, Tr. ent. Soc. London 1902, p. 604 : n. spp.
Peridela ochreata, Solomon Islands, WARREN, Nov. Zool. ix, p. 370, n. sp.
Perigramma marginata, Bolivia, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 346 ; *P. immaculata*, S. America, DOGNIN, t. c. p. 478 : n. spp.
Perixera recumbens, p. 358, *tenuilinea*, p. 359, Solomon Islands, WARREN, Nov. Zool. ix, n. spp.
Petelia pictilinea, E. Africa, WARREN, t. c. p. 522 ; *P. circularia*, Borneo, SWINHOE, Tr. ent. Soc. London 1902, p. 611 : n. spp.
Petrodava latimargo, Congo, WARREN, Nov. Zool. ix, p. 529, n. sp.
Phæoclæna angustimacula, Colombia, *albitumida*, Ecuador, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 475, n. spp.
Phallaria ophiusaria, habits, larva, ANDERSON, Victorian Natural. xix, p. 61, plate.
Phasiane rippertaria var. n. *flavularia*, PÜNGELER, Deutsche ent. Zeitschr. Iris xv, p. 158, pl. vi, fig. 6, and *analogaria*, fig. 7 ; *P. irrorata*, life-history, DYAR, Psyche ix, p. 310.
Phibalapteryx interrubrescens, India, Tibet, HAMPSON, J. Bombay Soc. xiv, p. 513, n. sp.
Phorodesma (*Euchloris*) *dulcinata*, Sumatra, FUCHS, Jahrb. nassau. Ver. lv, p. 85, n. sp.
Photoscotosia chlorochrota, Tibet, HAMPSON, J. Bombay Soc. xiv, p. 518, pl. c, fig. 21, n. sp.
Phthonandria confusa, Chitral, WARREN, Nov. Zool. ix, p. 367, n. sp.
Phthonoloba thalassias, ♂, pl. lxv, fig. 5, SEMPER, Schmett. Philipp. ii.
P. imbecilla, New Guinea, SWINHOE, Tr. ent. Soc. London 1902, p. 653, n. sp.
Pigiopsis parallelaria, E. Africa, WARREN, Nov. Zool. ix, p. 518, n. sp.
Pingasa decristata, St. Thomé, WARREN, t. c. p. 492, n. sp.
Pisoraca inæqualis, Africa, WARREN, t. c. p. 501, n. sp.
Platycerota olivatia, India, HAMPSON, J. Bombay Soc. xiv, p. 496, n. sp.
Plerocymia arenaria, E. Africa, WARREN, Nov. Zool. ix, p. 518, n. sp.
Plocucha postposita, Solomon Islands, WARREN, t. c. p. 359, n. sp.
Polycrasta albipuncta, Solomon Islands, WARREN, t. c. p. 369, n. sp.
Polyphasia ceprona, Sumatra, SWINHOE, Tr. ent. Soc. London 1902, p. 648, n. sp.
Polypoetes? bistellata, *P. suffumosa*, Tucuman, *caliginosa*, Ecuador, p. 476, *P.? dryas*, Bolivia, p. 477, DOGNIN, Ann. Soc. ent. Belgique xlvi, n. spp.
Pomasia sparsata, Travancore, HAMPSON, J. Bombay Soc. xiv, p. 518, pl. c, fig. 17 ; *P. conferta*, Pulo Laut, SWINHOE, Tr. ent. Soc. London 1902, p. 650 : n. spp.
Prionia spurca, Borneo, SWINHOE, t. c. p. 608, n. sp.
Problepsiodes lucifimbria, Tondano, WARREN, Nov. Zool. ix, p. 360, n. sp.
Prochoerodes fleximargo, Venezuela, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 338, n. sp.
Procypha Warr. = (*Triprora* Warr.), WARREN, Nov. Zool. ix, p. 532.
Prometopidia n. g. near *Boarmia*, for *P. conisaria*, n. sp., Kashmir, HAMPSON, J. Bombay Soc. xiv, p. 509.
Prorocorys gemmata ♂, WARREN, Nov. Zool. ix, p. 363.
Protomeceras n. g. for *Cimelia mimicaria*, REBEL, in Staudinger Cat. i, p. 240, and Verh. Ges. Wien lii, p. 568.
Pseudoterpna crassistriga ♀, pl. lxv, fig. 10, *P. crenaria*, larva and pupa, pl. u, figg. 16, 17, p. 637, SEMPER, Schmett. Philipp. ii.

Psilocerea = (*Eupsamma* Warr. = *Acanthoscelis* Warr. = *Xanthisthisa* Speiser), p. 532, *P. pulverosa* = (*apicata* Warr.), p. 533, WARREN, Nov. Zool. ix.
P. fulva, p. 532, *nigrocumulata*, p. 533, *tumida*, *turpis*, p. 534, E. Africa, WARREN, t. c., n. spp.
Psychophora ; affinities, DYAR, Ent. News Philad. xiii, p. 191.
P. fasciata, Alaska, SKINNER, Ent. News Philad. xiii, p. 141, n. sp.
Ptochophyle strigata, Solomon Ids., WARREN, Nov. Zool. ix, p. 360, n. sp.
Ptychopoda auriflua, *laciniata*, *lilliputaria*, *nitescens*, p. 502, *œnozonata*, *parallelaria*, *recurvinota*, p. 503, Africa, WARREN, t. c.; *P. cubitata*, Colombia, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 345; *P. inamœna*, Ecuador, DOGNIN, t. c. p. 478 : n. spp.
Pylarge candidaria, E. Africa, WARREN, Nov. Zool. ix, p. 504; *P. erebospila*, Queensland, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 250 : n. spp.
Pyrinia dispansa, Brazil, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 340, n. sp.
Rhodometra intervenata, E. Africa, WARREN, Nov. Zool. ix, p. 506, n. sp.
Rhynchobapta irrorata, Nilgiris, HAMPSON, J. Bombay Soc. xiv, p. 500, n. sp.
Sangalopsis angulimacula, Bolivia, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 341, n. sp.
Sauris infirma, Pulo Laut, *nusta*, New Guinea, SWINHOE, Tr. ent. Soc. London 1902, p. 654, n. spp.
Scardamia maculata var. n. *decolor*, WARREN, Nov. Zool. ix, p. 519.
Scotopterix albimaculata, p. 526, *interposita*, *versicolor*, with varr. *albimedia* and *figurata*, p. 527, E. Africa, WARREN, t. c., n. spp.
Scotosia melanoplagia, Tibet, HAMPSON, J. Bombay Soc. xiv, p. 512, n. sp.
Selidosema assimilis, with var. *separata*, E. Africa, WARREN, Nov. Zool. ix, p. 522, n. sp.
Semiothisa albibrunnea, Selaru, WARREN, t. c. p. 371, n. sp.
Selidosema ombrodes, Chatham Ids., MEYRICK, Tr. ent. Soc. London 1902, p. 275, n. sp.
Semœopus ? *anomala*, Colombia, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 343, n. sp.
Sicyodes cambogiaria = (*ocellata* Warr.), WARREN, Nov. Zool. ix, p. 536.
Smyriodes aphronesa, Victoria, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 250, n. sp.
Stenoplastis grandimacula, Bolivia, p. 474, *biplaga*, Ecuador, p. 475, DOGNIN, Ann. Soc. ent. Belgique xlvi, n. spp.
Sterrha crescentifera, Africa, WARREN, Nov. Zool. ix, p. 504; *S. punctilinea*, W. Australia, SWINHOE, Ann. Nat. Hist. ix, p. 167 : n. spp.
Syndetodes n. g. near *Sphingomima*, for *S. segmentata*, n. sp., E. Africa, WARREN, Nov. Zool. ix, p. 535.
Syndromodes pulchrifimbria, E. Africa, WARREN, t. c. p. 496, n. sp.
Synomila subochrearia, life-history, DYAR, Psyche ix, p. 407.
Synthalia n. g. *Astheninæ*, for *S. innocens*, n. sp., E. Africa, WARREN, Nov. Zool. ix, p. 506.
Tasta reflexa, Khasia Hills, SWINHOE, Ann. Nat. Hist. ix, p. 415, n. sp.
Tephrinopsis trinotata, E. Africa, WARREN, Nov. Zool. ix, p. 530; *T. gratiosa*, Australia, SWINHOE, Tr. ent. Soc. London 1902, p. 617 : n. spp.
Tephroclystis pœcilata, pl. vi, fig. 18, p. 146, PÜNGELER, Deutsche ent. Zeitschr. Iris xv; *T. subfulvata* var., BARTEL, Deutsche ent. Zeitschr. xv, p. 218; *T. sinuosaria* var., KROULIKOWSKY, Rev. Russe Ent. ii, p. 75.
T. thalictrata Wallis, PÜNGELER, Deutsche ent. Zeitschr. Iris xv, p. 137, pl. vi, figg. 21, 22; *T. anguinata*, *atomaria*, *celatisigna*, p. 510, *immensa*, *picturata*, *nigribasis* (with var. *carnea*), p. 511, *regulosa*,

semiflavata, p. 512, Africa, WARREN, Nov. Zool. ix; *T. planiscripta*, Australia, WARREN, t. c. p. 364; *T. rufipalpata*, Colombia, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 348; *T. sexpunctata*, Ecuador, DOGNIN, t. c. p. 479 : n. spp.

Tetraspidoptera n. n. for *Aspidoptera* Lucas, SPEISER, Berlin. ent. Zeitschr. 1902, p. 141.

Thalainodes n. g., p. 231, for *Amelora tetraclada*, *paronycha*, with *T. allochroa*, n. sp., N. S. Wales, p. 232, LOWER, Tr. R. Soc. S. Austral. xxvi.

Thalassodes quadraria, larva and pupa, pl. U, figg. 9, 10, p. 641, SEMPER, Schmett. Philipp. ii.

T. pupillata, p. 496, *stictimargo*, E. Africa, *unicolor*, Niger, p. 497, WARREN, Nov. Zool. ix; *T. curiosa*, Penang, SWINHOE, Tr. ent. Soc. London 1902, p. 673 : n. spp.

Thamnonoma punctilineata, Ecuador, DOGNIN, Ann. Soc. ent. Belgique xlvi, p. 345, n. sp.

Tigridoptera decorata, Milne Bay, SWINHOE, Tr. ent. Soc. London 1902, p. 634, n. sp.

Timandra malacopis, W. Australia, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 228, n. sp.

Traminda subcarnea, Congo, WARREN, Nov. Zool. ix, p. 505, n. sp.

Triprora, cf. *Procypha*.

Urapteroides diana, Perak, SWINHOE, Ann. Nat. Hist. ix, p. 166; *U. approximans*, Key Isd., SWINHOE, t. c. p. 415; *U. latimarginata*, New Guinea, SWINHOE, Tr. ent. Soc. London 1902, p. 599 : n. spp.

Venilia rumiformis, Tibet, HAMPSON, J. Bombay Soc. xiv, p. 498, n. sp.

Victoria marginata, Niger, WARREN, Nov. Zool. ix, p. 497, n. sp.

Visitara n. gen. *Boarmiinæ*, for *V. brunneiplaga*, n. sp., Sumatra, SWINHOE, Tr. ent. Soc. London 1902, p. 621.

Xanthisthisa n. n. for *Acanthoscelis* Warr., SPEISER, Berlin. ent. Zeitschr. 1902, p. 141; *Xanthisthisa*, cf. *Psilocerea*.

Xanthomima partita, Solomon Ids., WARREN, Nov. Zool. ix, p. 367, n. sp.

Xanthorrhoe rhodacris, S. Australia, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 226; *X. homalocyma*, Chatham Id., MEYRICK, Tr. ent. Soc. London 1902, p. 274 : n. spp.

Xenochroma n. g. *Geometrinæ*, p. 497, for *X. candidata*, n. sp., East Africa, p. 498, WARREN, Nov. Zool. ix.

Xenographia hetera, Sikhim, HAMPSON, J. Bombay Soc. xiv, p. 499, pl. c, fig. 11, n. sp.

Xylopteryx brunneata, Comoro Ids., WARREN, Nov. Zool. ix, p. 523, n. sp.

Zamarada ochrata, E. Africa, WARREN, t. c. p. 518; *Z. fugax*, Larat, WARREN, t. c. p. 365 : n. spp.

Zonosoma pendularia var. n. *subroseata*, WOODFORDE, Entomologist 1902, p. 275.

Zygoctenia singularis, Fergusson Id., SWINHOE, Tr. ent. Soc. London 1902, p. 620, n. sp.

PYRALIDÆ and THYRIDÆ.

[Cf. CANNAVIELLO (209), CHAPMAN (224), DEMAISON (313), DRUCE (351), GROTE (561), LOWER (830, 831), LUCAS (834), MEYRICK (906, 911), REBEL (1105), ROSTAGNO (1170), SAUBER & SEMPER (1253), SWINHOE (1345, 1347), TURNER (1392), WARREN (1445).]

Acara impunctella, p. 645, pl. lxvi, fig. 2, SAUBER, in Semper Schmett. Philipp. ii, n. sp.

Acridura nigrans, Peru, *eusebia*, *pudens*, Ecuador, DRUCE, Ann. Nat. Hist. ix, p. 331, n. spp.

Actenia orbicentralis, Palestine, REBEL, Deutsche ent. Zeitschr. Iris xv, p. 102, pl. iv, fig. 4, n. sp.
Archigalleria n. g. for *Aphomia proavitella* Reb., REBEL, in Staudinger Cat. ii, p. 2, and Verh. Ges. Wien lii, p. 570.
Argyria holocrossa, Aden, MEYRICK, Ent. Mag. xxxviii, p. 176, n. sp.
Azamora lineosa, Ecuador, DRUCE, Ann. Nat. Hist. ix, p. 328, n. sp.
Banisia pusillata, Niger, WARREN, Nov. Zool. ix, p. 489; *B. clathraria*, New Pomerania, WARREN, t. c. p. 342 : n. spp.
Betousa dilecta Wlk. = (*Neothyris aspirans* Warr.), WARREN, t. c. p. 342.
Bostra cervinalis, Jordan Valley, REBEL, Deutsche ent. Zeitschr. Iris xv, p. 101, pl. iv, fig. 3, n. sp.
Cecidiptera albifasciata, *arctata*, Peru, DRUCE, Ann. Nat. Hist. ix, p. 325, n. spp.
Cirrhochrista minuta, Labuan, SWINHOE, Ann. Nat. Hist. ix, p. 181, n. sp.
Constantia ornata, E. Africa, *striata*, W. Africa, DRUCE, Ann. Nat. Hist. ix, p. 327, n. spp.
Crambus pascuellus var. n. *collutella*, FUCHS, Stettin Ent. Zeit. 1902, p. 319.
C. dianipha, W. Australia, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 660; *C. horistes*, Chatham Islands, MEYRICK, Tr. ent. Soc. London 1902, p. 276 : n. spp.
Doddiana n. g. for *Stericta callizona*, Low., TURNER, Tr. R. Soc. S. Austral. xxvi, p. 188.
Dohertya n. g. near *Pharambara*, for *D. roscopuncta*, n. sp., Celebes, WARREN, Nov. Zool. ix, p. 342.
Durdara ovifera Butl. referred to *Canæa*, characters, WARREN, t. c. p. 342.
Dysallacta luzonica, Philippines, SAUBER, p. 678 in Semper Schmett. Philipp. ii, n. sp.
Dysodia bifenestrata, Philippines, p. 708, pl. lxvi, fig. 19, SEMPER, t. c., n. sp.
Eclipsiodes argolina, *epigypsa*, p. 665, *leuconota*, p. 666, Australia, LOWER, P. Linn. Soc. N. S. Wales xxvi, n. spp.
Enchocnemidia vertumnalis, larva, pl. v, fig. 4, p. 679, SEMPER, Schmett. Philipp. ii.
Endocrossis quinquemaculalis, Philippines, p. 673, pl. lxvi, fig. 10, SAUBER, in Semper Schmett. Philipp. ii, n. sp.
Eoophyla snelleni, Philippines, pl. lxvi, figg. 4, 5, p. 656, SEMPER, t. c., n. sp.
Epinoorda n. g. near *Noorda*, for *E. caradjæ*, n. sp., Jordan Valley, p. 103, REBEL, Deutsche ent. Zeitschr. Iris xv, p. 103, pl. iv, fig. 1.
Ercta ornatalis, larva, pl. v, fig. 11, p. 665, SEMPER, Schmett. Philipp. ii.
Erupa luceria, *patara*, Ecuador, DRUCE, Ann. Nat. Hist. ix, p. 324, n. spp.
Euclasta filigeralis, larva and pupa, pl. v, figg. 7, 8, p. 684, SEMPER, Schmett. Philipp. ii.
Eudaimonisma n. g. *Pyralidinæ*, for *E. batchelorella*, n. sp., Queensland, LUCAS, P. Linn. Soc. N. S. Wales xxvii, p. 247.
Eurrhyparodes calis, Colombia, *lygdamis*, Centr. and S. America, DRUCE, Ann. Nat. Hist. ix, p. 329, n. spp.
Eurycreon sticticalis, life-history, MOKRZETZKI (921).
E. imperialis, Philippines, pl. lxvi, fig. 13, p. 692, SAUBER in Semper Schmett. Philipp. ii, n. sp.
Glyphodes mesozona, Queensland, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 668; *G. mirabilis*, *semibrunnea*, Ecuador, *confinis*, Colombia, p. 333, *speculifera*, Isabel Island, *eurygania*, New Guinea, *grandisalis*, Venezuela, p. 334, DRUCE, Ann. Nat. Hist. ix : n. spp.
Hemiscopys suffusalis Walk. = (*Botys snellemanni* Snellen and *Pyrausta violacea* Lucas), SWINHOE, Ann. Nat. Hist. x, p. 51.

Hornigia sauberi, Philippines, p. 644, pl. lxvi, fig. 1, SEMPER, Schmett. Philipp. ii, n. sp.
Hyalosticta æstivalis, Bolivia, DRUCE, Ann. Nat. Hist. ix, p. 328, n. sp.
Hydrocampa; notes, CANNAVIELLO, Bol. Soc. espan. ii, pp. 164–173.
Hypotia corticalis, larva, habits, type of subfam. n. *Hypotianæ*, CHAPMAN, Tr. ent. Soc. London 1902, pp. 49–55.
Hypotianæ subfam. n., CHAPMAN, t. c. p. 49.
Lepidogma jordanalis, Jordan Valley, REBEL, Deutsche ent. Zeitschr. Iris xv, p. 100, pl. iv, fig. 2, n. sp.
Locastra ardua, Fiji, SWINHOE, Ann. Nat. Hist. ix, p. 181, n. sp.
Loxostege triumphalis, California, GROTE, Canad. Ent. xxxiv, p. 295, n. sp.
Lygropia albida, Ecuador, p. 332, *quatrilis*, Venezuela, p. 333, DRUCE, Ann. Nat. Hist. ix, n. spp.
Macalla mira, Ecuador, DRUCE, t. c. p. 324, n. sp.
Macna minanga, pl. lxvi, fig. 3, *camiguina*, Philippines, SAUBER, p. 651, Semper Schmett. Philipp. ii, n. spp.
Mecyna pantheropa, Chatham Islands, MEYRICK, Tr. ent. Soc. London 1902, p. 277, n. sp.
Melissoblaptes baryptera, S. Australia, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 659, n. sp.
Melitara junctolineella, *acrobasis*, *betulella*, *pionea*, *belialis*, early stages, DYAR, P. U. S. Mus. xxv, pp. 396, 397.
Merotoma dairalis, larva and pupa, p. 670, pl. v, figg. 5, 6, SEMPER, Schmett. Philipp. ii.
Metallarcha goudii, Victoria, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 234, n. sp.
Metasia ochrifascialis, *inustalis*, cf. *Pyrausta*.
Midila carneia, Colombia, DRUCE, Ann. Nat. Hist. ix, p. 323, n. sp.
Nomophila noctuella, at sea, DEMAISON, Bull. Soc. ent. France 1902, p. 307.
Notarcha penthodes, Maldives, MEYRICK, Gardiner Fauna Maldive i, p. 125, n. sp.
Nymphicula manilensis, Philippines, SAUBER, p. 654, in Semper Schmett. Philipp. ii, n. sp.
Nymphula tenebralis, Queensland, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 664, n. sp.
Nephopteryx chryserythra, *monospila*, Australia, LOWER, t. c. p. 662, n. spp.
Obtusipalpis citrina, W. Africa, DRUCE, Ann. Nat. Hist. ix, p. 323, n. sp.
Oligostigma angustalis, Philippines, p. 655, SAUBER in Semper Schmett. Philipp. ii, n. sp.
Orthaga phæopteralis, Queensland, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 664, n. sp.
Oligochroa amaura, Queensland, LOWER, t. c. p. 662, n. sp.
Pachynoa circulalis, Philippines, pl. lxvi, fig. 11, p. 689, SAUBER in Semper Schmett. Philipp. ii, n. sp.
Pachyzancla ottonalis, Philippines, pl. lxvi, fig. 12, larva and pupa, pl. v, figg. 2, 3, p. 691, SAUBER, t. c., n. sp.
Paracymoriza parallelalis, Philippines, pl. lxvi, fig. 7, p. 657, SAUBER, t. c., n. sp.
Phlyctenodes ochromorpha, W. Australia, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 669, n. sp.
Phryganodes buckleyi, *grandis*, *mendelalis*, Ecuador, DRUCE, Ann. Nat. Hist. ix, p. 332, n. spp.
Phycita hemicallista, W. Australia, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 663, n. sp.
Pilocrocis citrina, Ecuador, DRUCE, Ann. Nat. Hist. ix, p. 330, n. sp.
Pionea orthogramma, p. 668, *monophäes*, p. 669, Australia, LOWER, P. Linn. Soc. N. S. Wales xxvi, n. spp.

Pyrausta retowskyi Moschl. and *Metasia ochrifascialis* Chr. are the same, also *P. acumenalis* B. Haas and *M. inusta* Rag are one, REBEL, Deutsche ent. Zeitschr. Iris xv, p. 107.

P. wockei, E. Turkestan, REBEL, t. c. p. 106; *P. hyalistis*, Melbourne, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 669 : n. spp.

Rhodoneura giulia, New Guinea, SWINHOE, Ann. Nat. Hist. x, p. 50, n. sp.

Sacada nerina, Madagascar, DRUCE, Ann. Nat. Hist. ix, p. 327, n. sp.

Saccopleura pallidalis, Costa Rica, DRUCE, t. c. p. 328, n. sp.

Schistoneura mathona, Colombia, DRUCE, t. c. p. 328, n. sp.

Scoparia stenopa, S. Australia, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 666; *S. leptophœa*, Chatham Ids., MEYRICK, Tr. ent. Soc. London 1902, p. 277 : n. spp.

Sedenia achroa, Australia, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 660, n. sp.

Spilomela pœonialis, Colombia, DRUCE, Ann. Nat. Hist. ix, p. 331, n. sp.

Stericta flavomarginata, p. 325, British Guiana, *zetila*, *medusa*, *olivescens*, p. 326, *nigropunctata*, p. 327, Colombia, DRUCE, t. c., n. spp.

Surattha bathrotricha, N. S. Wales, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 661, n. sp.

Sylepta multilinealis, larva, p. 676, pl. v, fig. 1, SEMPER, Schmett. Philipp. ii.

S. crocophanes, Queensland, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 667, n. sp.

Symphleps perfusa, Celebes, WARREN, Nov. Zool. ix, p. 343, n. sp.

Syngamia eos, Madagascar, p. 329, *zena*, *apicolor*, Colombia, *simulata*, Ecuador, p. 330, DRUCE, Ann. Nat. Hist. ix, n. spp.

Talis macroura, S. Australia, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 233; *T. macrogona*, S. Australia, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 661 : n. spp.

Tegostoma kabylalis, Algeria, REBEL, Deutsche ent. Zeitschr. Iris xv, p. 107, n. sp.

Tetraprosopus paracycla, N. S. Wales, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 667, n. sp.

Theila hirsuta, Philippines, pl. lxvi, fig. 6, p. 657, SEMPER, Schmett. Philipp. ii, n. sp.

Titanio pulchra, Transcaspian, REBEL, Deutsche ent. Zeitschr. Iris xv, p. 105, n. sp.

Trichoceræa n. g. *Hymeniinæ*, for *T. semperi*, n. sp., Philippines, pl. lxvi, figg. 8, 9, p. 661, SAUBER in Semper Schmett. Philipp. ii.

Vitula serratilineella, egg and larva, DYAR, P. ent. Soc. Washington v, p. 104.

PTEROPHORIDÆ.

[Cf. MEYRICK (908, 912), REBEL (1105).]

Early stages, *Oxyptilus delawaricus*, *Pterophorus sulphureodactylus*, *Plat. cosmodactyla*, *Alucita cinerascens*, DYAR, P. U. S. Mus. xxv, pp. 397–399.

Platyptilia zetterstedtii var. n. *doronicella*, FUCHS, Stettin Ent. Zeit. 1902, p. 329.

P. leucorrhyncha, Switzerland, MEYRICK, Ent. Mag. xxxviii, p. 217; *P.? asiatica*, E. Turkestan, REBEL, Deutsche ent. Zeitschr. Iris xv, p. 108; *P. œolodes*, Chatham Ids., MEYRICK, Tr. ent. Soc. London 1902, p. 278 : n. spp.

Pteropygme n. n. for *Synaphia* Pag., SPEISER, Berlin. ent. Zeitschr. 1902, p. 142.

TORTRICIDÆ.

[Cf. CHRÉTIEN (243), FUCHS (506), MEYRICK (906), LOWER (830–832), POMERANTZEW (1076), SAUBER (1253).]

Early stages of N. American, specially *Cacoecia*, DYAR, P. U. S. Mus. xxv, pp. 399–403.

Adoxophyes euryomis, Maldives, MEYRICK, Gardiner Fauna Maldive i, p. 126, n. sp.

Anisogona placoxantha referred to *Dichelia*, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 236.

Cacaecia ophiodesma, Tasmania, LOWER, t. c. p. 251, n. sp.

Capua acrodesma, p. 234, *epiloma*, p. 235, N. S. Wales, LOWER, t. c., n. spp.

Carpocapsa pomonella, SIMPSON (1272); *C. pomonella*, broods, SIMPSON, P. ent. Soc. Washington v, p. 85.

Catoptria ulicetana, BANKES, Ent. Mag. xxxviii, p. 246.

Cnephasia pamicana var. n. *græcana*, REBEL, Berlin. ent. Zeitschr. 1902, p. 105.

Conchylis humerana Walk., cf. *Doleromima* in *Tineidæ*.

C. austrinana, France, CHRÉTIEN, Naturaliste xxiv, p. 258, n. sp.

Dichelia scotinopa, Victoria, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 236; *D. diphtheroides*, Victoria, LOWER, t. c. p. 252 : n. spp.

Diphtherina gnophodryas, Tasmania, LOWER, t. c. p. 254, n. sp.

Eucosma leucaspis, Maldives, MEYRICK, Gardiner Fauna Maldive i, p. 126, n. sp.

Grapholitha inquinatana var. n. *maura*, KROULIKOWSKY, Rev. Russe Ent. ii, p. 75.

Gynoxypteron n. n. for *Oxypteron* St., SPEISER, Berlin. ent. Zeitschr. 1902, p. 142.

Leptarthra n. g. near *Byrsoptera*, for *L. aulacodes*, n. sp., W. Australia, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 253.

Oxypteron, cf. *Gynoxypteron*.

Penthina hebesana, larva, GIBSON, Canad. Ent. xxxiv, p. 182.

Semasia hinnebergiana, Germany, FUCHS, Stettin Ent. Zeit. 1902, p. 321, n. sp.

Steganoptycha nanana, early stages, POMERANTZEW, Zool. Anz. xxv, p. 262.

Tortrix corylana var. n. *erythrana*, FUCHS, Stettin Ent. Zeit. 1902, p. 320; *T. pinicolana*, ravages in the Alps, HENRY, Feuille Natural. xxxii, pp. 128–130.

T. luzonica, Philippines, p. 703, larva and pupa, pl. v, figg. 9, 10, SAUBER in Semper Schmett. Philipp. ii; *T. anemarcha*, N. S. Wales, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 236; *T. asthenopis*, *paurozona*, Australia, LOWER, t. c. p. 252; *T. metallocosma*, Queensland, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 670 : n. spp.

TINEIDÆ, *s. l.*

[Cf. BARRETT (68), BUSCK (183, 184), CHAPMAN (227, 228), CHRÉTIEN (241, 242), DYAR (375, 379, 380), FUCHS (506), GUERCIO (572), KEARFOTT (667), LAMPA (767), LOWER (830, 831), LUCAS (834), MEYRICK (909, 910, 913), PAUX (1005), REBEL (1105, 1106), SCHÜTZE (1225), SAUBER (1253), STRAND (1335–1340), TURNER (1392), WALSINGHAM & DURRANT (1440).]

Under the heading "Grabowiana" SORHAGEN continues his notes on larvæ and habits in Mark Brandenburg, Allg. Zeitschr. Ent. vii, pp. 19–97.

Early stages of some N. American, DYAR, P. U. S. Mus. xxv, pp. 403–411.
Larva, unnamed, living in tumours on olive, GUERCIO, Bull. Soc. ent. Ital. xxxiv, pp. 189–198.

Acolasta n. g. *Œcophoridæ*, for *A. pachnias*, *scolia*, n. spp., Australia, MEYRICK, Tr. R. Soc. S. Austral. xxvi, p. 155.

Adela mazzolella var. n. *armeniella*, REBEL, Deutsche ent. Zeitschr. Iris xv, p. 126, pl. iv, fig. 14.

A. anatolica, p. 125, pl. iv, fig. 13, Asia Minor, REBEL, t. c., n. sp.

Anacampsis polychromella, Syria, REBEL, t. c. p. 109, n. sp.

Aphigalia n. n. for *Phigalia* Chamb., DYAR, List, p. 544.

Ardozyga n. g. near *Guestia*, for *A. tetralychna*, *thermoplaca*, n. spp., Victoria, LOWER, Tr. R. Soc. S. Austral. xxvi.

Atheropla chorias, Sydney, MEYRICK, Tr. R. Soc. S. Austral. xxvi, p. 140; *A. scioxantha*, Victoria, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 242: n. spp.

Atychia caradjæ, Armenia, REBEL, Deutsche ent. Zeitschr. Iris xv, p. 122, pl. iv, fig. 11, n. sp.

Azinis hilarella, larva and pupa, pl. v, figg. 12, 13, p. 700, SEMPER, Schmett. Philipp. ii.

Babaiaxa n. g. for *Psecadia delliella* Fern., pl. xii, fig. 4, BUSCK, J. N. York Ent. Soc. x, p. 95.

Binsitta Walk., defined, *Cryptolechia effractella* (= *Teratomorpha cœliota* Turn.) referred to it, MEYRICK, Tr. R. Soc. S. Austral. xxvi, pp. 163, 164.

Blastobasis; taxonomical note, BUSCK, J. N. York Ent. Soc. x, p. 96.

B. sarcophaga, p. 169, *tarda*, *nephelias*, p. 170, *leucotoxa*, *homadelpha*, p. 171, Australia, MEYRICK, Tr. R. Soc. S. Austral. xxvi, n. spp.

Borkhausenia haasi, Taurus, REBEL, Deutsche ent. Zeitschr. Iris xv, p. 118; *B. sphaleropis*, Victoria, MEYRICK, Tr. R. Soc. S. Austral. xxvi, p. 168: n. spp.

Brachybelistis n. g. near *Xylorycta*, for *X. neomorpha* Turn. and *pentachroa* Sow., TURNER, Tr. R. Soc. S. Austral. xxvi, p. 195.

Busckia n. n. for *Eurynome* Chamb., DYAR, List, p. 563.

Cacelice n. g. for *C. permolestella*, n. sp., N. America, BUSCK, p. 93, pl. xii, fig. 3, J. N. York Ent. Soc. x.

Caconome n. n. for *Acanthocnemes* Chamb., DYAR, List, p. 563.

Cameraria n. g., type *Lithocolletis guttifinitella*, CHAPMAN, Entomologist 1902, p. 141.

Catoryctis truncata, Queensland, LUCAS, P. Linn. Soc. N. S. Wales xxvii, p. 249, n. sp.

Cerycostola n. g. for *Gonionota pyrobola* Meyr., MEYRICK, Tr. R. Soc. S. Austral. xxvi, p. 163.

Choreutidia n. g. near *Choreutis*, for *C. sexfasciella*, n. sp., Philippines, p. 702, SAUBER in Semper Schmett. Philipp. ii.

Choreutis; revision of N. American, KEARFOTT, J. N. York Ent. Soc. x, pp. 106–125.

C. dyarella, p. 112, *gnaphaliella*, p. 113, *cardinella*, p. 116, *busckiella*, p. 120, *coloradella*, p. 123, N. America, KEARFOTT, t. c., n. spp.

Clerarcha poliochyta, Queensland, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 198, n. sp.

Cœranica antichroma, Victoria, MEYRICK, Tr. R. Soc. S. Austral. xxvi, p. 137, n. sp.

Cœsyra mimopa, *colonœa*, *microstictis*, Australia, MEYRICK, t. c. p. 139, n. spp.

Cœsyropa argyraspis, referred to *Philobota*, MEYRICK, t. c. p. 142.

Coleophora milvipennis in Britain, notes on, BARRETT, Ent. Mag. xxxviii, pp. 79, 80.

C. æthiopiformis, STRAND, Verh. Ges. Wien lii, p. 562, n. sp.

Cosmoptryx floridanella = (*nigrapunctella* Busck), BUSCK, J. New York Ent. Soc. x, p. 98.

Cosmoscotopa n. g. near *Phylomictis*, p. 239, for *C. leucopelta*, n. sp., S. Australia, p. 240, LOWER, Tr. R. Soc. S. Austral. xxvi.

Crinopteryx familiella, life-history, structure, classification, CHAPMAN, Ent. Mag. xxxviii, pp. 93–102, pl. ii.

Cryptoblabes ferrealis, Australia, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 663, n. sp.

Cryptolechia circulatella Walk. referred to *Peritorneuta*, MEYRICK, p. 161, Tr. R. Soc. S. Austral. xxvi.

Cryptophaga isoneura, Victoria, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 236; *C. confundens*, Queensland, LUCAS, P. Linn. Soc. N. S. Wales xxvii, p. 248 : n. spp.

Cryptophasa eucephala, Queensland, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 193; *C. psilocrossa*, p. 203, *sacerdos* (Walsingh.), p. 204, *byssinopis*, p. 205, Queensland, TURNER, t. c. : n. spp.

Depressaria; revision of N. American, with n. spp. as below, BUSCK, P. U. S. Mus. xxiv, pp. 731–749.

D. arctica, Norway, STRAND, Arch. Naturv. Christian. xxiv, No. 7; *D. sanguinella*, p. 738, *muricolorella*, p. 741, *senicionella*, p. 742, *canadensis*, p. 744, *betulella*, p. 746, *barberella*, p. 747, N. America, BUSCK, P. U. S. Mus. xxiv : n. spp.

Diplodoma palæstinella, Syria, REBEL, Deutsche ent. Zeitschr. Iris xv, p. 123, n. sp.

Dissoctena albidella, Spain, REBEL, t. c. p. 121, n. sp.

Doleromima n. g., p. 158, with *D. eumorpha*, p. 159, *ceramora*, p. 160, n. spp., Australia, and *Conchylis humerana* Walk., *Cryptolechia tripunctella* Walk. (= *Pedois cosmopoda* Turn.), MEYRICK, Tr. R. Soc. S. Austral. xxvi.

Elassoptila n. g., for *E. microxutha* n. sp., Queensland, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 206.

Eomystis triselena, Queensland, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 240, n. sp.

Epicallima n. n. for *Callima* Clem., DYAR, List, p. 525.

Epipyrops Westw. is a Tineoid form, DYAR, P. ent. Soc. Washington v, p. 45.

Eretmocera bicolorella, Philippines, p. 698, SAUBER in Semper Schmett. Philipp. ii, n. sp.

Eriocrania; notes on larva, KEARFOTT, Ent. News Philad. xiii, pp. 129–132.

Ethmia; the N. American tabulated, DYAR, J. N. York Ent. Soc. x, pp. 202–208.

E. semitenebrella, p. 204, *josephinella*, p. 205, *semiombra*, p. 206, *coranella*, p. 207, N. America, DYAR, t. c., n. spp.

Eulechria adelphodes referred to *Guestia*, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 244.

E. phœnissa, Queensland, *nicæa*, Tasmania, p. 147, *meseleytra*, *piodes*, p. 148, *zemiodes*, *hymenæa*, p. 149, *ischnodes*, *phoryntis*, p. 150, *scotiodes*, *optalea*, p. 151, Australia, MEYRICK, Tr. R. Soc. S. Austral. xxvi; *E. leucopis*, N. S. Wales, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 241 : n. spp.

Eumeyrickia n. g. type *Chætochilus trimaculellus* Fitch, pl. xii, fig. 3, BUSCK, J. N. York Ent. Soc. x, p. 94.

Euphiltra chrysorrhoda, Sydney, MEYRICK, Tr. R. Soc. S. Austral. xxvi, p. 145, n. sp.

Eupselia philomorpha, Victoria, LOWER, P. Linn. Soc. N. S. Wales xxvi, p. 670, n. sp.

Gelechia = (*Pseudochelaria* Dietz), WALSINGHAM & DURRANT, Ent. Mag

xxxviii, p. 28; *G. sexnotella* Chamb. referred to *Mompha*, BUSCK, J. N. York Ent. Soc. x, p. 97, pl. xii, fig. 7.

G. norvegiæ, Norway, STRAND, Berlin. ent. Zeitschr. 1902, p. 155; *G. caminariella*, Germany, FUCHS, Stettin Ent. Zeit. 1902, p. 323 : n. spp.

Gnorimoschema coquillettella, N. America, BUSCK, P. U. S. Mus. xxv, p. 405, n. sp.

Gracilaria and allies, taxonomy, CHAPMAN, Entomologist 1902, pp. 81 etc.

G. (*Dialectica*) *pnosmodiella*, Colorado, BUSCK, P. U. S. Mus. xxv, p. 409, n. sp.

Helice; characters, synonymy, BUSCK, J. N. York Ent. Soc. x, pp. 89 92.

Hesperoptila n. g. *Œcophoridæ*, p. 136, for *H. arida*, n. sp., W. Australia, p. 137, MEYRICK, Tr. R. Soc. S. Austral. xxvi.

Holcopogon = (*Cyrnia* Wlsm.) *H. bubulcellus* = (*C. barbata*), WALSINGHAM, Ent. Mag. xxxviii, p. 81.

Holoscolia majorella, Asia Minor, pl. iv, fig. 7, *berytella*, Syria, REBEL, Deutsche ent. Zeitschr. Iris p. 115, n. spp.

Hoplitica hepatitis, Victoria, MEYRICK, Tr. R. Soc. S. Austral. xxvi, p. 147, n. sp.

Hypercallia trichroa, S. Australia, MEYRICK, t. c. p. 141, n. sp.

Hyponomeuta; natural history, specially of injurious, synonomy, MARCHAL, Bull. Soc. Agric. i.

Iphierga pycnozona, *melichrysa*, Victoria, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 246, n. spp.

Ischnuridia n. g. near *Dendroneura*, for *I. virginella*, n. sp., Philippines, pl. lxvi, fig. 17, p. 704, SAUBER, in Semper Schmett. Philipp. ii.

Lepidotarsa argyropis, Sydney, MEYRICK, Tr. R. Soc. S. Austral. xxvi, p. 145, n. sp.

Leptobelistis n. g. for *L. asemanta*, n. sp., Queensland, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 198.

Leptosaces schistopa, p. 156, *pytinæa*, p. 157, Australia, MEYRICK, Tr. R. Soc. S. Austral. xxvi, n. spp.

Lichenaula allocrossa, p. 196, *castanea*, p. 197, Australia, TURNER, Tr. R. Soc. S. Austral. xxvi, n. spp.

Linosticha autographa, *themerodes*, Australia, MEYRICK, Tr. R. Soc. S. Austral. xxvi, p. 152, n. spp.

Lita nitentella, Germany, FUCHS, Stettin Ent. Zeit. 1902, p. 324, n. sp.

Machæritis pelinopa, p. 133, *naias*, p. 134, Australia, MEYRICK, Tr. R. Soc. S. Austral. xxvi, n. spp.

Macrobathra xanthoplaca, *homocosma*, *galenæa*, Australia, MEYRICK, t. c. p. 167, n. sp.

Marmara; characters amended, BUSCK, J. N. York Ent. Soc. x, p. 98.

Matyringa n. g. type *Œgoconia latipennis* Walsingh., pl. xii, fig. 6, BUSCK, t. c. p. 96.

Micropteryx idæ, Greece, REBEL, Berlin. ent. Zeitschr. 1902, p. 110, n. sp.

Mimobrachyoma n. g. for *Œcophora eusema* Low., LOWER, Tr. R. Soc. S. Austral. xxvi, p. 242.

Mixodetis n. g. for *Paratheta ochrocoma* and *calyptra* Low., MEYRICK, Tr. R. Soc. S. Austral. xxvi, p. 172.

Mompha divisella, *decorella* etc. note, CHRÉTIEN, Bull. Soc. ent. France 1902, p. 152.

M. (*Laverna*) *nodicolella* (*hornigii* Stt.), Germany, FUCHS, Stettin Ent. Zeit. 1902, p. 328, n. sp.

Nothris hoffmanniella, Norway, STRAND, Norske Selsk. Skr. 1901, No. 8, p. 4, n. sp.

Œcophora eusema, cf. *Mimobrachyoma*.

Œnochroa homora, Australia, MEYRICK, Tr. R. Soc. S. Austral. xxvi, p. 152, n. sp.

Orchemia diana var. n. *betuliperda*, early stages, DYAR, P. U. S. Mus. xxxv, p. 403.
Octasphales chorderes, Queensland, MEYRICK, Tr. R. Soc. S. Austral. xxvi, p. 161, n. sp.
Ocystola polemistis, p. 134, *misthota*, *chrysopis*, p. 135, *æthopis*, *holoxantha*, p. 136, Australia, MEYRICK, t. c.; *O. tephrodes*, *microphanes*, Victoria, LOWER, t. c. p. 243 : n. spp.
Palæomicra calliplaca, Australia, MEYRICK, Ent. Mag. xxxviii, p. 60, n. sp.
Paratheta n. g. *Œcophoridæ*, for *P. spodostrota*, p. 173, *philoscia*, *syrtica*, p. 174, n. spp., Australia, MEYRICK, Tr. R. Soc. S. Austral. xxvi.
Pedois restricted to *P. neurosticha*, MEYRICK, t. c. p. 158.
P. anthracias, Victoria, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 246, n. sp.
Peltosaris n. g. *Œcophoridæ*, for *P. triplaca*, n. sp., N. S. Wales, MEYRICK, Tr. R. Soc. S. Austral. xxvi, p. 141.
Periallactis n. g. for *Aristotelia monstropha* Low., MEYRICK, t. c. p. 172.
Peritorneuta thyellia, *rhodophanes*, Australia, MEYRICK, t. c. p. 162, n. spp.
Philobota tetraspora referred to *Trachyntis*, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 241.
P. trimeris, Australia, id., l.c., n. sp.
Phlæopola epethistis, Tasmania, MEYRICK, Tr. R. Soc. S. Austral. xxvi, p. 154, n. sp.
Phthorimœa n. g. for *operculella* Zell.=(*solanella* Boisd.), MEYRICK, Ent. Mag. xxxviii, p. 103.
Phyllocnistis suffusella, early stages, SICH, Tr. City London Soc. 1902, pp. 30–43.
Pilostibes embroneta, Queensland, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 203, n. sp.
Pleurota minimella, Samarkand, REBEL, Deutsche ent. Zeitschr. Iris xv, p. 114; *P. lomographa*, S. Australia, LOWER, Tr. R. Soc. S. Austral. xxvi, p. 245 : n. spp.
Plutella paracyla referred to *Saropla*, LOWER, t. c. p. 245; *P. multimaculella*, temporary reference to *Gelechia*, BUSCK, J. N. York Ent. Soc. x, p. 97, pl. xii, fig. 8.
P. hyperboreella, Finland, STRAND, Ent. Tidskr. xxiii, p. 63, n. sp.
Procometis stenarga, Victoria, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 199, n. sp.
Proleucoptera n. g. for *Leucoptera similaciella*, BUSCK, J. N. York Ent. Soc. x, p. 98.
Psaltriodes n. g. *Œcophoridæ*, p. 137, for *P. thriambis*, n. sp., Queensland, p. 138, MEYRICK, Tr. R. Soc. S. Austral. xxvi.
Psecadia dorsivittella, referred to *Heliocausta*, t. c. p. 146.
P. pseudoscythrella, Asia Minor, REBEL, Deutsche ent. Zeitschr. Iris xv, pl. iv, fig. 8, p. 116; *P. magnificella*, Philippines, pl. lxvi, fig. 15, p. 700, SAUBER, in Semper Schmett. Philipp. ii; *P. anthracopis*, Adelaide, MEYRICK, Tr. R. Soc. S. Austral. xxvi, p. 165 : n. spp.
Pseudarbela n. g. *Arbelidæ*, p. 696, for *P. semperi*, n. sp., Philippines, p. 697, pl. lxvi, fig. 14, SAUBER, in Semper Schmett. Philipp. ii.
Pyrgoptila zelotis, Queensland, MEYRICK, t. c. p. 142, n. sp.
Rhodobates lævigatellus var. n. *decolorellus*, REBEL, Deutsche ent. Zeitschr. Iris xv, p. 124, pl. iv, fig. 12.
Scythris obscurella var. n. *rossicella*, KRULIKOWSKY, Rev. Russe Ent. ii, p. 75.
S. aristidella, pl. iv, fig. 9, p. 119, *iconiensis*, fig. 10, p. 120, Asia Minor, REBEL, Deutsche ent. Zeitschr. Iris xv, n. spp.
Semioscopis merriccella, *aurorella*, p. 319, *megamicrella*, p. 320, N. America, DYAR, Canad. Ent. xxxiv, n. spp.
Sphyrelata melanoleuca=(*Gelechia microspiloplaca* Low.) MEYRICK, Tr. R. Soc. S. Austral. xxvi, p. 155.

Stagmatophora divitella, larval habits, CHRÉTIEN, Bull. Soc. ent. France 1902, p. 261.

Symmoca monochromella, p. 110, pl. iv, fig. 5, *zeitunella*, p. 111, Asia Minor, *indistinctella*, Spain, *virginella*, pl. iv, fig. 6, Asia Minor, p. 112, REBEL, Deutsche ent. Zeitschr. Iris xv, n. spp.

Teinoptila n. g. near *Prays* for *T. interruptella*, n. sp., Philippines, pl. lxvi, fig. 16, p. 701, SAUBER in Semper Schmett. Philipp. ii.

Tetanocentria n. g. *Elachistidæ* for *T. gelechiella*, n. sp., Morea, REBEL, Berlin. ent. Zeitschr. 1902, p. 107.

Theiosia n. g. near *Ptilostibes*, for *T. ætheria*, n. sp., Queensland, LUCAS, P. Linn. Soc. N. S. Wales xxvii, p. 250.

Tinea: injurious in Sweden, LAMPA, Ent. Tidskr. xxiii, pp. 122–124, pl. i.

T. holtzi, Morea, REBEL, Berlin. ent. Zeitschr. 1902, p. 109, n. sp.

Tortricomorpha albotæniana, Philippines, p. 697, SAUBER in Semper Schmett. Philipp. ii, n. sp.

Tortricopsis=(*Palparia*) MEYRICK, Tr. R. Soc. S. Austral. xxvi, p. 143.

T. pyroptis, p. 143, *callichroa*, *eusarca*, p. 144, Australia, id. t. c., n. spp.

Trachyntis thrypticopa, p. 153, *epipona*, p. 154, Australia, MEYRICK, t. c., n. spp.

Trichloma n. g., p. 238, for *T. asbolophora*, n. sp., Victoria, p. 239, LOWER, t. c.

Xenopathia n. g. for *Heydenia novaki* Reb., REBEL in Staudinger Cat. ii, p. 164, and Verh. Ges. Wien lii, p. 571.

Xenopathia nivea, Transcaspian, REBEL, Deutsche ent. Zeitschr. Iris xv, p. 114, n. sp.

Xylorycta homoleuca, larva and pupa, GOUDIE, Victorian Natural. xix, p. 79.

X. rhizophaga, *basileia*, Queensland, TURNER, Tr. R. Soc. S. Austral. xxvi, p. 194; *X. parthenistis*, *stereodesma*, p. 237, *amphileuca*, p. 238, Australia, LOWER, t. c. : n. spp.

Xystophora hornigi, life-history, SORHAGEN, Allg. Zeitschr. Ent. vii, pp. 432–434; *X. palustrella*, early stages, habits, TER HAAR, Tijdschr. Ent. xlv, pp. 108–110.

X. rectifasciella, Germany, FUCHS, Stettin Ent. Zeit. 1902, p. 326, n. sp.

Yponomeuta atomocella, Texas, DYAR, J. N. York Ent. Soc. x, p. 208, n. sp.

(D.) *DIPTERA.*

[The following names and numbers refer to the memoirs on *Diptera* in this year's Record, viz.:—AUSTEN (868), BECKER (75–77), BERGROTH (90), BERLESE (93–96), BEZZI (105), BRUES (169, 171), COLLIN (276, 277), COQUILLETT (282–287), GEISENHYNER (522), GIARD (529, 530, 532), GIRSCHNER (542), GRIMSHAW (556), HENDEL (589–593), HINE (604, 605), HOUARD (624), HUTTON (631, 633), JOHNSON (657, 658), KERTÉSZ (678, 681), KIEFFER (687, 690), KLUNZINGER (718), LANGHOFFER (770, 771), LICHTWARDT (814), LONG (826), LÓSY (828), MELANDER (885, 889), MEUNIER (898–900), NEEDHAM (947), OSTEN SACKEN (987–989), PANDELLÉ (998), PANTEL (999), PLESKE (1071), PORTSCHINSKY (1084), REUTER (1140), RICARDO (1151), RÜBSAAMEN (1175, 1176), SCHNABL (1203–1207), SNODGRASS (1312), SPEISER (1322–1324), STEIN (1327, 1328), TARNANI (1353), TAVARES (1354), TAYLOR (1359), THEOBALD (1364, 1366), THOMAS (1371), THOMSON (1372), VANEY (1402), VILLENEUVE (1421, 1422), WASMANN (1449, 1450), WESCHÉ (1487, 1488), YERBURY (1508), XAMBEU (1505). Also, for memoirs on *Cecidomyiidæ* see below, and for those on *Culicidæ*, see p. 253.]

Diptera as mimics, SHELFORD, P. Zool. Soc. London 1902, ii, pp. 260–264, pl. xxii.

General Catalogue of *Diptera*. Vols. I and II, *Cecidomyiidæ* to *Tipulidæ*, KERTÉSZ (678).

Value of genitalia ♂ for distinction of species, HENDEL (590), VILLENEUVE (1421).

Distinctions of *Orthorrhapha brachycera* and *Cyclorrhapha athericera*, OSTEN SACKEN, Ent. Mag. xxxviii, pp. 228, 229.

Larvæ and metamorphosis, VANEY (1402).

The trophi, WESCHÉ, J. R. Micr. Soc. 1902, pp. 412–416, pls. ix, x.

Notes on structure of legs, WESCHÉ (1487).

List of apterous *Diptera*, BEZZI (105).

Diptera in amber, MEUNIER (898–900).

CECIDOMYIIDÆ and TERMITOMASTIDÆ.*

[The following memoirs relate to *Cecidomyiidæ*, viz.:—COCKERELL (256), KERTÉSZ (678), KIEFFER (685, 686, 688, 689), LINDROTH (823), RÜBSAAMEN (1175, 1176), TAVARES (1354, 1355, 1358), THOMAS (1371).]

Cecidomyid, larva eating spores of rust, LINDROTH, Medd. Soc. Faun. Fenn. xxvi, p. 25.

n. g. near *Oligarces*, defined but not named, KÜNSTLER & CHAINE, C.R. Soc. Biol. liv, p. 535.

Supplement to Synopsis of *Cecidomyiidæ* of Europe and Algeria, KIEFFER, Bull. Soc. Metz xxi, pp. 9–43.

Eastern Cecidomyiid galls, RÜBSAAMEN (1175).

* This word was last year misprinted Termitodastidæ.

Arnoldia sambuci, Bitche, KIEFFER, Bull. Soc. Metz xxi, p. 21, n. sp.
Asphondylia pterosparti ♀, TAVARES, Broteria i, p. 46.
A. adenocarpi, Portugal, TAVARES, t. c. p. 31, n. sp.
Bremia impatientis, Bitche, KIEFFER, Bull. Soc. Metz xxi, p. 169, n. sp.
Cecidomyia negundinis, Ohio, GILLETTE, P. Iowa Ac. i, pt. 2, p. 108, n. sp.
Clinodiplosis aberrans, Austria, *artemisiæ*, Lorraine, KIEFFER, t. c.; *C. crassinerva*, *rudimentalis*, p. 172, *impatientis*, p. 173, Europe, KIEFFER, t. c. : n. spp.
Colomyia appendiculata, Bitche, KIEFFER, t. c. p. 36, n. sp.
Contarinia cocciferæ, *ilicis*, larvæ, TAVARES, Broteria i, p. 46.
C. pimpinellæ, p. 32, *luteola*, p. 34, Portugal, TAVARES, Broteria i; *C. aprilina*, p. 30, *acetosæ*, p. 31, *avenæ*, p. 32, *arrhenatheri*, p. 33, Bitche, KIEFFER, Bull. Soc. Metz xxi; *C. cotini*, Austria, KIEFFER, t. c. p. 170 : n. spp.
Coprodiplosis longifilis, Bitche, KIEFFER, t. c. p. 174, n. sp.
Dasyneura capsulæ, Europe, KIEFFER, t. c. p. 167; *D. rosmarini*, Portugal, TAVARES, Broteria i, p. 27; *D. caricis*, Bitche, KIEFFER, Bull. Soc. Metz xxi, p. 20 : n. spp.
Dicrodiplosis longipes, Bitche, KIEFFER, t. c. p. 29, n. sp.
Epidosis microcera, Bitche, KIEFEER, t. c. p. 35, n. sp.
Hormomyia fagi, note, NOEL, Naturaliste xxiv, p. 118.
H. lambertoni, Bitche, p. 25, *strobli*, Styria, p. 26, KIEFFER, Bull. Soc. Metz xxi, n. spp.
Janetiella maculata ♀, and pupa, TAVARES, Broteria i, p. 45.
Joannisia caricis, p. 36, *fungicola*, p. 37, Bitche, KIEFFER, Bull. Soc. Metz xxi, n. spp.
Lasioptera carbonitens, p. 183, *ephedricola*, p. 184, New Mexico, COCKERELL, Canad. Ent. xxxiv, n. spp.
Lestodiplosis cryphali, Bitche, KIEFFER, Bull. Soc. Metz xxi, p. 34, n. sp.
Mycodiplosis boleti, Bitche, KIEFFER, t. c. p. 28; *M. reaumuri*, Bitche, KIEFFER, t. c. p. 173 : n. spp.
Oligotrophus origani, pupa, TAVARES, Broteria i, p. 45.
O. coryli, p. 22, *clavatus*, *fagicola*, p. 23, Bitche, KIEFFER, Bull. Soc. Metz xxi, n. spp.
Perrisia sampaina, p. 24, *asparagi*, p. 25, Portugal, TAVARES, Broteria i; *P. herminii*, p. 182, *halimii*, p. 183, *trotteri*, p. 184, Portugal, TAVARES, t. c.; *P. daphne*, p. 18, *pteridicola*, p. 19, Bitche, KIEFFER, Bull. Soc. Metz xxi; *P. alyssi*, Budapest, KIEFFER, t. c. p. 168 : n. spp.
Plagiotrochus amenti and *kiefferianus*, males, TAVARES, Broteria i, p. 44.
Prionellus strobli, Styria, p. 39, *villosus*, Roumania, *sejunctus*, p. 40, *maculatus*, p. 41, Bitche, KIEFFER, Bull. Soc. Metz xxi, n. spp.
Rhopalomyia santolinæ, Portugal, TAVARES, Broteria i, p. 28, n. sp.
Termitomastus leptoproctus, habits, SILVESTRI, Boll. Mus. Torino 1902, No. 419, p. 23.

MYCETOPHILIDÆ.

Sciara medullaris, habits of larva, life-history, GIARD, C.R. Ac. Sci. cxxxiv, pp. 1179–1185; *S. thome*, larval ring, FURUHJELM, Medd. Soc. Faun. Fenn. xxvii, p. 88; *S. thomæ*, larval habits, GÜNTHER, Berlin. ent. Zeitschr. 1902, SB. p. 17.
S. medullaris, France, GIARD, C.R. Ac. Sci. cxxxiv, p. 1125; *S. marcilla*, N. Zealand, HUTTON, Tr. N. Zealand Inst. xxxiv, p. 192 : n. spp.
Trichosia remota, N. Zealand, HUTTON, t. c. p. 192, n. sp.
Macrocera immaculata, N. America, JOHNSON, Canad. Ent. xxxiv, p. 240, n. sp.
Neoglaphyroptera opima, larva, BRUES, Psyche ix, p. 352.

N. interrupta, S. America, KERTÉSZ, Termes. Fuzetek xxiv, p. 495 [omitted last year]; *N. fasciata*, p. 574, *halterata*, p. 575, *diversicornis*, p. 576, *completa*, p. 577, *picticornis*, p. 578, *elegans*, p. 579, *apicalis*, p. 581, Peru, KERTÉSZ, op. cit. xxv : n. spp.

CHIRONOMIDÆ.

Bezzia bidentata, Bitche, KIEFFER, Bull. Soc. Metz xxi, p. 162, n. sp.

Camptocladius vernus, N. Zealand, HUTTON, Tr. N. Zealand Inst. xxxiv, p. 185, n. sp.

Ceratopogon; larvæ and pupæ figured, antennal sense-organs, LONG, Biol. Bull. iii, pp. 3–13; *C.* aff. *albipunctus*, structure, COLLEDGE, P. Soc. Queensland xvii, pp. 17–24, pls. i–iv; *C. varicolor*, pupa, DYAR, P. ent. Soc. Washington v, p. 58, pl. i, fig. 5.

C. boleti, p. 157, *latipalpis*, *resinicola*, p. 159, *elongatus*, p. 160, *coarctatus*, p. 161, Europe, KIEFFER, Bull. Soc. Metz xxi; *C. varicolor*, New York, COQUILLETT, Ent. News Philad. xiii, p. 84; *C. glaber*, p. 85, *inermis*, *exilis*, *stigmalis*, p. 86, *pilosus*, *ancorus*, *bellus*, p. 87, *squamipes*, p. 88, N. America, COQUILLETT, P. U. S. Mus. xxv; *C. brumalis*, pp. 3, 4, fig. 1, *stenammatis*, *texanus*, p. 10, *wheeleri*, p. 12, Texas, LONG, Biol. Bull. iii : n. spp.

Chironomus anonymus, *modestus*, early stages, DYAR, P. ent. Soc. Washington v, p. 57, pl. i, figg. 1, 2.

C. lentus, *opimus*, p. 182, *pavidus*, *ignavus*, p. 183, N. Zealand, HUTTON, Tr. N. Zealand Inst. xxxiv; *C. pulchripennis*, *varipennis*, *atrimanus*, p. 94, *palliatus*, p. 95, N. America, COQUILLETT, P. U. S. Mus. xxv : n. spp.

Clunio; notes on larva, IMMS, Entomologist 1902, p. 157.

Cricotopus varipes, N. America, COQUILLETT, P. U. S. Mus. xxv, p. 93, n. sp.

Culicoides nigrosignatus, Bitche, KIEFFER, Bull. Soc. Metz xxi, p. 161, n. sp.

Heteromyia prattii, Virginia, COQUILLETT, P. U. S. Mus. xxv, p. 88, n. sp.

Orthocladius publicus, *cingulatus*, N. Zealand, HUTTON, Tr. N. Zealand Inst. xxxiv, p. 184; *O. clepsydrus*, p. 92, *platypus*, *politus*, p. 93, N. America, COQUILLETT, P. U. S. Mus. xxv : n. spp.

Palpomyia albipennis, *pungens*, Bitche, KIEFFER, Bull. Soc. Metz xxi, p. 163, n. sp.

Tanypus dyari pupa, DYAR, P. ent. Soc. Washington v, p. 56, pl. i, fig. 8.

T. languidus, *debilis*, p. 186, *malus*, p. 187, N. Zealand, HUTTON, Tr. N. Zealand Inst. xxxiv; *T. dyari*, N. America, COQUILLETT, Ent. News Philad. xiii, p. 85; *T. stellatus*, *discolor*, p. 89, *algens*, *barberi*, p. 90, *venustus*, *pallens*, p. 91, *occidentalis*, *guttularis*, p. 92, N. America, COQUILLETT, P. U. S. Mus. xxv : n. spp.

Tanytarsus vespertinus, N. Zealand, HUTTON, Tr. N. Zealand Inst. xxxiv, p. 185, n. sp.

CULICIDÆ.

[The memoirs, indicated by the following names and title-numbers, refer to *Culicidæ*, viz.:—BLANCHARD (114, 115), BORDI (134), COQUILLETT (283, 284, 287), CROPPER (294), DURHAM (365), DYAR (370, 371, 373, 378), DYÉ (381), FICALBI (435), GILES (538), GRÜNBERG (569), HERRERA (595), LAVERAN (776–782), LEVANDER (806), LUDLOW (836), LUTZ & CHAMBERS (838), MARLATT (863), MEUNIER (900), NEVEU-LEMAIRE (950–955), POËY (1074), SHIPLEY & WILSON (1265), SIMOND & LAVERAN (1270), SMITH (1295, 1297, 1298, 1302, 1303, 1307), SOULIÉ (1317),

STEPHENS & CHRISTOPHERS (1329), THEOBALD (1363, 1365), and for some additional papers on the connection of flies with disease, see Economic, p. 92.]

Mosquitoes, THEOBALD, Enc. Brit. xxxi, pp. 5, 6.
Handbook of mosquitoes, 2nd edition, greatly enlarged, GILES (538).
New classification of *Culicidæ*, NEVEU-LEMAIRE, C.R. Soc. Biol. liv, pp. 1329–1332.
Classification and generic nomenclature of *Culicidæ* discussed at length by NEVEU-LEMAIRE, Mem. Soc. zool. France xv, pp. 195–227.
Culicidæ in France, BLANCHARD, C.R. Soc. Biol. liv, p. 793.
Culicidæ in Portugal, SARMENTO & FRANÇA (1189).
Algerian *Culicidæ*: notes, SOULIÉ (1317).
The *Anopheles* of Suez, LAVERAN (776).
Upper Palestine, *Anopheles* and malaria, CROPPER, J. Hygiene ii, pp. 47–57, map.
Culicidæ of Amou-Daria, LAVERAN, C.R. Soc. Biol. liv, p. 910.
Culicidæ at Diego Suarez, LAVERAN (782).
Culicidæ of Réunion, BLANCHARD (114).
Culicidæ of India, THEOBALD, P. R. Soc. London lxix, pp. 367–394.
The mosquitoes found in Japan, China, Java, Ceylon, MARLATT, P. ent. Soc. Washington v, pp. 111–123.
Culicidæ of Cochin China and Annam, LAVERAN (777); of Yunnan, LAVERAN (778); of Cambodia, LAVERAN (779).
Culicidæ of Cayenne, descriptions, notes on larvæ, NEVEU-LEMAIRE, Arch. parasit. vi, pp. 5–25, and 613–618.
New Hampshire, mosquitoes in; larval characters, DYAR, P. ent. Soc. Washington v, pp. 140–148, 153, pl. ii.
Biology and structure of New Jersey mosquitoes, SMITH, Rep. N. Jersey exp. Stat. 1901, pp. 526–587, illustrations; SMITH & JOHNSON, op. cit. 1902, pp. 509–593, illustrations.
Notes on prevalence of mosquitoes and their larvæ, with larval habits on Long Isd., DYAR, P. ent. Soc. Washington v, pp. 45–53.
Bionomics of *Anopheles claviger* in Finland, LEVANDER, Acta Soc. Faun. Fenn. xxi, No. 3, 30 pp.
Bionomics of *Anopheles* in Bengal, STEPHENS & CHRISTOPHERS, Rep. Malaria Comm. vi, pp. 11–20.
Notes on Culicidæ with special reference to the malaria-bearing species, BORDI (134).
Oviposition, DYAR, Science xvi, p. 672.
Breeding-places of mosquitoes, distance they travel, etc., LUTZ & CHAMBERS (838).
Mosquitoes; travelling, hibernation etc., SMITH, Science xv, pp. 13–15.
Development and hibernation, DUPREE & MORGAN, Science xvi, pp. 1036–1038.
Larvæ, notes on N. American, SMITH, Ent. News Philad. xiii, pp. 299–303, pl. xv.
Receptaculum seminis, *Culicidæ*, NEVEU-LEMAIRE (954).
Stridulating organ, *Anopheles*, SHIPLEY & WILSON (1265).
Parasites of mosquitoes, LAVERAN (781).
Instructions for collecting mosquitoes, NEVEU-LEMAIRE (955).

Aëdes fuscus, early stages, DYAR, J. N. York Ent. Soc. x, p. 197, pl. xvii, fig. 1; *A. smithii*, life-history, SMITH, t. c. pp. 10–15.
Aëdeomyia americana, Cayenne, NEVEU-LEMAIRE, Arch. parasit. vi, pp. 23, 24, cuts, n. sp.
Anopheles; classification of Indian, with notes on larvæ etc., STEPHENS & CHRISTOPHERS, Rep. Malaria Comm. vii, pp. 3–14, 4 pls.; *Anopheles culicifacies*=(*listoni* Giles=*indicus* Th.), THEOBALD, P. R. Soc. London

lxix, p. 377; *A. coustani*, characters, BLANCHARD, C.R. Soc. Biol. liv, p. 643; *A. claviger*, LEVANDER (806); *Anopheles*, larval habits, HOWARD, P. ent. Soc. Washington v, p. 100.

A. ziemanni, Cameroons, GRÜNBERG, Zool. Anz. xxv, p. 550; *A. pulcherrimus*, p. 369, *metaboles*, p. 374, *christophersi*, p. 378, India, THEOBALD, P. R. Soc. London lxix; *A. maculipalpis*, Mashonaland, p. 297, *theobaldi*, p. 299, *gigas*, p. 316, *culicifacies*, p. 317, *listoni*, p. 319, India, GILES, Handbook Gnats, 2nd ed.; *A. turkhudi*, p. 330, *stephensi*, p. 331, India, GLEN LISTON, in Giles; *A. bancroftii*, Queensland, *gambiæ*, Africa, p. 511, *metaboles*, *christophersi*, India, p. 512, GILES, t. c.; *A. martini*, *pursati*, Cambodia, LAVERAN, C.R. Soc. Biol. liv, p. 906; *A. philippinensis*, p. 128, *pseudobarbirostris*, p. 129, Philippines, LUDLOW, J. N. York Ent. Soc. x; *A. faranti*, New Hebrides, LAVERAN, C.R. Soc. Biol. liv, p. 908; *A. eiseni*, Guatemala, COQUILLETT, J. N. York Ent. Soc. x, p. 192 : n. spp.

Armigeres panalectoros, Calcutta, GILES, Handbook Gnats, 2nd ed., p. 386, n. sp.

Conchyliastes musicus, larva and pupa, MORGAN, Bull. U. S. Dep. Agric. Ent. No. 37, pp. 113–115.

Corethra brakeleyi, pl. xix, fig. 1, *trivittata*, fig. 2, larvæ, DYAR, J. N. York Ent. Soc. pp. 200, 201; *C. brakeleyi*, larva, SMITH, Canad. Ent. xxxiv, p. 139.

C. brakeleyi, N. Jersey, COQUILLETT, Ent. News Philad. xiii, p. 85, n. sp.

Corethrella, n. g. for *Corethra brakeleyi*, COQUILLETT, J. N. York Ent. Soc. x, p. 191.

Culex canadensis, p. 194, *atropalpus*, p. 195, *sylvestris*, p. 195, *sollicitans*, p. 197, *pipiens*, *melanurus*, p. 198, *dyari*, *restuans*, p. 199, early stages, figures, DYAR, J. N. York Ent. Soc. x; *C. canadensis*, early stages, SMITH, Ent. News Philad. xiii, pp. 267–272; *C. annulatus* in N. America, LUDLOW, J. N. York Ent. Soc. x, p. 131; *C. sollicitans*, New Jersey salt-marshes, bionomics, SMITH (1307); *C. sollicitans*, mode of passing the winter, SMITH, Science xvi, pp. 391–394.

C. restuans, Canada, p. 429, *albolineatus*, p. 430, *viridiventer*, p. 445, *pulchriventer*, p. 449, India, *territans*, United States, p. 455, GILES, Handbook Gnats, 2nd ed.; *C. bimaculatus*, *fletcheri*, p. 84, *squamiger*, p. 85, N. America, COQUILLETT, P. U. S. Mus. xxv; *C. dyari*, p. 192, *melanurus*, *trivittatus*, p. 193, N. America, COQUILLETT, J. N. York Ent. Soc. x; *C. cyanescens*, Texas, COQUILLETT, t. c. p. 137; *C. atropalpus*, *varipalpus*, N. America, p. 292, *quadrivittatus*, Guatemala, p. 293, COQUILLETT, Canad. Ent. xxxiv; *C. mathisi*, Cayenne, NEVEU-LEMAIRE, Arch. parasit. vi, p. 13 : n. spp.

Janthinosoma arribalzagæ, S. America, GILES, Handbook Gnats, 2nd ed., p. 341, n. sp.

Mansonia titillans, characters, NEVEU-LEMAIRE, Arch. parasit. vi, pp. 21, 22, cuts.

Mochlonyx sepultus Loew, a fossil *Culicid*, characters, MEUNIER, Rev. Sci. Bourbonnais xv, pp. 199, 200.

Mucidus scataphagoides, India, GILES, Handbook Gnats, 2nd ed., p. 348, n. sp.

Myzomyia n. n. for *Grassia* Th., BLANCHARD, C.R. Soc. Biol. liv, p. 795.

Myzorhynchus n. n. for *Rossia* Th., BLANCHARD, t. c. p. 795; *M. coustani*, detailed description, DYÉ, Arch. parasit. vi, pp. 359–364.

Nyssorhynchus n. n. for *Lareranía* Th., BLANCHARD, C.R. Soc. Biol. liv, p. 795.

Panoplites amazonensis, S. America, p. 354, *australiensis*, Queensland, p. 355, GILES, Handbook Gnats, 2nd ed. : n. spp.

Pyretophorus n. n. for *Howardia* Th., BLANCHARD, C.R. Soc. Biol. liv, p. 795.

Simondella n. g. for *S. curvirostris*, n. sp., Rio de Janeiro, SIMOND & LAVERAN, C.R. Soc. Biol. liv, p. 1158.
Stegomyia fasciata, in Senegal, relation to yellow fever, DYÉ, Arch. parasit. vi, pp. 365–376 ; *S. fasciata*, larva, NEVEU-LEMAIRE, Arch. parasit. vi, p. 19, cut.
S. periskelata, p. 371, *pipersalata*, p. 372, *gubernatoris*, *microptera*, p. 380, *brevipalpis*, p. 384, India, GILES, Handbook Gnats, 2nd ed. : n. spp.
Tæniorhynchus fasciolatus, characters, NEVEU-LEMAIRE, Arch. parasit. vi, pp. 616–618.
T. ager, Madras, GILES, p. 365, Handbook Gnats, 2nd ed., n. sp.
Theobaldia n. g. for *Culex annulatus* auctt., NEVEU-LEMAIRE, C.R. Soc. Biol. liv, p. 1331 and Arch. parasit. vi, pp. 614, 615.

PSYCHODIDÆ, SIMULIIDÆ.

Pericoma funebris, *variegata*, N. Zealand, HUTTON, Tr. N. Zealand Inst. xxxiv, p. 180, n. spp.
Trichomyia cirrata, Mexico, COQUILLETT, J. N. York Ent. Soc. x, p. 137, n. sp.
Simulium ; tracheal system, larva pupa, imago, TAYLOR, Tr. ent. Soc. London 1902, pp. 701–716, cuts.
S. fulvum, p. 96, *virgatum*, *glaucum*, p. 97, N. America, COQUILLETT, P. U. S. Mus. xxv, n. spp.

BIBIONIDÆ.

Bibio fraternus, swarms, larva, NEEDHAM, Amer. Natural. xxxvi, pp. 181–187.
B. tenuipes, Arizona, COQUILLETT, P. U. S. Mus. xxv, p. 95, n. sp.
Dilophus insolitus, p. 193, *segnis*, p. 194, New Zealand, HUTTON, Tr. N. Zealand Inst. xxxiv, n. spp.
Scatopse carbonaria, N. Zealand, HUTTON, t. c. p. 194 ; *S. varicornis*, N. America, COQUILLETT, P. U. S. Mus. xxv, p. 96 : n. spp.

RHYPHIDÆ, DIXIDÆ, TIPULIDÆ.

Cylindrotoma glabrata, larva, ROSSI, Insekt.-Börse xix, p. 116.
Dixa centralis, larva, DYAR, P. ent. Soc. Washington v, p. 136.
Limnophila skusei, N. Zealand, HUTTON, Tr. N. Zealand Inst. xxxiv, p. 190, n. sp.
Opifex n. g. near *Erioptera*, for *O. fuscus*, n. sp., N. Zealand, HUTTON, t. c. p. 188.
Orimarga arizonensis, Arizona, COQUILLETT, P. U. S. Mus. xxv, p. 83, n. sp.
Rhypholophus insulsus, *fatuus*, N. Zealand, HUTTON, Tr. N. Zealand Inst. xxxiv, p. 188, n. spp.
Rhyphus notatus, N. Zealand, HUTTON, t. c. p. 191, n. sp.
Trochobola dohrni=(*ampla* Hutt.=*fumipennis* Huds.), HUTTON, Tr. N. Zealand Inst. xxxiv, p. 189.

STRATIOMYIDÆ.

Aochletus obscurus, N. America, COQUILLETT, P. U. S. Mus. xxv, p. 98, n. sp.
Akronia n. g. near *Nemotelus*, for *A. frontosa*, n. sp., Ohio, HINE, Ohio Natural. i, p. 113.
Ephippiomyia n. n. for *Ephippium* Latr., BEZZI, Zeitschr. Hym. Dipt. ii, p. 191.

Euparyphus major, Colorado, HINE, Ohio Natural. i, p. 112; *E. tahoensis*, p. 98, *apicalis*, *crucigerus*, p. 99, *atriventris*, *amplus*, p. 100, N. America, COQUILLETT, P. U. S. Mus. xxv : n. spp.
Glabellula n. n. for *Platygaster* Zett., BEZZI, Zeitschr. Hym. Dipt. ii, p. 191.
Nemotelus pallipes Say, HINE, Ohio Natural. ii, p. 228.
Pachygaster maculicornis, Kansas, HINE, l. c., n. sp.
Stratiomyia equestris, p. 411, *apicalis* Walk. p. 415, characters, PLESKE, Termes. Fuzetek xxv.
S. cypria, Cyprus, PLESKE, t. c. p. 413, n. sp.

SCENOPINIDÆ.

Pseudatrichia flaviceps, *pilosa*, N. America, COQUILLETT, P. U. S. Mus. xxv, p. 102, n. spp.

TABANIDÆ.

Habits; HINE, Ohio Natural. ii, pp. 167–169.

Chrysops; notes on the species of Ethiopian, Oriental and Palaearctic regions, RICARDO, Ann. Nat. Hist. ix, pp. 366–381 and 424–431.
C. fuscus, Mashonaland, p. 368, *madagascariensis*, p. 369, *fuscipennis*, Mashonaland, p. 370, *indianus*, Nilgiri Hills, p. 379, *flavocinctus*, India and Borneo, p. 380, RICARDO, t. c., n. spp.
Diatomineura seminigra, p. 432, *longipennis*, p. 433, Brazil, RICARDO, t. c., n. spp.
Erephrosis fuscus, Brazil, RICARDO, t. c. p. 431, n. sp.
Pangonia seminuda, Mexico, COQUILLETT, J. N. York Ent. Soc. x, p. 137, n. sp.
Scione fulva, p. 436, *flavohirta*, p. 437, Bolivia, RICARDO, Ann. Nat. Hist. ix, n. spp.
Tabanus dorsivitta, sp. aff., AUSTEN in Johnston Uganda Protectorate i, p. 465.
T. maculosus, Mexico, COQUILLETT, J. N. York Ent. Soc. x, p. 138, n. sp.

LEPTIDÆ.

Atherix ibis, oviposition, larva, GIARD, Bull. Soc. ent. France 1902, p. 220.
Bolbomyia, n. sp. in amber: cf. Palæoentomology.
Chrysopila smaragdina, p. 145, *propinqua*, p. 146, *brunneiformis*, p. 147, *leptiformis*, p. 148, *peruana*, p. 149, *varia*, p. 150, Peru, KERTÉSZ, Termes. Fuzetek xxv, n. spp.

THEREVIDÆ.

Cænophanomyia n. n. for *Cænophanes* Loew, BEZZI, Zeitschr. Hym. Dipt. ii, p. 191.
Psilocephala grandis, Canada, JOHNSON, Canad. Ent. xxxiv, p. 241, n. sp.

ASILIDÆ, MYDAIDÆ.

Structure of ♂ genitalia, *Dasyllis* and *Laphria*, SNODGRASS, Psyche ix, p. 399, p. v.

Asilus crabroniformis, larva, XAMBEU, Ann. Soc. Linn. Lyon xlviii, p. 37.
Dasyllis affinis, characters, JOHNSON, Ent. News Philad. xiii, p. 77.

Eremomydas n. n. for *Eremomidas* Sem., SEMENOW, Rev. Russe Ent. ii, p. 353.
Hyperechia marshalli, Mashonaland, AUSTEN, Tr. ent. Soc. London 1902, p. 541, pl. xxii, fig. 20, n. sp.
Pycnopogon divisus, Mexico, COQUILLETT, J. N. York Ent. Soc. x, p. 139, n. sp.
Saropogon fascipes, N. Zealand, HUTTON, Tr. N. Zealand Inst. xxxiv, p. 195; *S. dispar*, Texas, COQUILLETT, J. N. York Ent. Soc. x, p. 139 : n. spp.
Selidopogon n. n. for *Seilopogon* Rond., BEZZI, Zeitschr. Hym. Dipt. ii, p. 192.

BOMBYLIIDÆ.

Anthrax extremitis, Mexico, COQUILLETT, J. N. York Ent. Soc. x, p. 138, n. sp.
Bombylius and flowers, LANGHOFFER (771).
B. recurvus, N. America, COQUILLETT, P. U. S. Mus. xxv, p. 100, n. sp.
Geron sigma, N. America, COQUILLETT, t. c. p. 101, n. sp.
Hemipenthes and *Argyromœba*, synonymical note, BEZZI, Zeitschr. Hym. Dipt. ii, p. 192.
Legnotomyia n. n. for *Legnotus* Loew, BEZZI, t. c. p. 191.
Phthiria coquilletti, New Jersey, JOHNSON, Canad. Ent. xxxiv, p. 240, n. sp.
Systropus; habits, pupa, CHAPMAN, P. ent. Soc. London 1902, p. ix.
Usia atrata, larva, XAMBEU, Ann. Soc. Linn. Lyon xlviii, p. 35.

ACROCERIDÆ.

Notes on N. American; variation, MELANDER, Ent. News Philad. xiii, pp. 178–182.

Opsebius agelenæ, Texas, MELANDER, Ent. News Philad. xiii, p. 180, n. sp.

EMPIDÆ.

Monograph of N. American *Empidæ*. Pt. I including all except *Rhamphomyia*, MELANDER, Tr. Amer. ent. Soc. xxxv, pp. 195, 367, plates v–ix.

Brachystoma occidentalis, N. America, MELANDER, Tr. Amer. ent. Soc. xxxv, p. 260, n. sp.
Clinocera lepida, *dolicheretma*, p. 241, *taos*, p. 242, *lecta*, p. 243, N. America, MELANDER, t. c., n. spp.
Coloboneura n. g. *Tachydromiinæ*, p. 229, for *C. inusitata* n. sp., N. America, p. 230, MELANDER, t. c.
Drapetis nitida (but =*unipila* Loew, p. 339), p. 207, *medetera*, *dividua*, p. 208, *latipennis*, p. 209, *septentrionalis*, p. 211, *spectabilis*, p. 212, N. America, MELANDER, t. c., n. spp.
Elaphropeza montana, Colorado, MELANDER, t. c. p. 214, n. sp.
Empimorpha geneatis, California, MELANDER, t. c. p. 329, n. sp.
Empis asema, p. 294, *johnsoni*, *enodis*, p. 303, *cacuminifer*, p. 304, *aldrichii*, p. 309, *cœligena*, p. 314, *teres*, p. 315, *gladiator*, p. 316, *arthritica*, *podagra*, p. 318, *bigoti* (=*cinerea* Big.), p. 319, *ærobatica*, p. 323, *nodipes*, *serperastrorum*, p. 324, *dolabraria*, p. 325, with subsp. *disconvenita*, *falcata*, *canaster*, p. 326, *mixopolia*, p. 327, *æripes*, p. 328, N. America, MELANDER, t. c.; *E. scatophagina*, p. 351, *neomexicana*, *vaginifer*, p. 352, N. America, id. t. c. : n. spp.
Euthyneura bucinator, *aperta*, *stentor*, p. 348, *nura*, *bulbosa*, *atripes*, p. 349, N. America, MELANDER, t. c., n. spp.

Hemerodromia mexicana, Orizaba, *collusor*, N. America, MELANDER, t. c. p. 235, n. spp.
Hilara baculifer, *bella*, p. 271, *carbonaria*, *congregaria*, p. 272, *nugax*, p. 273, N. America, MELANDER, t. c., n. spp.
Holoclera bilineata, *sycophantor*, N. America, MELANDER, t. c. p. 334, n. spp.
Hormopeza bullata, Wyoming, MELANDER, t. c. p. 274, n. sp.
Hybos electus (=*dimidiatus* Loew), p. 247, *sequens* (=*dimidiata* Bellardi), p. 249, MELANDER, t. c., n. spp.
Iteaphila perigrina, California, p. 331, *orchestris*, N. Mexico, p. 354, MELANDER, t. c., n. spp.
Lactistomyia n. g. p. 250, *Hybotinæ*, for *L. insolita*, n. sp., Brazil, p. 251, MELANDER, t. c.
Leptopeza disparilis, California, MELANDER, t. c. p. 258, n. sp.
Litanomyia n. g. *Hemerodromiinæ*, p. 231, for *L. elongata*, n. sp., Massachusetts, p. 232, and *Sciodromyia mexicana*, MELANDER, t. c.
Meghyperus nitidus, N. America, MELANDER, t. c. p. 255, n. sp.
Mythicomyia scutellata, *pictipes*, Arizona, COQUILLETT, P. U. S. Mus. xxv, p. 102, n. spp.
Œdalea ohioensis, N. America, MELANDER, Tr. Amer. ent. Soc. xxxv, p. 256, n. sp.
Oreothalia n. g. *Hemerodromiinæ*, p. 232, for *O. pelops*, n. sp., N. America, p. 233, MELANDER, t. c.
Palæoparamesia and *Palæoedalea*, n. genn. cf. Palæoentomology.
Platypalpus caligatus, Mexico, p. 216, *monticola*, *pluto*, p. 217, *impexus*, p. 219, *canus*, *hians*, *inops*, p. 220, *incurvus*, *gravidus*, p. 221, *hastatus*, p. 222, *tenellus*, p. 223, *P. lupatus*, *vierecki*, p. 340, *rufiventris*, p. 341, N. America, MELANDER, Tr. Amer. ent. Soc. xxxv, n. spp.
Ragas mabelæ, N. America, MELANDER, t. c. p. 277, n. sp.
Rhamphomyia albata, Arizona, COQUILLETT, P. U. S. Mus. xxv, p. 103, n. sp.
Sciodromia pullata, N. Mexico, MELANDER, Tr. Amer. ent. Soc. xxxv, p. 345 ; *S. palliata*, Mexico, COQUILLETT, J. N. York Ent. Soc. x, p. 140 : n. spp.
Stilpon pectiniger, p. 205, *houghii*, p. 206, *nigripes*, *minuta*, p. 339, N. America, MELANDER, Tr. Amer. ent. Soc. xxxv, n. spp.
Syneches longipennis, N. America, MELANDER, t. c. p. 346, n. sp.
Tachydromia enecator, *inusta*, p. 226, *corticalis*, *brachialis*, p. 343, N. America, MELANDER, t. c., n. spp.

DOLICHOPIDÆ.

The mandibles in *Dolichopidæ*, LANGHOFFER (770).

Anepsiomyia n. n. for *Anepsius* Loew, BEZZI, Zeitschr. Hym. Dipt. ii, p. 192.
Aphrosylus piscator, Hungary, LICHTWARDT, Termes. Fuzetek xxv, p. 199, n. sp.
Campsicnemus patellifer, Oahu, GRIMSHAW, Fauna Hawaiiensis iii, p. 80, n. sp.
Chrysotus pennatus, Hungary, LICHTWARDT, Termes. Fuzetek xxv, p. 197, n. sp.
Dolichophorus n. g. near *Thrypticus*, for *D. kerteszii*, n. sp., Hungary, LICHTWARDT, t. c. p. 199.
Emperoptera n. g. near *Chrysotus*, for *E. mirabilis*, n. sp., Oahu, GRIMSHAW, Fauna Hawaiiensis iii, p. 81.
Sciapus breviseta, p. 140, *longiseta*, *clunatis*, p. 141, Mexico, COQUILLETT, J. N. York Ent. Soc. x, n. spp.

Platypezidæ, Pipunculidæ.

Callomyia wankowiczii = (*aurantiaca* Bezzi), Hendel, Wien. ent. Zeit. xxi, p. 265.
Pipunculus pratorum, nomenclature, Becker p. 13, Kertész p. 20, and Girschner pp. 118–123, Wien. ent. Zeit. xxi.

Syrphidæ.

Ceria bicolor, p. 86, *picta*, p. 87, *vicina*, Peru, *flavosignata*, Bolivia, p. 88, Kertész, Termes. Fuzetek xxv, n. spp.
Chilosia; synonymy of Meigen's types, Becker, Zeitschr. Hym. Dipt. ii, pp. 350–351.
Eristalis melanaspis, pl. iv, fig. 1, p. 245, Therese von Bayern, Berlin. ent. Zeitschr. 1902.
Eumerus marginatus, Oahu, Grimshaw, Fauna Hawaiiensis iii, p. 82, n. sp.
Helophilus campbellicus, Campbell Isd., Hutton, Tr. N. Zealand Inst. xxxiv, p. 170, n. sp.
Lycastrirhyncha willistoni, Mexico, Coquillett, Canad. Ent. xxxiv, p. 196, n. sp.
Ocyptamus notatus, Mexico, Coquillett, t. c. p. 195, n. sp.
Palæopipeza n. g. with segmented arista, cf. Palæoentomology.
Sphiximorpha ancoralis, New Mexico, Coquillett, Canad. Ent. xxxiv, p. 196, n. sp.
Spilomyia obscura, Chihuahua, Coquillett, t. c. p. 195, n. sp.

Conopidæ.

Myopa fenestrata, p. 197, *pulchra*, p. 198, Chihuahua, Coquillett, Canad. Ent. xxxiv, n. spp.
Sicus brevirostris, Chihuahua, Coquillett, t. c. p. 198, n. sp.
Zodion perlongum, Mexico and New Mexico, Coquillett, t. c. p. 199, n. sp.

Phoridæ, Termitoxeniidæ.

Structure and development of *Termitoxenia*, Wasmann, Verh. Congr. Zool. v, pp. 852–873, 1 pl.

Acontistoptera n. g., p. 373, for *A. melanderi*, n. sp., Texas, with *Eciton*, p. 374, Brues, Amer. Natural. xxxvi.
Phora; position and affinities, Osten Sacken, Ent. Mag. xxxviii, p. 204; *P. rufipes*, larva, habits, Xambeu, Ann. Soc. Linn. Lyon xlviii, p. 39.
P. epeiræ, Texas on spiders' eggs, Brues, Psyche ix, p. 351, n. sp.
Termitoxenia assmuthi, Bombay, Wasmann, Zool. Jahrb. Syst. xvii, p. 151, pl. iv, fig. 13, n. sp.
Xanionotum n. g., p. 376, for *X. hystrix*, n. sp., Texas, with Eciton, p. 377, Brues, Amer. Natural. xxxvi.

Œstridæ.

Cephalomyia maculata, note, Nurse, J. Bombay Soc. xiv, p. 609.
Cuterebra lepivora, characters amended, Coquillett, P. U. S. Mus. xxiv, p. 104.
C. histrio, Mexico, Coquillett, t. c. p. 103, n. sp.
Gastrophilus pecorum, note, Nurse, J. Bombay Soc. xiv, p. 609.
Hypoderma bovis, larva mode of penetration, Tarnani (1353).

Œstromyia; notes on the genus, and larvæ, PORTSCHINSKY, Annuaire Mus. St. Petersb. vii, pp. 205–222, pl. vi.
Œ. koslowi, pallasi, W. Asia, PORTSCHINSKY, t. c. p. 211, n. spp.
Portschinskia n. n. for *Microcephalus* Schnabl, SEMENOW, Rev. Russe Ent. ii, p. 353.

MUSCIDÆ CALYPTRATÆ.

Classification of the *Muscid* flies, with special reference to *Anthomyiidæ*, male genitalia, SCHNABL, Wien. ent. Zeit. xxi, pp. 127–135.
Examination of types of exotic *Anthomyiidæ* of Wiedemann & Jaennicke, STEIN, Zeitschr. Hym. Dipt. ii, pp. 129–137.
Extensive synonymical and critical notes of Anthomyiid types in the Stockholm Museum, STEIN, Wien. ent. Zeit. xxi, pp. 31–69. I make no attempt to summarise these numerous observations.
Dipterous parasites of *Lymantria*, their puparia, BENGTSSON, Ent. Tidskr. xxiii, pp. 177–183.

Admontia limata, Idaho, COQUILLETT, P. U. S. Mus. xxv, p. 105, n. sp.
Amobia aurata, N. America, COQUILLETT, t. c. p. 119, n. sp.
Aphria longilingua Rond., note on, HENDEL, Wien. ent. Zeit. xxi, p. 146.
Araba nebulosa, Chihuahua, COQUILLETT, Canad. Ent. xxxiv, p. 200, n. sp.
Atherigona; characters, SCHNABL, Wien. ent. Zeit. xxi, p. 199.
Bengalia ?, attacking man, MARSHALL, p. 540, Tr. ent. Soc. London 1902.
Brachycoma pubicornis, p. 116, *setosa*, p. 117, N. America, COQUILLETT, P. U. S. Mus. xxv, n. spp.
Calliphora eudypti, p. 170, Auckland Ids., *antipodea*, p. 171, Antipodes Is., HUTTON, Tr. N. Zealand Inst. xxxiv, n. spp.
Chætolyga antennalis, N. America, COQUILLETT, P. U. S. Mus. xxv, p. 115, n. sp.
Chætomera fumipennis, synonymy, HENDEL, Wien. ent. Zeit. xxi, p. 145.
Chætona flavipennis, Ohio, COQUILLETT, P. U. S. Mus. xxv, p. 121, n. sp.
Chætophleps polita, Dakota, COQUILLETT, t. c. p. 107, n. sp.
Chirosia capito, New Jersey, COQUILLETT, t. c. p. 123, n. sp.
Cœlomyia erythropsis, Cape Horn, SCHNABL, Rev. Russe Ent. ii, p. 160, n. sp.
Comatacta n. g. near *Siphosturmia*, for *Brachycoma pallidula* Wulp, COQUILLETT, Canad. Ent. xxxiv, p. 199.
Enoplopteryx n. g. for *Cœnosia obtusipennis* Fall., HENDEL, Wien. ent. Zeit. xxiv, p. 144.
Euthera bicolor, Texas, COQUILLETT, P. U. S. Mus. xxv, p. 114, n. sp.
Exorista westermanni and *mitis*, synonymy, HENDEL, Wien. ent. Zeit. xxi, p. 143.
Exoristoides harringtoni, trisetosa, N. America, COQUILLETT, P. U. S. Mus. xxv, p. 110, n. spp.
Fabricia palpalis, N. America, COQUILLETT, t. c. p. 120, n. sp.
Frontina setipes, Dakota, COQUILLETT, t. c. p. 112, n. sp.
Gœdiopsis cockerellii, facialis, p. 117, *ocellaris*, p. 118, N. America, COQUILLETT, t. c., n. spp.
Glossina morsitans, notes, TOURNIER, Naturaliste xxiv, pp. 201–203; Tsetse fly, THEOBALD, Enc. Brit. xxxiii, pp. 468, 469.
Gymnomma quadrisetosa, Mexico, COQUILLETT, P. U. S. Mus. xxv, p. 120, n. sp.
Hemimasicera ferruginea = (*Dexodes murinus* Hend.), HENDEL, Wien. ent. Zeit. p. 143.
Hydomyodes dorsalis, Idaho, COQUILLETT, P. U. S. Mus. xxv, p. 108, n. sp.
Jurinia adusta, N. America, COQUILLETT, t. c. p. 120, n. sp.
Leucostoma neomexicana and *sendis*, distinguished, COQUILLETT, t. c. p. 109.

Limnophora æstuum, French coast of La Manche, VILLENEUVE, Wien. ent. Zeit. xxi, p. 197; *L. aucklandica*, Auckland Ids., HUTTON, Tr. N. Zealand Inst. xxxiv, p. 172 : n. spp.
Limnospila n. g. for *Cœnosia albifrons* Zett., SCHNABL, Wien. ent. Zeit. xxi, p. 111.
Lispa flavicincta, *schnablii*, distinguished, SCHNABL, pp. 66–72, cuts, t. c.
Lucilia bufonivora, KLUNZINGER, Jahresh. Ver. Wurttemb. 1902, pp. 371–379, cuts.
Masicera virilis, synonymy, WAINWRIGHT, Ent. Mag. xxxviii, p. 227.
M. polita, New Mexico, COQUILLETT, P. U. S. Mus. xxv, p. 114, n. sp.
Megaparia flaveola, Colorado, COQUILLETT, t. c. p. 121, n. sp.
Meigenia floralis, life-history, PANTEL, Bull. Soc. ent. France 1902, pp. 56–60.
Meigeniella n. g. near *Cryptomeigenia* for *M. hinei*, n. sp., Ohio, COQUILLETT, P. U. S. Mus. xxv, p. 104.
Meriania chalybæa, Idaho, COQUILLETT, t. c. p. 119, n. sp.
Microphthalma pruinosa, New Mexico, COQUILLETT, Canad. Ent. xxxiv, p. 200, n. sp.
Mochlosoma rufipes, Chihuahua, COQUILLETT, t. c. p. 202, n. sp.
Musca domestica; popular account, THOMSON (1372).
Muscopteryx tibialis, Idaho, p. 115, *obscura*, Alaska, p. 116, COQUILLETT, P. U. S. Mus. xxv, n. spp.
Mydæa flavicornis, N. America, COQUILLETT, t. c. p. 123, n. sp.
Myocera bivittata, New Mexico, COQUILLETT, t. c. p. 121, n. sp.
Neæra longicornis, New York, COQUILLETT, t. c. p. 106, n. sp.
Nemoræa setigera, Ohio, COQUILLETT, t. c. p. 111, n. sp.
Neolimnophora n. g. for *Melanochelia maritima* Roeder, which on cover of No. 6 is named *N. schnusei*, n. sp., but in corrigenda is said to be *N. æstuum* Villeneuve, SCHNABL, Zeitschr. Hym. Dipt. ii, p. 94.
Œstrophasia calva, p. 109, *setosa*, p. 110, N. America, COQUILLETT, P. U. S. Mus. xxv, n. spp.
Onesia sepulchralis and allies distinguished, VILLENEUVE, Wien. ent. Zeit. xxi, pp. 25, 26, cuts; *O. sepulchralis*, the characters and races, HENDEL, Wien. ent. Zeit. xxi, pp. 85–88, cuts; HENDEL again, t. c. pp. 218–220.
Paradmontia n. g. near *Admontia*, for *P. brevis*, n. sp., Florida, COQUILLETT, p. 106, P. U. S. Mus. xxv.
Parepalpus n. g. for *P. florida*, n. sp., N. America, COQUILLETT, t. c. p. 120, note 3.
Paraphyto sarcophagina, Illinois, COQUILLETT, t. c. p. 118, n. sp.
Pelatachina limata, Idaho, COQUILLETT, t. c. p. 107, n. sp.
Phaonia pallidula, Georgia, COQUILLETT, t. c. p. 122, n. sp.
Phorantha bridwelli, Kansas, HINE, Ohio Natural. ii, p. 229; *P. splendida*, New Hampshire, COQUILLETT, P. U. S. Mus. xxv, p. 105 note : n. spp.
Phorbia lupini, notes on, FOWLER, Rep. Agric. exp. Stat. Florida 1898–1901, pp. 78–80; *P. fusciceps*, metamorphosis, CHITTENDEN, Bull. U. S. Dep. Agric. Ent. No. 33, pp. 84–86.
Phorichæta cinerosa, Arizona, COQUILLETT, P. U. S. Mus. xxv, p. 116, n. sp.
Phorocera xanthura, habits, SCHROTTKY, An. Mus. Buenos Aires viii, p. 47.
P. sternalis, p. 111, *erecta*, p. 112 note, N. America, COQUILLETT, P. U. S. Mus. xxv, n. spp.
Pseudapinops n. g. near *Apinops*, for *P. nigra*, n. sp., Idaho, COQUILLETT, P. U. S. Mus. xxv, p. 108.
Pseudopyrellia cornicina, larva, BRUES, Psyche ix, p. 354.
Siphona geniculata, proboscis, oviposition, WESCHÉ, Sci. Gossip viii, pp. 291, 292.
Stomatomyia filipalpis bred from *Psyche*, CHAPMAN, Ent. Mag. xxxviii, p. 111.

Sturmia limata, N. America, *austrina*, Bahamas, p. 113, *discalis*, Wisconsin, p. 114, COQUILLETT, P. U. S. Mus. xxv, n. spp.
Syngamoptera n. g. near *Syllegoptera*, p. 79, for *S. amurensis*, n. sp., Wladiwostok, p. 82, SCHNABL, Rev. Russe Ent. ii.
Tricophthicus villosus, Auckland Ids., HUTTON, Tr. N. Zealand Inst. xxxiv, p. 171, n. sp.
Trichopoda pennipes, habits, CHITTENDEN, Bull. U. S. Dep. Agric. Ent. No. 33, p. 25.
Trixodes n. g. *Dexidæ*, p. 201, for *T. obesa*, n. sp., Chihuahua, p. 202, COQUILLETT, Canad. Ent. xxxiv.

MUSCIDÆ ACALYPTRATÆ.

PANDELLÉ continues his work on European Muscidæ (998) which now extends as far as the "Branche *Sciomyzaires*." The faunistic limits of this work seem to be vague: it includes numerous forms that have not yet been found in France. A large proportion of the European genera are given only the rank of subgenera.
Revision of palæarctic *Sciomyzinæ* and *Tetanocerinæ*, HENDEL, Abh. Ges. Wien ii, 1, 93 pp., 1 pl.
Systematic enumeration and identification of Meigen's types in Paris and Vienna, BECKER, Zeitschr. Hym. Dipt. ii, pp. 209–256, etc.

Acidia pulchella, Portugal, TAVARES, Broteria i, p. 37, n. sp.
Acletoxenus syrphoides, characters, synonymy, COLLIN, Ent. Mag. xxxviii, pp. 1–3, pl. i, and also p. 282.
Acrometopia punctata, Georgia, *maculata*, Cuba, COQUILLETT, J. N. York Ent. Soc. x, p. 185, n. spp.
Agromyza setosa, habits, HINE, Ohio Natural. ii, pp. 169, 170.
A. flaviventris, Niagara, JOHNSON, Canad. Ent. xxxiv, p. 242; *A. picta*, Mexico, p. 188, *parvicella*, Alaska, *flavonigra*, *varifrons*, *pruinosa*, p. 189, *viridula*, p. 190, N. America, COQUILLETT, J. N. York Ent. Soc. x : n. spp.
Anthomyza, revised, CZERNY, Wien. ent. Zeit. xxi, pp. 249–254.
A. bezzii, Italy, id., t. c. p. 252, n. sp.
Antichæta bisetosa, Vienna, HENDEL, Abh. Ges. Wien ii, Heft 1, p. 78, n. sp.
Arctobiella n. g. near *Eusiphona*, for *A. obscura*, n. sp., Brit. Columbia, COQUILLETT, J. N. York Ent. Soc. x, p. 188.
Asteia levis, Stewart Id., HUTTON, Tr. N. Zealand Inst. xxxiv, p. 175, n. sp.
Bischofia n. g., p. 52, for part of *Sciomyza*, with *B. lucida*, n. sp., Lioland, p. 56, HENDEL, Abh. Ges. Wien ii, Heft. 4.
Borborus notabilis, Britain, COLLIN, Ent. Mag. xxxviii, p. 55, n. sp.
Calobata vittipennis, Mexico, COQUILLETT, P. U. S. Mus. xxv, p. 125, n. sp.
Chyliza ustulata, cf. *Strongylopthalmus*.
Cœlopa curvipes, Auckland Id, p. 172, *rufa*, the Snares, p. 173, HUTTON, Tr. N. Zealand Inst. xxxiv, n. spp.
Cœnia bisetosa, Utah, COQUILLETT, J. N. York Ent. Soc. x, p. 183, n. sp.
Ctenulus beckeri, Austria, HENDEL, Abh. Ges. Wien ii, Heft 1, p. 85, n. sp.
Desmometopa luteola, Arizona, COQUILLETT, J. N. York Ent. Soc. x, p. 188, n. sp.
Dichæta furcata, Florida, COQUILLETT, t. c. p. 182, n. sp.
Dicroctura n. g., p. 57, for part of *Sciomyza*, with *D. pectorosa*, *oldenbergi*, Berlin, p. 61, n. spp., HENDEL, Abh. Ges. Wien ii, Heft 1.
Discocerina incisa, Porto Rico, COQUILLETT, J. N. York Ent. Soc. x, p. 182, n. sp.
Ditænia n.g., p. 66, for *Sciomyza* part, with *D. lichtwardti*, n. sp., Austria, p. 68, HENDEL, Abh. Ges. Wien ii, Heft 1.

Drosophila enderbii, Auckland Ids., HUTTON, Tr. N. Zealand Inst. xxxiv, p. 174 ; *D. crucigera*, Oahu, GRIMSHAW, Fauna Hawaiiensis iii, p. 86 : n. spp.
Ephydra pilicornis, Florida, COQUILLETT, J. N. York Ent. Soc. x, p. 184, n. sp.
Euaresta stigmatica, Arizona, COQUILLETT, t. c. p. 180, n. sp.
Euxesta nitidiventris, larva, BRUES, Psyche ix, p. 353.
Hedroneura n. n. for *Ilione* Hal. Hend., HENDEL, Wien. ent. Zeit. xxi, p. 265.
Hemeromyia n. g. near *Agromyza*, for *H. obscura*, n. sp., New Mexico, COQUILLETT, J. N. York Ent. Soc. x, p. 190.
Heteromyza laquei, the Snares, HUTTON, Tr. N. Zealand Inst. xxxiv, p. 173, n. sp.
Heteropteryx n. g. near *Antichæta*, p. 81, for *S. brevipennis* Zett., HENDEL, Abh. Ges. Wien ii, Heft 1.
Ischnomyia albicosta Walk., characters, synonymy, CZERNY, Wien. ent. Zeit. xxi, p. 255.
Lauxania carbonaria, Auckland Ids., HUTTON, Tr. N. Zealand Inst. xxxiv, p. 173 ; *L. variceps*, *longicornis*, p. 178, *nigrimana*, *cineracea*, *lutea*, p. 179, N. America, COQUILLETT, J. N. York Ent. Soc. x : n. spp.
Limosina halidayi, p. 58, *mirabilis*, p. 59, England, COLLIN, Ent. Mag. xxxviii, n. spp.
Lonchæa zetterstedti (=*laticornis* Zett. nec Meig.), BECKER, Zeitschr. Hym. Dipt. ii, p. 235 ; *L. aucklandica*, Auckland Ids., HUTTON, Tr. N. Zealand Inst. xxxiv, p. 173 : n. spp.
Macropeza albitarsis, characters, LICHTWARDT, Zeitschr. Hym. Dipt. ii, p. 286.
Meromyza cerealium, Finland, REUTER, Medd. Soc. Faun. Fenn. xxviii, p. 84, n. sp.
Micropeza alternata, France, PANDELLÉ, Etudes Ent. iii, p. 476 ; *M. bisetosa*, Arizona, COQUILLETT, J. N. York Ent. Soc. x, p. 177 : n. spp.
Milichia ; synonymy, COQUILLETT, t. c. p. 185.
M. littorea, Antipodes Id., HUTTON, Tr. N. Zealand Inst. xxxiv, p. 174 ; *M. picata*, New Zealand, HUTTON, t. c. p. 195 ; *M. robertsoni*, Florida, COQUILLETT, J. N. York Ent. Soc. x, p. 187 : n. spp.
Ochthiphila trivittata, p. 437, *O.* (*Trigonometopus*) *dispersa*, p. 439, Europe, PANDELLÉ, Etudes Ent. iii ; *O. australis*, Campbell Id., HUTTON, Tr. N. Zealand Inst. xxxiv : n. spp.
Odinia immaculata, New Hampshire, COQUILLETT, J. N. York Ent. Soc. x, p. 185, n. sp.
Otites (*Ceroxys*) *egena*, Amiens, PANDELLÉ, Etudes Ent. iii, p. 463, n. sp.
Palloptera neutra, Tarbes, PANDELLÉ, t. c. p. 434, n. sp.
Paralimna nuda, Mexico, COQUILLETT, J. N. York Ent. Soc. x, p. 182, n. sp.
Paranthomyza n. g. for *Opomyza nitida* Meig., CZERNY, Wien. ent. Zeit. xxi, p. 254.
Parephydra n. g. near *Discocerina*, for *P. humilis*, n. sp., Arizona, COQUILLETT, J. N. York. Ent. Soc. x, p. 183.
Parodinia n. g. for *P. cinerea*, n. sp., California, COQUILLETT, t. c. p. 186.
Phytomyza palliata, *bicolor*, New Mexico, COQUILLETT, t. c. p. 191, n. spp.
Piophila spiculata, Europe, PANDELLÉ, Etudes Ent. iii, p. 427, n. sp.
Pseudodinia n. g. for *P. varipes*, n. sp., New Mexico, COQUILLETT, J. N. York Ent. Soc. x, p. 187.
Pselaphephila similis, Massachusetts, COQUILLETT, P. U. S. Mus. xxv, p. 124, n. sp.
Pseudopomyza, characters and position, HENDEL, Wien. ent. Zeit. xxi, p. 263, cuts.
Pseudoscatella n. g. for *Notiphila nigripennis* Meig. but in corrigenda this is said to be =*Philotelma*, BECKER, Zeitschr. Hym. Dipt. ii, p. 298.

Pseudoseps n. g. for *Psila signata* Fall., BECKER, t. c. p. 244.
Pseudotephritis n. n. for *Stictocephala* Loew, JOHNSON, Ent. News Philad. xiii, p. 144.
Psila rosæ, habits, metamorphosis, CHITTENDEN, Bull. U. S. Dep. Agric. Ent. No. 33, pp. 26–33, cuts.
Rhagoletis cingulata is "the cherry fruit-fly," SLINGERLAND, Canad. Ent. xxxiv, p. 28 ; *R. suavis*, larva and puparium, BABB, Ent. News Philad. xiii, p. 242.
Rhicnoëssa, characters and position, HENDEL, Wien. ent. Zeit. xxi, p. 264.
Sapromyza cataracta, p. 398, *ampullata*, p. 399, *inculta*, p. 413, *quadriseta*, *inscita*, p. 414, *didyma*, p. 415, S. Europe, *immixta*, Prussia, p. 417, PANDELLÉ, Etudes Ent. iii ; *S. glauca*, p. 177, *vittigera*, *puncticeps*, p. 178, N. America, COQUILLETT, J. N. York Ent. Soc. x : n. spp.
Scatella triseta, Arizona, COQUILLETT, t. c. p. 184, n. sp.
Sciomyza goberti, Landes ?, PANDELLÉ, Etudes Ent. iii, p. 390 ; *S. appendiculata*, Hungary, p. 35, *czernyi*, Austria, p. 36, *pilosa*, Vienna, p. 37, *sordida*, Europe, p. 43, *bezzii*, Hungary, p. 46, HENDEL, Abh. Ges. Wien ii, Heft 1 ; *S. hawaiiensis*, Oahu, GRIMSHAW, Fauna Hawaiiensis iii, p. 84 : n. spp.
Sepedon fuscipennis, larva, DYAR, P. ent. Soc. Washington v, p. 57, pl. i, figg. 6, 7
Sepsis loewii n. n. for *pilipes* Lw. nec. Wulp, HENDEL, Wien. ent. Zeit. xxi, p. 265.
Sphærocera eximia, England, COLLIN, Ent. Mag. xxxviii, p. 57, n. sp.
Spilographa fractura, New Mexico, COQUILLETT, P. U. S. Mus. xxv, p. 125, n. sp.
Stictocephala, cf. *Pseudotephritis*.
Strongylophthalmus n. g. for *Chyliza ustulata* Zett., HENDEL, t. c. p. 181.
Strongylophthalmyia n. n. for *Strongylophthalmus* Hend., HELLER, Wien. ent. Zeit. xxi, p. 226.
Tephritis gemella, *inornata*, New Mexico, COQUILLETT, J. N. York Ent. Soc. x, p. 181, n. spp.
Tephronota canadensis, Quebec, JOHNSON, Ent. News Philad. xiii, p. 144, n. sp.
Tetanops nasuta, Europe, BECKER, Zeitschr. Hym. Dipt. ii, p. 242, n. sp.?
Thyreophora ; here belongs *Scatophaga furcata* Meig., characters, BECKER, t. c. p. 217, cut.
Trypeta varipennis, Arizona, COQUILLETT, J. N. York Ent. Soc. x, p. 180, n. sp.
Urellia imperfecta, Arizona, COQUILLETT, t. c. p. 181, n. sp.

DIPTERA PUPIPARA.

Braula cœca, habits, mouth-parts, LÓSY, Rov. Lapok ix, pp. 153-156, and LÓSY, as cited by BANKS in Science xvi, p. 155.
Hippobosca maculata Leach, varr. =(*sudanica*, *sinæ*, *calopsis* Big.), SPEISER, Zeitschr. Hym. Dipt. ii, p. 162; *H. capensis*, *equina* and allies, characters and distribution, pp. 174, 175, *H. dromedarina* n. n. for *H. camelina* Rond. nec Leach, p. 176, *H. rufipes*=(*albomaculata* Macq.), p. 179, SPEISER, t. c.
Leptopteryx nivalis Zett. is an *Aphid*, BENGTSSON, Wien. ent. Zeit. xxi, p. 150.
Lynchia Weyenb., characterised and catalogued, SPEISER, Zeitschr. Hym Dipt. ii, pp. 155, 157.
L. pusilla, Cuba, id., t. c. p. 157, n. sp.
Nycteribia ; Bigot's species discussed and classified, SPEISER, t. c. pp. 170-174 ; *N. elongata* and *blasii*, distinguished, SPEISER, t. c. p. 161.

Olfersia and *O. minor* Big., characters, SPEISER, t. c. p. 156; Bigot's species revised and referred to their proper genera, SPEISER, pp. 161–166, t. c.; Macquart's species discussed and classified, SPEISER, t. c. pp. 179, 180.

O. parallelifrons, New Guinea, SPEISER, Termes. Fuzetek xxv, p. 336; *O. acarta*, Hawaii, SPEISER, Fauna Hawaiiensis iii, p. 87, and Zeitschr. Hym. Dipt. ii, p. 149 : n. spp.

Ornitheza n. g. for pt. of *Ornithomyia*, type *O. gestroi* Rond., SPEISER, Termes. Fuzetek xxv, p. 329.

Ornithoctona n. g. for pt. of *Ornithomyia*, type *O. erythrocephala* Leach, SPEISER, t. c. p. 328.

Ornithoica confluenta var. n. *peroneura*, SPEISER, Fauna Hawaiiensis iii, p. 91.

O. distenta, Brazil, SPEISER, Termes. Fuzetek xxv, p. 332, n. sp.

Ornithomyia varipes, characters, SPEISER, Fauna Hawaiiensis iii, pp. 89–91; *O. plicata* Olf. referred to *Ornithoctona* and recharacterised, SPEISER, Zeitschr. Hym. Dipt. ii, p. 176.

O. chloropus, Finland, on *Asio*, BERGROTH, Medd. Soc. Faun. Fenn. xxvi, p. 146; *O. perfuga*, Australia (=*Olfersia macleayi* Frogg.), SPEISER, Termes. Fuzetek xxv : n. spp.

Ornithopertha n. g. for *Ornithomyia nitens* Big., SPEISER, Zeitschr. Hym. Dipt. ii, p. 167.

Ortholfersia n. g., p. 152, for *O. phaneroneura*, n. sp., N. S. Wales, p. 153, SPEISER, t. c.

Paradyschiria dubia Rud. (as *Lipoptena*)=(*fusca* Sp.), SPEISER, p. 160, t. c.

Pseudolfersia spinifera, habitat, characters, SPEISER, t. c. pp. 146–148.

APHANIPTERA (SIPHONAPTERA).

[Cf. ROTHSCHILD (1173, 1174), TIRABOSCHI (1375, 1376), WAGNER (1433).]

Ceratophyllus tesquorum=(*dubius* Wagn.), p. 325, *C. tesquorum* var. n. *jenissejensis*, p. 326, WAGNER, Rev. Russe Ent. ii.

C. garei, on *Gallinula*, *walkeri*, on *Mustela* etc., Britain, N. C. ROTHSCHILD, Ent. Mag. xxxviii, p. 225; *C. simplex*, Russia, WAGNER, Rev. Russe Ent. ii, p. 327 : n. spp.

Hystrichopsylla tripectinata, Italy, on *Mus*, TIRABOSCHI, Boll. Soc. zool. Ital. xi, p. 160, pl. unnumbered; *H. dippiei*, Canada, N. C. ROTHSCHILD, Ent. Rec. xiv, p. 63 : n. spp.

Pulex ursi, Canada, N. C. ROTHSCHILD, t. c. p. 62, n. sp.

Sarcopsylla gallinacea on *Mus alexandrinus*, TIRABOSCHI, Boll. Soc. zool. Ital. xi, p. 172.

Typhlopsylla grandis, Canada, N. C. ROTHSCHILD, Ent. Rec. xiv, p. 62, n. sp.

(E.) *HEMIPTERA* OR *RHYNCHOTA.*

The *Hemiptera* fauna of Celebes set forth and discussed, BREDDIN (156).
The *Hemiptera* of the Hawaiian Ids., KIRKALDY, Fauna Hawaiiensis iii, pp. 93–174, pls. iv, v.

HEMIPTERA-HETEROPTERA.

[The following memoirs relate to *Hemiptera-Heteroptera*, viz. :—BERG (88), BERGROTH (91), BLANCHARD (116), BREDDIN (156–159), BUENO (178), DISTANT (331, 333–337, 868), ENDERLEIN (398), FROGGATT (492), GULDE (573), HEIDEMANN (585), HORVÁTH (622, 623), HUEBER (630), JAKOWLEFF (651–655), KIRKALDY (705–711), KIRKALDY & EDWARDS (712), KUHLGATZ & MELICHAR (742), OSBORN (983), REUTER (1141–1143, 1146–1148), SCHOUTEDEN (1211), SUMMERS (1342).]

Critical revision of Reed's synopsis of Chilian *Hemiptera*, BERG, An. Mus. Buenos Aires vii, pp. 81–91.
The dorsal stink-glands of the larvæ, GULDE, Ber. Senckenberg. Ges. 1902, pp. 85–136, pls. vii, viii.
Mating of *Hemiptera*, GADEAU DE KERVILLE (512).

Hemiptera puncturing man, BLANCHARD, Arch. parasit. v, pp. 139–148.
Eugereon boeckingi revised, HANDLIRSCH (579).

PENTATOMIDÆ.

Pentatomidæ of India, Ceylon, Burma, DISTANT, 542 spp., Fauna India Rhynchota i, pp. 1–330.
Table of genera of Nearctic *Pentatomidæ*, SUMMERS, P. Iowa Ac. vi, 1899, pp. 40–46.

Acanthosoma vicina, Mantchuria, REUTER, p. 146, Ofv. Finska Forh. xliv; *A. singhalense*, Ceylon, DISTANT, Fauna India Rhynchota i, p. 317 : n. spp.
Ædnulus n. g., p. 40, for *Æ. podopoides*, n. sp., Celebes, p. 41, pl. i, fig. 1, BREDDIN, Hemipt. Celeb.
Ædnus ellipticus, Celebes, BREDDIN, t. c. p. 39, n. sp.
Alcimocoris parvus, Nága Hills, DISTANT, Fauna India Rhynchota i, p. 176, n. sp.
Antestia confusa, Philippines, BREDDIN, Wien. ent. Zeit. xxi, p. 94; *A. polyspila*, *levigata*, p. 54, *pauperata*, p. 55, Celebes, BREDDIN, Hemipt. Celeb. : n. spp.
Arma discors, Grand Khingan, JAKOWLEFF, Rev. Russe Ent. ii, p. 64, n. sp.
Aspongopus ephippiatus, Congo, SCHOUTEDEN, Wien. ent. Zeit. xxi, p. 238; *A. assamensis*, N. India, DISTANT, Fauna India Rhynchota i, p. 286 : n. spp.
Canthecona parva, Bengal, DISTANT, t. c. p. 250; *C. vollenhoveni*, Malay Arch., BREDDIN, Wien. ent. Zeit. xxi, p. 95 : n. spp.

Capsicona nigra, Celebes, BREDDIN, Hemipt. Celeb. p. 56, pl. i, fig. 2, n. sp.
Carbula rugulosa, Nilgiris, DISTANT, Fauna India Rhynchota i, p. 171; *C. munda*, Celebes, BREDDIN, Hemipt. Celeb. p. 45 : n. spp.
Caura insignis, Cameroons, SCHOUTEDEN, Wien. ent. Zeit. xxi, p. 234, n. sp.
Cazira similis, Nága Hills, DISTANT, Fauna India Rhynchota i, p. 245; *C. fruhstorferi*, Celebes, BREDDIN, Hemipt. Celeb. p. 59 : n. spp.
Cletus robustior, Celebes, BREDDIN, t. c. p. 73, n. sp.
Coleotichus blackburniæ, pl. v. fig. 49, p. 172, KIRKALDY, Fauna Hawaiiensis iii.
Colpura guttatipes, p. 68, *roratipes*, *conspersipes*, p. 69, Celebes, BREDDIN, Hemipt. Celeb. n. spp.
Compastes exstimulatus, Nága Hills, DISTANT, Fauna India Rhynchota i, p. 201, n. sp.
Coptosoma indicum, Siam, Ceylon, DISTANT, t. c. p. 33, n. sp.
Cyclopelta abdominalis, Mergiu, DISTANT, t. c. p. 281, n. sp.
Dabessus n. g. type *Rhaphigaster repellens* Kirby, DISTANT, t. c. p. 234.
Dalpada hilaris, Celebes, BREDDIN, Hemipt. Celeb. p. 38, n. sp.
Degonetus n. g. for *Abeona serrata* Dist., DISTANT, Fauna India Rhynchota i, p. 208.
Dictyotus rugulosus, N. S. Wales, HORVÁTH, Termes. Fuzetek xxv, p. 602, n. sp.
Dinidor=(*Empicoris* L. & S.), KIRKALDY, Entomologist 1902, p. 137.
Diploxys waterbergensis, Transvaal, DISTANT, Ann. S. African Mus. ii, p. 252, n. sp.
Dunnius n. g. type *Rhaphigaster fulvescens*, DISTANT, Fauna India Rhynchota i, p. 231.
Embolosterna vacca, Borneo, MARTIN, Bull. Mus. Paris viii, p. 336, n. sp.
Erthesina distanti, E. Africa, SCHOUTEDEN, Wien. ent. Zeit. xxi, p. 233, n. sp.
Eusarcoris breviusculus, p. 598, *schmidti*, p. 600, Korea, JAKOWLEFF, Horæ Soc. ent. Ross. xxxv; *E. montivagus*, p. 166, *sindellus*, p. 168, *capitatus*, p. 169, India, DISTANT, Fauna India Rhynchota i; *E. decoratulus*, Celebes, BREDDIN, Hemipt. Celeb. p. 44 : n. spp.
Euschistus bifibulus and *læsus*, queried, THERESE VON BAYERN, Berlin. ent. Zeitschr. 1902, p. 247; *E. bifibulus* var. n. *guayaquilinus*, KUHLGATZ, t. c. p. 254, pl. iv, fig. 2.
Exithemus n. g. near *Agathocles*, for *E. assamensis*, n. sp., N. India, DISTANT, Fauna India Rhynchota i, p. 199.
Gelataspis n. g. near *Ceratocoris*, for *G. browni*, n. sp., Centr. Africa, KIRKALDY, Entomologist 1902, p. 166.
Gonopsis pallescens, Mysore, DISTANT, Fauna India Rhynchota i, p. 297, n. sp.
Halyomorpha viridinigra, Celebes, BREDDIN, Hemipt. Celeb. p. 43, n. sp.
Hermolaus n. g. near *Carbula*, p. 169, for *H. typicus*, n. sp., Nilgiris, p. 170, DISTANT, Fauna India Rhynchota i.
Hoplistodera validicornis, Celebes, BREDDIN, Hemipt. Celeb. p. 48, n. sp.
Irochrotus=(*Arctocoris* L. & S.), KIRKALDY, Entomologist 1902, p. 137.
I. mongolicus, Mongolia, JAKOWLEFF, Rev. Russe Ent. ii, p. 63, n. sp.
Leptolobus eburneatus var. n. *thoracicus*, Congo, SCHOUTEDEN, Wien. ent. Zeit. xxi, p. 237.
Libyaspis n. n. for *Plataspis* auct., KIRKALDY, Entomologist 1902, p. 136.
Macroscytus celebensis, Celebes, BREDDIN, Hemipt. Celeb. p. 36, n. sp.
Megymenum rectangulatum, Celebes, BREDDIN, t. c. p. 63, pl. i, fig. 3, n. sp.
Melampodius westwoodi, Congo, SCHOUTEDEN, Wien. ent. Zeit. xxi, p. 238, n. sp.
Menaccarus jakovleffi, Tunis, REUTER, p. 145, Ofv. Finska Forh. xliv, n. sp.
Menida elongata, Burma, DISTANT, Fauna India Rhynchota i, n. sp.

Mercatus n. g. type *Basicryptus illuminatus* Dist., DISTANT, t. c. p. 294.
Mesolea n. g. near *Piezosternum*, p. 99, for *M. pedestris*, n. sp., Sikkim, p. 100, BREDDIN, Wien. ent. Zeit. xxi.
Mormidea montandoni, Ecuador, KIRKALDY, Entomologist 1902, p. 165, n. sp.
Myrochea distincta, Congo, SCHOUTEDEN, Wien. ent. Zeit. xxi, p. 234, n. sp.
Nezara nigromaculata, Ceylon, DISTANT, Fauna India Rhynchota i, p. 221, n. sp.
Niphe præcursor, Celebes, BREDDIN, Hemipt. Celeb. p. 42, n. sp.
Notobitus celebensis, Celebes, BREDDIN, t. c. p. 67, n. sp.
Œbalus insularis var. n. *similis*, KUHLGATZ, Berlin. ent. Zeitschr. 1902, p. 253.
Œchalia griseus, variation, pl. v, figg. 47, 48, pl. 171, KIRKALDY, Fauna Hawaiiensis iii.
Oncocoris modestus, N. S. Wales, HORVÁTH, Termes. Fuzetek xxv, p. 601, n. sp.
Panoetius trabifer, N. S. Wales, HORVÁTH, t. c. p. 602, n. sp.
Paterculus n. g. type *Plexippus affinis* Dist., DISTANT, Fauna India Rhynchota i, p. 233.
Peribalus; palearctic tabulated, JAKOWLEFF, Rev. Russe Ent. ii, pp. 158, 159.
P. pallescens, Mongolia, JAKOWLEFF, t. c. p. 159, n. sp.
Petillia tristis, Celebes, BREDDIN, Hemipt. Celeb. p. 66, n. sp.
Phavorinus n. g. type *Strachia afflicta* Walk., DISTANT, Fauna India Rhynchota i, p. 236.
Philia basalis, habits, FROGGATT, Agric. Gaz. N. S. W. xiii, p. 318.
P. fenestrata, Celebes, BREDDIN, Hemipt. Celeb. p. 35, n. sp.
Phimodera fennica, habits, nymph, REUTER, Medd. Soc. Faun. Fenn. xxviii, p. 45.
Picromerus longicollis, Vladivostok, JAKOWLEFF, Rev. Russe Ent. ii, p. 335; *P. sundanus*, Java, BREDDIN, Wien. ent. Zeit. xxi, p. 96 : n. spp.
Pœcilocoris dissimilis, Yunnan, MARTIN, Bull. Mus. Paris viii, p. 333, n. sp.
Priassus excoffieri, Yunnan, MARTIN, t. c. p. 335, n. sp.
Prionaea burmanica, Nága Hills, DISTANT, Fauna India Rhynchota i, p. 208, n. sp.
Prionocompastes nigriventris, Celebes, BREDDIN, Hemipt. Celeb. p. 57, n. sp.
Psacasta pallida, Akbès, REUTER, p. 141, Ofv. Finska Forh. xliv, n. sp.
Pseudostollia n. g. for *delicatula* Walk., BREDDIN, Hemipt. Celeb. p. 65.
Pygoplatys celebensis, Celebes, BREDDIN, t. c. p. 62, n. sp.
Randolotus n. g. near *Tetroda*, for *R. elongatus*, n. sp., N. W. India, DISTANT, Fauna India Rhynchota i, p. 298.
Sabœus sarasinorum, Celebes, BREDDIN, Hemipt. Celeb. p. 49, n. sp.
Salvianus n. g. type *Gonopsis lunatus* Dist., DISTANT, Fauna India Rhynchota i, p. 294.
Sastragala lunifera, p. 97, *guttasanguinis*, p. 98, Java, BREDDIN, Wien. ent. Zeit. xxi; *S. tristicta*, Celebes, BREDDIN, Hemipt. Celeb. p. 64 : n. spp.
Sehirus cæruleus, Kopet Dag, REUTER, p. 144, Ofv. Finska Forh. xliv, n. sp.
Severiniella cameroni, Zomba, DISTANT, Ann. S. African Mus. ii, p. 252, n. sp.
Stenozygum bicolor, Congo, p. 235, *decoratum*, E. Africa, p. 236, SCHOUTEDEN, Wien. ent. Zeit. xxi, n. spp.
Tesseratoma quadrata, N. India, DISTANT, Fauna India Rhynchota i, p. 258; *T. rubida*, Celebes, BREDDIN, Hemipt. Celeb. p. 61 : n. spp.
Thyanta humilis var. n. *viridescens*, KUHLGATZ, Berlin. ent. Zeitschr. 1902, p. 256.
Tolumnia maxima, Tenasserim, p. 154, *antennata*, Malabar, p. 155, DISTANT, Fauna India Rhynchota i, n. spp.

Typhlocolpura delicatula, pl. i, fig. 8, BREDDIN, p. 72, Hemipt. Celeb.
Urostylis spectabilis, Nága Hills, DISTANT, Fauna India Rhynchota i, p. 308, n. sp.
Zangiola n. g. near *Plautia*, p. 51, for *Z. nitida*, p. 52, *punctulata*, p. 53, n. spp., Celebes, BREDDIN, Hemipt. Celeb.
Zangis albomaculata, Bombay, DISTANT, Fauna India Rhynchota i, p. 223, n. sp.

COREIDÆ.

The *Coreidæ* of India, Ceylon and Burma, DISTANT, Fauna India Rhynchota i, pp. 331–420.

Aspilogeton n. g. near *Lygæosoma*, p. 78, for *A. nubicola*, n. sp., Celebes, p. 79, BREDDIN, Hemipt. Celeb.
Aurelianus n. g. near *Mygdonia*, for *A. elongatus*, n. sp., Burma, DISTANT, Fauna India Rhynchota i, p. 340.
Brachytes bicolor, habits and characters, KIRKALDY, pl. A, fig. 13, p. 305, J. Bombay Soc. xiv.
Brotheus n. g. for *B. viridis*, n. sp., Transvaal, DISTANT, Ann. S. African Mus. ii, p. 248.
Brunsellius n. g. near *Plinachtus*, for *Homœocerus smecticus* Dist., DISTANT, Fauna India Rhynchota i, p. 391.
Cletomorpha insignis, Burma, DISTANT, t. c. p. 397, n. sp.
Cletus decoratus, Mashonaland, DISTANT, Ann. S. African Mus. ii, p. 249; *C. feanus*, Burma, DISTANT, Fauna India Rhynchota i, p. 395 : n. spp.
Derepteryx feana, Tenasserim, DISTANT, t. c. p. 335.
Distantidea n. g. *Lybantaria*, p. 303, for *D. vedda*, n. sp., Ceylon, p. 304, pl. A, fig. 15, KIRKALDY, J. Bombay Soc. xiv.
Euthetus limbatus, *stigmosus*, Mashonaland, DISTANT, Ann. S. African Mus. ii, p. 250; *E. pallescens*, Mozambique, DISTANT, t. c. p. 253 : n. spp.
Fracastorius n. g. near *Homœocerus*, for *F. cornutus*, n. sp., Burma, DISTANT, Fauna India Rhynchota i, p. 368.
Hydara orientalis, India, DISTANT, t. c. p. 398, n. sp.
Homœocerus perpolitus, p. 246, *scutellatus*, p. 247, Transvaal, DISTANT, Ann. S. African Mus. ii; *H. delagoae*, Africa, DISTANT, t. c. p. 253; *H. rosaceus*, Sind, p. 357, *rubefactus*, Burma, p. 359, *simiolus*, Assam, p. 363, *perpunctatus*, *taprobanensis*, Ceylon, p. 365, DISTANT, Fauna India Rhynchota i : n. spp.
Ithamar n. g., p. 169, for *I. hawaiiensis*, n. sp., Hawaii, pl. v, fig. 46, p. 170, KIRKALDY, Fauna Hawaiiensis iii.
Leptoglossus oppositus, life-history, CHITTENDEN, Bull. U. S. Dep. Agric. Ent. No. 33, pp. 18–25, cuts.
Metapodiessa n. n. for *Metapodius* Stål, KIRKALDY, Entomologist 1902, p. 137.
Mirperus funebris, N. S. Wales, HORVÁTH, Termes. Fuzetek xxv, p. 603, n. sp.
Myodochus etc., synonymy, KIRKALDY, J. Bombay Soc. xiv, p. 306.
Myrmus tenuicornis, Grand Khingan, JAKOWLEFF, Rev. Russe Ent. ii, p. 337, n. sp.
Pamera serripes, pl. iv, fig. 3, p. 258, KUHLGATZ, Berlin. ent. Zeitschr. 1902.
Pendulinus fimbriatus, Transvaal, DISTANT, Ann. S. African Mus. ii, p. 247, n. sp.
Phyllomorpha laciniata, note on, ROYER, Bull. Soc. ent. France 1902, p. 337.
Scopiastes vitticeps, N. S. Wales, HORVÁTH, Termes. Fuzetek xxv, p. 603, n. sp.

Trallianus n. g. near *Hoplolomia*, p. 404, for *T. chennelli*, n. sp., Khási Hills, p. 405, DISTANT, Fauna India Rhynchota i.
Vittorius n. g. near *Hygia*, for *V. adspersus*, n. sp., Burma, DISTANT, t. c. p. 381.
Wolfius n. g. near *Colpura*, p. 379, for *W. exemplificatus*, n. sp., Tenasserim, p. 380, DISTANT, t. c.
Zicca inornata, Ecuador, BREDDIN, Soc. ent. xvii, p. 2, n. sp.

LYGÆIDÆ.

Belonochilus numenius, food-habits, HEIDEMANN, P. ent. Soc. Washington v, pp. 11, 12.
Coracodrymus n. g., p. 80, for *C. muscicola*, n. sp., Celebes, p. 81, pl. i, fig. 9, BREDDIN, Hemipt. Celeb.
Coriomeris alticola, Valais, JAKOWLEFF, Rev. Russe Ent. ii, p. 348, n. sp.
Engistus marmoratus, Crimea, JAKOWLEFF, t. c. p. 12, n. sp.
Heterogaster parens, Alai, JAKOWLEFF, t. c. p. 65, n. sp.
Ligyrocoris constrictus Say, note, HEIDEMANN, P. ent. Soc. Washington v, p. 155.
Melanocoryphus putoni, Algeciras, REUTER, p. 149, Ofv. Finska Forh. xliv, n. sp.
Metrarginæ subf. n. for *Metrarga* White, *M. nuda*, fig. 41, *contracta*, fig. 43, *villosa*, fig. 44, figured, pl. v, KIRKALDY, Fauna Hawaiiensis iii, p. 164.
Nysius ochriasis, p. 162, *saundersianus*, p. 163, *kamehameha*, p. 164, Hawaii, KIRKALDY, t. c., n. spp.
Perigenes fallax, N. America, HEIDEMANN, P. ent. Soc. Washington v, p. 156, n. sp.
Pionosomus allæonotus, Finland, REUTER, Medd. Soc. Faun. Fenn. xxvi, p. 125, n. sp.
Romicpus n. n. for *Micropus* Spin., REED, Revist. chilena iv, p. 121, with *R. flavitarsus*, n. sp., Chili, p. 122.
Scolopostethus thomsoni=(*Lyg. decoratus* Thoms.), REUTER, Medd. Soc. Faun. Fenn. xxvii, p. 61.
Sephora n. g. near *Cymodema* for *Cymus criniger* White, p v, fig. 45, KIRKALDY, Fauna Hawaiiensis iii, p. 161.
Tropistethus pallipes, Spain, REUTER, p. 149, Ofv. Finska Forh. xliv, n. sp.

PYRRHOCORIDÆ.

Walker's species summarised, with synonymy and corrected taxonomy, DISTANT, Ann. Nat. Hist. ix, pp. 34–45. Not given in detail below, but only the new species.

Æschines pyrrhocoroides, Java etc., KIRKALDY & EDWARDS, Wien. ent. Zeit. xxi, p. 167, pl. iii, fig. 7, n. sp.
Astemma sappho, New Caledonia, KIRKALDY & EDWARDS, t. c. p. 171, pl. iii, fig. 10, n. sp.
Cenæus semiflavus, East Africa, DISTANT, Ann. Nat. Hist. ix, p. 41, n. sp.
Dindymus relatus, *natalensis*, S. Africa, *cenæus*, Nilgiris, DISTANT, t. c. p. 40 ; *D. azalais*, p. 169, pl. iii, fig. 8, *thyoneus*, p. 170, fig. 9, Burma, KIRKALDY & EDWARDS, Wien. ent. Zeit. xxi : n. spp.
Dysdercus cingulatus=(*sidæ* Montr.), pl. A, figg. 11, 12, p. 301, KIRKALDY, J. Bombay Soc. xiv.
D. pretiosus, East Centr. Africa, p. 42, *clarki*, Rio, *evanescens*, Sikkim, p. 43, DISTANT, Ann. Nat. Hist. ix ; *D. intermedius*, Africa, DISTANT, Tr. ent. Soc. London 1902, p. 543, pl. xix, fig. 51 : n. spp.
Ectatops ophthalmicus, pl. iii, fig. 3, KIRKALDY & EDWARDS, Wien. ent. Zeit. xxi, p. 166.

E. saturnides, Amboina, p. 166, *gelanor*, Burma, p. 167, iid. t. c., n. spp.
Euryophthalmus saturnides, p. 162, *lexias*, *meganira*, p. 163, S. America, KIRKALDY & EDWARDS, t. c., n. spp.
Hathor n. g. near *Sericoris*, for *H. zoraida*, n. sp., Congo, pl. iii, fig. 6, KIRKALDY & EDWARDS, t. c. p. 168.
Indra n. g. for *I. philarete*, n. sp., Java, KIRKALDY & EDWARDS, t. c. pl. iii, fig. 5, p. 170.
Odontopus nigricornis, variation, var. n. *siwa*, KIRKALDY & EDWARDS, t. c. p. 169.
O. zoraida, Gaboon, iid. t. c.; *O. notabilis*, Uganda, DISTANT, P. Zool. Soc. London 1902, i, p. 42; *O. angolensis*, *modestus*, p. 38, *confusus*, p. 39, Tropical Africa, DISTANT, Ann. Nat. Hist. ix : n. spp.
Megapetus atratus, Mashonaland, DISTANT, Tr. ent. Soc. London 1902, p. 542, pl. xix, fig. 57, n. sp.
Physopelta indra, Mahé, KIRKALDY & EDWARDS, Wien. ent. Zeit. xxi, p. 165, n. sp,
Pyrrhopeplus pictus, Sylhet, DISTANT, Ann. Nat. Hist. ix, p. 41, n. sp.
Rosaphe n. n. for *Astemma* auctt., KIRKALDY & EDWARDS, Wien. ent. Zeit. xxi, p. 161.
Sericocoris johnstoni, Uganda, DISTANT, P. Zool. Soc. London 1902, i, p. 43, n. sp.
Thaumastaneis n. g., p. 163, for *T. montandoni*, n. sp., Brazil, p. 164, pl. iii, fig. 4, KIRKALDY & EDWARDS, Wien. ent. Zeit. xxi.
Theraneis lurida, p. 34, *spinosa*, p. 35, Amazons, DISTANT, Ann. Nat. Hist. ix, n. spp.

TINGIDÆ.

Synonymy and taxonomy of Walker's species, DISTANT, Ann. Nat. Hist. ix, pp. 353-357.

Campylosteira serena, Spain, HORVÁTH, Termes. Fuzetek xxv, p. 593, n. sp.
Cantacader attenuatus, S. Africa, DISTANT, Ann. S. African Mus. ii, p. 238; *C. uniformis*, N. India, DISTANT, Ann. Nat. Hist. ix, p. 353; *C. chilensis*, Cauquenes, REED, Revist. chilena iv, p. 180 : n. spp.
Cnemiandrus n. g., p. 239, for *C. typicus*, n. sp., S. Africa, pl. xv, fig. 18, p. 240, DISTANT, Ann. S. African Mus. ii.
Cromerus n. g. near *Leptophya*, for *Monanthia invaria* Walk., DISTANT, Ann. Nat. Hist. ix, p. 355, n. sp.
Derephysia lugens, Servia, HORVÁTH, Termes. Fuzetek xxv, p. 593, n. sp.
Dictyonota aridula, p. 66, *D. (Elina) eupatoriæ*, p. 67, Crimea, JAKOWLEFF, Rev. Russe Ent. ii, n. spp.
Elasmognathus greeni = (*pallida* Kirby), KIRKALDY, J. Bombay Soc. xiv, p. 297.
Froggattia n. g. near *Monanthia*, p. 604, for *F. olivina*, n. sp., N. S. Wales, p. 605, HORVÁTH, Termes. Fuzetek xxv.
Galeatus strumosus, Anatolia, HORVÁTH, t. c. p. 594; *G. darthula*, Ceylon, KIRKALDY, J. Bombay Soc. xiv, p. 298 : n. spp.
Leptostyla natalicola, S. Africa, DISTANT, Ann. S. African Mus. ii, p. 240, pl. xv, fig. 15, n. sp.
Monanthia cytharina Butl. (omitted from L. & S. Cat.) referred to *Leptostyla*, DISTANT, Ann. Nat. Hist. ix, p. 354.
M. picturata, S. Africa, DISTANT, Ann. S. African Mus. ii, p. 243, pl. xv, fig. 11, n. sp.
Monosteira buccata, Spain, HORVÁTH, Termes. Fuzetek xxv, p. 600, n. sp.
Paracopium n. g. for *Dictyonota cingalensis* Walk., DISTANT, Ann. Nat. Hist. ix, p. 354.
Phatnoma æthiops, pl. xv, fig. 12, *testacea*, fig. 13, p. 238, *humeralis*, fig. 14,

obesa, fig. 16, p. 239, S. Africa, DISTANT, Ann. S. African Mus. ii, n. spp.

Phyllontocheila geniculata, var. n. *torpida*, p. 597, *valida* varr. n. *biseriata*, *discessa*, p. 600, HORVÁTH, Termes. Fuzetek xxv.

P. brevicornis, Armenia, *suavis*, Turcomania, p. 595, *fallax*, p. 596, *prolixa*, p. 597, *juvenca*, Algeria, *miscella*, Sardinia, p. 598, *insularis*, Madeira, p. 599, HORVÁTH, t. c.; *P. cafer*, S. Africa, DISTANT, Ann. S. African Mus. ii, p. 241, pl. xv, fig. 17; *P. philippinensis*, Philippines, *perakensis*, Malay penins., DISTANT, Ann. Nat. Hist. ix, p. 355 : n. spp.

Pontanus n. g. for *Monanthia gibbifera* Walk., DISTANT, t. c. p. 354, n. sp.

Sakuntala n. g., p. 298, for *S. ravana*, n. sp., Ceylon, p. 299, KIRKALDY, J. Bombay Soc. xiv.

Serenthia pictipennis, N. S. Wales, HORVÁTH, Termes. Fuzetek xxv, p. 604, n. sp.

Tingis caestri, Chili, REED, Revist. chilena iv, Heft 1, p. 181, n. sp.

BERYTIDÆ, ARADIDÆ, PHYMATIDÆ.

Synonymy and taxonomy of Walker's species, DISTANT, Ann. Nat. Hist. ix, pp. 358–362.

Aradus lugubris and allies, characters, with varr. n., REUTER, Medd. Soc. Faun. Fenn. xxvi, pp. 131–139; *A. betulæ*, *varius*, synonymy, REUTER, op. cit. xxvii, p. 61.

A. antennatus, Adelaide, DISTANT, Ann. Nat. Hist. ix, p. 358, n. sp.

Berytus costulatus, Crimea, JAKOWLEFF, Rev. Russe Ent. ii, p. 338, n. sp.

Brachyrhynchus (sub *Dysodius*) *fulvicornis* Walk., characters, DISTANT, Ann. Nat. Hist. ix, p. 359, n. sp.

Cumerarius n. g. near *Carventus*, for *Crimia pallescens* Walk., DISTANT, t. c. p. 359, n. sp.

Carcinocoris hampsoni, Nilgiri Hills, DISTANT, t. c. p. 357, n. sp.

Hubertiella n. g., p. 302, for *H. cardamomi*, n. sp., Ceylon, p. 303, pl. x, fig. 16, KIRKALDY, J. Bombay Soc. xiv.

Paleologus n. g., p. 421, for *P. feanus*, n. sp., Burma, p. 422, DISTANT, Fauna India Rhynchota i.

HYDROMETRIDÆ, HEBRIDÆ.

Structure of thorax, etc., in *Gerridæ*, BERGROTH, Ent. Mag. xxxviii, pp. 258–260.

Eotrechus n. g. for *E. kalidasa*, n. sp., Carin Cheba, KIRKALDY, Entomologist 1902, p. 137.

Gerris annulicornis, p. 83, *vulpina*, p. 85, Celebes, BREDDIN, Hemipt. Celeb.; *G. hesione*, Florida etc., p. 137, *euphrosyne*, Australia, p. 138, KIRKALDY, Entomologist 1902 : n. spp.

Hebrus axillaris, N. S. Wales, HORVÁTH, Termes. Fuzetek xxv, p. 606, n. sp.

Hydrometra gracilenta and *stagnorum*, REUTER, Medd. Soc. Faun. Fenn. xxvi, p. 126; *H. albolineata*=(*greeni* Kirk.), DISTANT, Ann. Nat. Hist. x, p. 173.

H. agenor, Ecuador, p. 281, *naiades*, Centr. America, p. 281, KIRKALDY, Entomologist 1902 : n. spp.

Microvelia stellata, Ecuador, KIRKALDY, t. c. p. 281, n. sp.

Ptilomera pamphagus, p. 86, *dorceus*, p. 87, *oribasus*, *lælaps*, p. 88, BREDDIN, Hemipt. Celeb., n. spp.

Rheumatometra n. g. near *Kallistometra*, for *R. philarete*, n. sp., Australia, KIRKALDY, Entomologist 1902, p. 281, n. sp.

Reduviidæ.

Synonomy and taxonomy of Walker's species, Distant, Ann. Nat. Hist. x, pp. 175–194.

Walker's *Ectrichodinæ*, *Piratinæ*, synonymy and taxonomy, Distant, t. c. pp. 282–295.

Acanthaspis lateralis, Sierra Leone, Distant, t. c. p. 184; *A.* (*Tetroxia*) *affinis*, E. Africa, Schouteden, Wien. ent. Zeit. xxi, p. 241 : n. spp.

Argolis (*Caunus*) *bergrothi*, Congo, p. 242, *proxima*, Niam-Niam, p. 243, Schouteden, t. c., n. spp.

Callilestes bicolor, Transvaal, Distant, Ann. S. African Mus. ii, p. 254; *C. stigmatellus*, Mashonaland, Distant, Tr. ent. Soc. London 1902, p. 544, pl. xviii, fig. 62 : n. spp.

Canthesancus geniculatus, China, Distant, Ann. Nat. Hist. x, p. 178, n. sp.

Centraspis insignis, Congo, Schouteden, Wien. ent. Zeit. xxi, p. 239; *C. ducalis*, Ashantee, Distant, Ann. Nat. Hist. x, p. 292 : n. spp.

Centrocnemis philippinensis, Philippines, Distant, t. c. p. 181, n. sp.

Cerilocus histrio, Brit. E. Africa, Distant, t. c. p. 188, n. sp.

Cleptria mombasæ, E. Africa, Distant, t. c. p. 290, n. sp.

Coranus trabeatus, N. S. Wales, Horváth, Termes. Fuzetek xxv, p. 609, n. sp.

Darbanus subunicolor, Celebes, Breddin, Hemipt. Celeb. p. 94, n. sp.

Dystecta n. g. near *Ectrichodia*, p. 98, for *D. mendica*, n. sp., Celebes, pl. i, fig. 15, p. 99, Breddin, t. c.

Ectomocoris pictus, East Africa, Distant, Ann. Nat. Hist. x, p. 283, n. sp.

Ectrichodia etc., synonymy, *E. linnei* = (*discrepans* Walk.), Kirkaldy, J. Bombay Soc. xiv, pp. 299, 300.

E. horrenda, India, Kirkaldy, t. c. p. 300, n. sp.

Endochus viduus, p. 91, *pauli*, p. 92, *friderici*, *sarasinorum*, p. 93, Celebes, Breddin, Hemipt. Celeb., n. spp.

Gardena australis, N. S. Wales, Horváth, Termes. Fuzetek xxv, p. 606, n. sp.

Hæmatoloecha ridleyana, Singapore, Distant, Ann. Nat. Hist. x, p. 289, n. sp.

Harpactor iracundus, early stages, Xambeu, Naturaliste xxiv, p. 211.

Hermillus rufipes, Cameroons, Schouteden, Wien. ent. Zeit. xxi, p. 240, n. sp.

Holotrichius bicostulatus, W. Turkestan, Jakowleff, Rev. Russe Ent. ii, p. 69, n. sp.

Khafra n. g. near *Platymeris*, type *P. prædo* Stål, p. 185, with *K. concoloripes*, n. sp., Nigeria, p. 186, Distant, Ann. Nat. Hist. x.

Lestomerus horridus Kirby, referred to *Sirthenea*, ♂, Distant, t. c. p. 286.

Mankuninga n. g. near *Cerilocus*, p. 188, for *M. longipes*, n. sp., Brit. East Africa, p. 189, Distant, t. c.

Marlianus n. g. for *Conorhinus diminutus* Walk., Distant, t. c. p. 191.

Mendis chinensis, Amoy, Distant, t. c. p. 291, n. sp.

Mindarus colossus, Paraguay, Distant, t. c. p. 289, n. sp.

Nesidiolestes n. g. near *Luteva*, p. 152, for *N. selium*, n. sp., Hawaii, p. 153, Kirkaldy, Fauna Hawaiiensis iii.

Nicrus depressus, N. S. Wales, Horváth, Termes. Fuzetek xxv, p. 608, n. sp.

Nitornus fuliginosus, Brazil, Distant, Ann. Nat. Hist. x, p. 177, n. sp.

Opistoplatys foveatus, New Guinea, Distant, t. c. p. 176, n. sp.

Phonergates nigriventris, p. 241, *distinguendus*, p. 242, Congo, Schouteden, Wien. ent. Zeit. xxi, n. spp.

Phonoctonus formosus, Africa, Distant, Tr. ent. Soc. London 1902, p. 543, pl. xix, fig. 52, n. sp.

Pirates noctis, Madagascar, p. 284, *aurigans*, *marginiventris*, East Africa, *sepulchralis*, W. Australia, p. 285, DISTANT, Ann. Nat. Hist. x; *P. abortivus*, Celebes, BREDDIN, Hemipt. Celeb. p. 102 : n. spp.
Platymeris erebus, Mombasa, DISTANT, Ann. Nat. Hist. x, p. 185, n. sp.
Pristhesancus papuensis, habits, Agric. Gaz. N. S. W. xiii, p. 624, pl., fig. 21.
Ptilocnemidia n. n. for *Ptilocnemus* Serv., KIRKALDY, Entomologist 1902, p. 137.
Ptilocnemus femoralis, *plumifer*, N. S. Wales, HORVÁTH, Termes. Fuzetek xxv, p. 608, n. sp.
Pygolampis æthiops, Natal, p. 176, *nyasæ*, Fort Johnson, p. 177, DISTANT, Ann. Nat. Hist. x, n. spp.
Reduviolus tarai, pl. v, fig. 40, p. 154, *morai*, fig. 39, p. 155, *sharpianus*, fig. 36, p. 156, Hawaii, KIRKALDY, Fauna Hawaiiensis iii, n. spp.
Reduvius labeculatus, *luteipes*, East Africa, DISTANT, Ann. Nat. Hist. x, p. 182, n. spp.
Rhynocoris nitidulus var. n. *otrophades*, KIRKALDY, Entomologist 1902, p. 136.
Saica ochracea, Ecuador, DISTANT, Ann. Nat. Hist. x, p. 175, n. sp.
Santosia lugubris, Borneo, DISTANT, t. c. p. 288, n. sp.
Schottus n. g. near *Vilius*, for *Ectrichodia sulica* Walk. and *luteicollis* Walk., DISTANT, t. c. p. 293.
Scipinia bellicosa, Celebes, BREDDIN, Hemipt. Celeb. p. 89, n. sp.
Sirthenea vittata, Colombia, DISTANT, t. c. p. 286, n. sp.
Sminthus greeni, Ceylon, DISTANT, t. c. p. 190, n. sp.
Sphedanocoris distinctus, N. S. Wales, HORVÁTH, Termes. Fuzetek xxv, p. 608, n. sp.
Spiniger nothus, *mixtus*, Amazons, DISTANT, Ann. Nat. Hist. x, p. 187, n. sp.
Tapeinus fuscipennis, habitat, KIRKALDY, Entomologist 1902, p. 136.
T. heydeni, p. 23, *fallax*, p. 24, BREDDIN, Wien. ent. Zeit. xxi, n. spp.
Tiarodes obyanus, New Guinea, DISTANT, Ann. Nat. Hist. x, p. 191, n. sp.
Tribelocephala pallescens, Borneo, DISTANT, t. c. p. 176, n. sp.
Vilius albomaculatus, Malay penins., DISTANT, t. c. p. 292, n. sp.
Zelus (*Diplacodus*) *peregrinus*, Oahu, KIRKALDY, Fauna Hawaiiensis iii, p. 149; *Z.* (*Diplodus*) *impar*, S. America, KUHLGATZ, Berlin. ent. Zeitschr. 1902, p. 264, pl. iv, fig. 6 : n. spp.
Zirta simillima, Brazil, DISTANT, Ann. Nat. Hist. x, p. 290, n. sp.

HENICOCEPHALIDÆ, ANTHOCORIDÆ.

Henicocephalus wallacei, New Guinea, p. 174, *majusculus*, Ceylon, p. 175, DISTANT, Ann. Nat. Hist. x, n. spp.
Piezostethus terricola, Spain, REUTER, Ent. Mag. xxxviii, p, 102, n. sp.
Triphleps oblongus, Abyssinia, REUTER, p. 154, Ofv. Finska Forh. xliv, n. sp.

CAPSIDÆ, MIRIDÆ.

Numerous critical remarks and suggestions and synonymy not here reproduced, REUTER, Ofv. Finska Forh. pp. 51–70 and 141–188.

Capsidæ of Germany, Vol. I, HÜEBER (630).
Atomoscelis redefined, REUTER, p. 61, Ofv. Finska Forh. xliv.
A. noualhieri, Algeria, id. p. 62, t. c., n. sp.
Austromiris n. g. near *Megalocerœa*, for *A. viridissimus*, n. sp., Australia, pl. v, fig. 12, KIRKALDY, Tr. ent. Soc. London 1902, p. 267.
Baracus n. g. *Capsaria*, for *B. hawaiiensis*, n. sp., Lanai, pl. iv, fig. 21, KIRKALDY, Fauna Hawaiiensis iii, p. 143.

Berta n. g. *Laboparia* for *Capsus lankanus* Kirby, KIRKALDY, p. 57, pl. A, fig. 7, J. Bombay Soc. xiv.

Bothriomiris n. g., p. 270, for *B. marmoratus*, n. sp., Perak (=*Capsus simulans* Wlk.), pl. v, fig. 9, p. 271, KIRKALDY, Tr. ent. Soc. London 1902.

Brachycoleus aurantiacus, Crimea, JAKOWLEFF, Rev. Russe Ent. ii, p. 69, n. sp.

Camptozygum pumilio, Austria, REUTER, p. 166, Ofv. Finska Forh. xliv, n. sp.

Campylognathus nigrigenis = (*Ochrodema fusciloris* Reut.), REUTER, p. 186, t.c.

Capsus lankanus cf. *Berta*; *C. rama* to *Hyalopeplus*, p. 58; *C. ravanus* cf. *Isabel*, KIRKALDY, J. Bombay Soc. xiv.

C. lineifer Wlk. transferred to *Hyalopeplus*, KIRKALDY, Tr. ent. Soc. London 1902, p. 253, n. sp.

Ceratofulvius n. g. type *Fulvius clavicornis* Reut., REUTER, p. 156, Ofv. Finska Forh. xliv.

Charagochilus gyllenhali, forma macropt. REUTER, Medd. Soc. Faun. Fenn. xxvi, p. 127.

Cheilocapsus n. g. near *Hyalopeplus*, for *C. flavomarginatus*, n. sp., Burma, KIRKALDY, Tr. ent. Soc. London 1902, p. 259.

Chrysorrhanis n. g., *Capsaria*, p. 225, for *C. daphne*, n. sp., Pulo Laut, p. 226, KIRKALDY, Wien. ent. Zeit. xxi.

Compsonannus n. g. near *Psallopsis*, p. 63, for *C. puncticornis*, n. sp., Algeria, p. 64, REUTER, Ofv. Finska Forh. xliv.

Coquilletia mimetica, Iowa, OSBORN, P. Iowa Ac. v, p. 236, n. sp.

Cyrtopeltis hawaiiensis, Maui, KIRKALDY, Fauna Hawaiiensis iii, p. 138, n. sp.

Derœocoris sacratus, Pulo Laut, KIRKALDY, Tr. ent. Soc. London 1902, p. 262, n. sp.

Dichrooscytus handlirschi, Austria, REUTER, p. 165, Ofv. Finska Forh. xliv, n. sp.

Diocoris n. g. near *Læmocoris*, for *D. agelastus*, n. sp., Guinea, KIRKALDY, t. c. p. 246.

Disphinctus mæsarum, *formosus*, pl. A, fig. 10, Ceylon, p. 295, *dudgeoni*, India, p. 296, KIRKALDY, J. Bombay Soc. xiv; *D. sumatrator*, Sumatra, *anadyomene*, Singapore, KIRKALDY, Tr. ent. Soc. London 1902, p. 264 : n. spp.

Eblis n. g. near *Capsus*, for *E. amasis*, n. sp., India, KIRKALDY, t. c. p. 236.

Eccritotarsus orchidearum, Brazil, REUTER, p. 157, Ofv. Finska Forh. xliv, n. sp.

Eucerocoris tumidiceps, N. S. Wales, HORVÁTH, Termes. Fuzetek xxv, p. 610, n. sp.

Eurybrochis n. g. near *Lygidea*, p. 259, for *E. zanna*, n. sp., Australia, p. 260, pl. v, fig. 8, KIRKALDY, Tr. ent. Soc. London 1902.

Eurymiris n. g. near *Teratocoris*, for *E. eurynome*, n. sp., Australia, KIRKALDY, t. c. p. 266.

Eurystylus costalis, characters and position, KIRKALDY, t. c. p. 262, pl. vi, figg. 13, 20.

Fulvius breddini, Brazil, REUTER, p. 156, Ofv. Finska Forh. xliv, n. sp.

Globiceps juniperi, Austria, REUTER, p. 176, t. c.; *G. variegatus*, Chili, REED, Revist. chilena iv, p. 175 : n. spp.

Grypocoris costæ, locality? REUTER, p. 164, Ofv. Finska Forh. xliv, n. sp.

Gutrida n. g. *Capsaria*, for *G. gabonia*, n. sp., Gaboon, KIRKALDY, Entomologist 1902, p. 284.

Hekista n. g., *Pilophoraria* without allies, p. 248, for *H. laudator*, n. sp., Pulo Laut, p. 249, KIRKALDY, Tr. ent. Soc. London 1902.

Helopeltis theivora, habits, MANN, J. Asiat. Soc. Bengal lxxi, pp. 133–137.

H. waterhousei, Gaboon, *insularis*, Pulo Laut, KIRKALDY, Tr. ent. Soc. London 1902, p. 265, n. spp.

Hesperolabops n. g. near *Labops*, p. 249, for *H. gelastops*, n. sp., Mexico, p. 250, pl. v, fig. 2, KIRKALDY, t. c.

Isabel n. g. for *Capsus ravana* Kirby, KIRKALDY, p. 58, pl. A, fig. 9, J. Bombay Soc. xiv.

Kamehameha n. g. near *Phytocoris*, for *K. lunalilo*, n. sp., Hawaii, pl. v, fig. 22, KIRKALDY, Fauna Hawaiiensis iii, p. 137.

Kangra n. g. near *Hyalopeplus*, for *K. dudgeoni*, n. sp., India, pl. v, fig. 5, KIRKALDY, Tr. ent. Soc. London 1902, p. 257.

Koanoa n. g. near *Orthotylus*, for *K. hawaiiensis*, n. sp., Hawaii, KIRKALDY, Fauna Hawaiiensis iii, p. 136.

Korasiocapsus n. g., p. 260, for *K. pylaon*, n. sp., Mozambique, p. 261, KIRKALDY, Tr. ent. Soc. London 1902.

Kosmiomiris n. g. for *K. rubroornatus*=(*Capsus lucidus* Wlk.), n. sp., Malacca, KIRKALDY, t. c. p. 253.

Læmocoris poseidon, Addah, *L.* ? *ravenar*, Java, KIRKALDY, Entomologist 1902, p. 315, n. spp.

Lomatopleura hesperus, n. n. for *Capsus coccineus* Wlk., KIRKALDY, Tr. ent. Soc. London 1902, p. 252.

Lygus osiris, Réunion, Mozambique, KIRKALDY, t. c. p. 262, n. sp.

Makua n. g. *Capsaria*, for *M. psole*, n. sp., Mozambique, KIRKALDY, Entomologist 1902, p. 282.

Malacopeplus n. g. for *Capsus discoidalis* Wlk., KIRKALDY, Tr. ent. Soc. London 1902, p. 254.

Megalocerœa cœlestialium, China, KIRKALDY, t. c. p. 266, n. sp.

Meginoe n. g. *Capsaria*, for *M. hovana*, n. sp., Madagascar, KIRKALDY, Entomologist 1902, p. 283.

Monalonion pilosipes, *megiston*, Ecuador, KIRKALDY, Tr. ent. Soc. London 1902, p. 264, n. spp.

Nasocoris ephedræ, Spain, REUTER, Ent. Mag. xxxviii, p. 103, n. sp.

Neofurius aurora, Amazons, KIRKALDY, Tr. ent. Soc. London 1902, p. 250, n. sp.

Nesidiocheilus n. g. for *N. hawaiiensis*, n. sp., Maui, KIRKALDY, Fauna Hawaiiensis iii, p. 127.

Nesidiocoris n. g. near *Campyloneura*, for *N. volucer*, n. sp., Réunion, KIRKALDY, Tr. ent. Soc. London 1902, p. 247.

Nesidiorchestes n. g. near *Halticus*, for *N. hawaiiensis*, n. sp., Oahu, pl. iv, figg. 15, 16, KIRKALDY, Fauna Hawaiiensis iii, p. 139.

Nesiomiris n. g. near *Teratocoris*, p. 144, for *N. hawaiiensis*, n. sp., Hawaii, pl. v, fig. 50, p. 145, KIRKALDY, t. c.

Neurocolpus nubilus=(*mexicanus* and *affinis* Dist.), KIRKALDY, Tr. ent. Soc. London 1902, p. 252.

Olympiocapsus n. g. near *Dichrooscytus*, for *O. cœlestialium*, n. sp., China, KIRKALDY, t. c. p. 255.

Opuna n. g. *Halticaria*, for *O. hawaiiensis*, n. sp., Hawaii, pl. v, fig. 29, KIRKALDY, Fauna Hawaiiensis iii, p. 140.

Orectoderus obliquus, ♀, macropterous and apterous forms, KIRKALDY, Tr. ent. Soc. London 1902, p. 249, pl. vi.

Oronomiris n. g. *Miraria*, for *O. hawaiiensis*, n. sp., Hawaii, pl. v, fig. 30, KIRKALDY, Fauna Hawaiiensis iii, p. 144.

Orthotylus cricetorum=(*croceus* Sahlb.) REUTER, Medd. Soc. Faun. Fenn. xxvi, p. 127.

O. eurynome, Australia, KIRKALDY, Tr. ent. Soc. London 1902, p. 245; *O. perkinsi*, *iolani*, p. 133, *kanakanus*, *kekele*, p. 134, *daphne* with var. *kassandra*, p. 135, *azalais*, pl. v, fig. 26, p. 136, Hawaii, KIRKALDY, Fauna Hawaiiensis iii : n. spp.

Pachytomella doriæ=(*nitens* Reut.) REUTER, p. 174, Ofv. Finska Forh. xliv.

Periscopus mundulus Bredd. referred to *Cyrtorrhinus*, REUTER, p. 178, t. c.
Phytocoris lesnei, Algeria, REUTER, p. 5, t. c.; *P. litreæ*, Chili, REED, Revist. chilena iv, p. 145 : n. spp.
Pilophorus scutellaris, Tunis, REUTER, p. 55, Ofv. Finska Forh. xliv, n. sp.
Platyngomiris n. g. for *P. coreoides*, n. sp., Pulo Laut, pl. v, fig. 7, KIRKALDY, Tr. ent. Soc. London 1902, p. 258.
Plexaris n. g. *Capsaria*, p. 282, for *P. saturnides*, n. sp., Natal, p. 283, KIRKALDY, Entomologist 1902.
Proboscidocoris seti, Mozambique, KIRKALDY, Tr. ent. Soc. London 1902, p. 261, n. sp.
Psallus scutellaris, Algeria, REUTER, p. 59, Ofv. Finska Forh. xliv, p. 59; *P. sharpianus*, Hawaii, pl. v, fig. 31, p. 131, with var. *pelidnopterus*, p. 132, Hawaii, KIRKALDY, Fauna Hawaiiensis iii : n. spp.
Pseudoclerada n. g. *Halticaria*, p. 140, for *P. morai*, n. sp., Hawaii, pl. iv, figg. 18–20, p. 141, KIRKALDY, t. c.
Resthenia (*Callichila*) *amœna*, p. 261, pl. iv, fig. 4, *R.* (*R.*) *simplex*, p. 263, fig. 5, S. America, KUHLGATZ, Berlin. ent. Zeitschr. 1902; *R. simulacrum*, p. 251, *berta*, p. 252, pl. v, fig. 10, Brazil, KIRKALDY, Tr. ent. Soc. London 1902 : n. spp.
Rhinofulvius n. g. type *Fulvius albifrons*, REUTER, p. 156, Ofv. Finska Forh. xliv.
Rhinomiris n. g., p. 268, for *Capsus vicarius* Wlk., pl. v, fig. 6, p. 269, KIRKALDY, Tr. ent. Soc. London 1902.
Sarona n. g. *Capsaria*, for *S. adonias*, n. sp., Hawaii, pl. v, fig. 23, KIRKALDY, Fauna Hawaiiensis iii, p. 142.
Saturniomiris n. g. for *Capsus tristis* Walk., KIRKALDY, Tr. ent. Soc. London 1902, p. 268.
Sericophanes ocellatus Reut., forms, mimicry, OSBORN, P. Iowa Ac. v, p. 238.
Shana n. g. *Capsaria*, p. 315, for *S. ravana*, n. sp., Burma, p. 316, KIRKALDY, Entomologist 1902.
Solenoxyphus longicornis, Crimea, JAKOWLEFF, Rev. Russe Ent. ii, p. 339, n. sp.
Sphinctothorax montandoni, Zanzibar, KIRKALDY, Tr. ent. Soc. London 1902, p. 248, pl. v, fig. 3, n. sp.
Sulamita n. g. of a new div. *Sulamitaria*, p. 129, for *S. lunalilo*, n. sp., pl. iv, figg. 12–14, p. 130, *opuna*, p. 131, n. spp., Hawaii, KIRKALDY, Fauna Hawaiiensis iii.
Sulamitaria, div. nov. cf. *Sulamita*.
Systellonotus palpator, Sind, KIRKALDY, Tr. ent. Soc. London 1902, p. 247, n. sp.
Thaumastomiraria, nov. div. for the following:—
Thaumastomiris n. g., p. 56, for *T. sanguinalis*, n. sp., Ceylon, p. 57, pl. A, fig. 6, KIRKALDY, J. Bombay Soc. xiv.
Tinginotum n. g. *Capsaria*, for *T. javanum*, n. sp., KIRKALDY, Tr. ent. Soc. London 1902, p. 263.
Tinicephalus pulcher, S. France, REUTER, p. 58, Ofv. Finska Forh. xliv, n. sp.
Trilacus n. g. *Cyllocoraria*, p. 610, for *T. nigroruber*, n. sp., N. S. Wales, p. 611, HORVÁTH, Termes. Fuzetek xxv.
Tuponia noualhieri, p. 66, *ritticollis*, p. 67, Algeria, REUTER, Ofv. Finska Forh. xliv, n. spp.
Umslopogas n. g. near *Pachyterna*, for *U. nigroquadristriatus*, Natal, pl. v, fig. 11, n. sp., KIRKALDY, Tr. ent. Soc. London 1902, p. 254.
Zanessa n. g. near *Miris*, p. 269, for *Z. rubrovariegata*, n. sp., Australia, pl. v, fig. 13, KIRKALDY, t. c. p. 270.
Zulaimena n. g. *Capsaria*, for *Z. hathor*, n. sp., Guinea, KIRKALDY, t. c. p. 256.

SALDIDÆ.

Acanthia pilosa Fall. = (*artica* Sahlb.), REUTER, Medd. Soc. Faun. Fenn. xxvii, p. 62; *A.* (=*Salda*) *marginalis*, characters and synonymy, REUTER, op. cit. xxvi, p. 127.
Salda c-album and *vestita*, relations, SAUNDERS, Ent. Mag. xxxviii, p. 87.

HYDROCORISÆ.

Asymmetry of elytra in *Naucoris* etc., ENDERLEIN (398).

Anisops fieberi n. n. for *nicea* Fieb. nec Fab., *breddini*, Celebes, KIRKALDY in Breddin Hemipt. Celeb. p. 103, n. spp.
Aphelocheirus montandoni, *nigrita*, *æstivalis*, characters, REUTER, Medd. Soc. Faun. Fenn. xxvi, p. 131, n. sp.
Micronecta rugicollis, Finland, HORVÁTH, Medd. Soc. Faun. Fenn. xxvii, p. 144, n. sp.
Mononyx annulipes, N. S. Wales, HORVÁTH, Termes. Fuzetek xxv, p. 611, n. sp.
Notonecta; oviposition, BUENO, J. N. York Ent. Soc. x, p. 250.
N. kirkaldyi, Yunnan, MARTIN, Bull. Mus. Paris viii, p. 336, n. sp.
Notonectidæ of New York, BUENO, J. N. York Ent. Soc. x, pp. 230–236.
Ranatra fusca, eggs, PETTIT, Canad. Ent. xxxiv, p. 213, cuts.

HEMIPTERA-HOMOPTERA.

[The following memoirs relate to *Hemiptera-Homoptera*, viz.:—BALL (54–61), BREDDIN (156, 160–162), BUCKTON (177), DYAR (369), EDWARDS (385, 386), HINDE (601), JACOBI (635, 636, 638), KIRKALDY (705, 710), KUHLGATZ & MELICHAR (742), MARLATT (864), MATSUMURA (873, 874), MELICHAR (892–894), MEUNIER (901), OSBORN (981, 983), OSBORN & BALL (984), RUSIECKA (1179), VERRILL (1410A). And for memoirs on *Psyllidæ*, *Aphidæ*, *Aleurodidæ*, *Coccidæ* see the lists prefixed to the records of those groups.]

CICADIDÆ.

Siamese *Cicada*-clapper, FRUHSTORFER, Berlin. ent. Zeitschr. 1902, SB. p. 28.

Cicada septendecim, New Jersey, bionomics, SMITH, Rep. N. Jersey exp. Stat. 1902, pp. 470–489; *C. septendecim* in 1902 etc., UHLER, Rep. N. Jersey exp. Stat. 1902, pp. 159, 160; *C. septendecim* in 1902, QUAINTANCE, p. 123, MARLATT, p. 124, P. ent. Soc. Washington v; an ancient record, 1666, MARLATT, t. c. p. 126; *C. septendecim*, feeding, penetration of proboscis, QUAINTANCE, Bull. U. S. Dep. Agric. Ent. No. 37, pp. 90–95, pl. i.
C. bermudiana, Bermudas, VERRILL, Tr. Connect. Ac. xi, p. 736, pl. lxxxiii, figg. 1, 2, n. sp.
Cicadatra ochreata, Persia, MELICHAR, Annuaire Mus. St. Petersb. vii, p. 80, n. sp.
Cosmopsaltria vomerigera, p. 105, *multisignata*, p. 106, *ornaticeps*, p. 107, *toradja*, p. 109, Celebes, BREDDIN, Hemipt. Celeb., n. spp.
Cryptotympana edwardsi, India, KIRKALDY, J. Bombay Soc. xiv, p. 55, n. sp.
Drepanopsaltria n. g. for *Lembeja culta* Dist., BREDDIN, Hemipt. Celeb. p. 113.

Dundubia lelita, Borneo, KIRKALDY, J. Bombay Soc. xiv, p. 54, n. sp.
Fidicina aldegondæ, p. 266, pl. v, fig. 1, *steindachneri*, fig. 2, p. 269, S. America, KUHLGATZ, Berlin. ent. Zeitschr. 1902, p. 273, n. spp.
Gæana electa, Tonkin, JACOBI, SB. Ges. naturf. Berlin 1902, p. 20, n. sp.
Heteropsaltria n. g., p. 73, for *H. aliena*, n. sp., Solomon Ids., p. 76, JACOBI, t. c.
Huechys eos, Celebes, BREDDIN, Hemipt. Celeb. p. 111, n. sp.
Leptopsaltria celebensis, Celebes, BREDDIN, t. c. p. 103, n. sp.
Moyannia cæsar, Tonkin, JACOBI, SB. Ges. naturf. Berlin 1902, p. 21, n. sp.
Scieroptera sarasinorum, Celebes, BREDDIN, Hemipt. Celeb. p. 112, n. sp.
Talainga distanti, Tonkin, JACOBI, SB. Ges. naturf. Berlin 1902, p. 21, n. sp.
Terpnosia posidonia, Tonkin, JACOBI, t. c. p. 22, n. sp.
Tibicen cassini, a valid species, characters, OSBORN, Ohio Natural. iii, p. 323.
T. turbatus, Persia, MELICHAR, Annuaire Mus. St. Petersb. vii, p. 79; *T. reductus*, Tonkin, JACOBI, SB. Ges. naturf. Berlin 1902, p. 22 : n. spp.

FULGORIDÆ.

Monograph of *Flatidæ* completed, MELICHAR, Ann. Hofmus. Wien xvii, pp. 1–253, 9 pls.

Acrophœa n. g. for *A. fasciata*, n. sp., New Guinea, MELICHAR, Ann. Hofmus. Wien xvii, p. 8.
Aflata n. g., p. 7, for *A. stali*, n. sp., Adelaide, p. 8, MELICHAR, t. c.
Anidora n. g., p. 158, for *A. fusca*, n. sp., New Pomerania, p. 159, MELICHAR, t. c.
Anotia kirkaldayi, *sayi*, N. America, BALL, Canad. Ent. xxxiv, p. 259, n. spp.
Aphœna tullia, Celebes, BREDDIN, Hemipt. Celeb. p. 133, n. sp.
Atracis nebulosa, p. 180, Africa, *insurgens*, Assam, *consocia*, Sumatra, p. 181, *javana*, p. 182, *carinata*, Java, *celebensis*, Celebes, p. 183, *vagans*, *inquinata*, Africa, p. 184, *costalis*, p. 185, *gibbosus*, p. 186, Madagascar, *latifasciata*, Ceylon, p. 187, *scripta*, p. 188, *obtecta*, Borneo, *munita*, Ceylon, p. 189, *lauta*, S. America, p. 190, *conspurcata*, Ceylon, p. 191, *leucophœa*, Centr. America, p. 193, *collecta*, Brazil, *mendax*, Africa, p. 194, *subtilis*, Ceylon, p. 195, *finita*, Africa, p. 196, *lurida*, Java, p. 197, MELICHAR, Ann. Hofmus. Wien xvii, n. spp.
Atracodes subg. n. for *A. indutus*, St. Thomas, *corrugatus*, Madagascar, p. 225, n. spp., MELICHAR, t. c.
Bostœra n. g. near *Stobœra*, for *B. nasuta*, n. sp., Colorado, BALL, Canad. Ent. xxxiv, p. 266.
Camerunia n. g. for *C. integra*, n. sp., W. Africa, MELICHAR, Ann. Hofmus. Wien xvii, p. 63.
Carthœa rectangularis, p. 31, *acuminata*, p. 32, S. America, MELICHAR, t. c., n. spp.
Carthœomorpha n. g., p. 33, for *C. rufipes*, *breviceps*, p. 34, n. spp., S. America, MELICHAR, t. c.
Cenchrœa heidemanni, *uhleri*, N. America, BALL, Canad. Ent. xxxiv, p. 261, n. spp.
Cixius latifrons, W. China, p. 85, *longipennis*, Persia, p. 86, MELICHAR, Annuaire Mus. St. Petersb. vii, n. spp.
Cixius cultus, N. America, BALL, Canad. Ent. xxxiv, p. 151, n. sp.
Colgar centralis, Morotai, p. 111, *destituta*, Obi, p. 112, *indicata*, *diversa*, p. 113, *punctulata*, p. 114, Batchian, *composita*, p. 114, *furtiva*, p. 115, *similata*, *tripunctata*, p. 116, New Guinea, MELICHAR, Ann. Hofmus. Wien xvii, n. spp.

Cromna frontalis, Australia, *surrecta*, New Guinea, p. 59, *aspera*, Key Id., *notata*, Bismarck Arch., p. 60, MELICHAR, t. c., n. spp.
Cryptoflata n. g. for part of *Flata*, p. 19, with *C. nigrolimbata*, Africa, p. 20, *flavoguttata*, Ceylon, *parvula*, p. 21, *demota*, p. 22, Africa, MELICHAR, t. c.
Cyarda angustata, Madagascar, MELICHAR, t. c. p. 135, n. sp.
Dascalia propria, p. 146, *breddini*, *revestita*, p. 147, *scabrida*, p. 148, *contorta*, p. 149, *albomaculata*, *spilota*, *decora*, p. 150, *confusa*, *ornata*, p. 151, *marginata*, *emota*, p. 152, S. America, *fumata*, Porto Rico, p. 154, MELICHAR, t. c., n. spp.
Dascalina n. g., p. 154, for *D. ægrota*, *reversa*, *alternans*, p. 155, *contorta*, p. 156, n. spp., Australia, MELICHAR, t. c.
Delphax, cf. *Pundaluoya*.
Derisa n. g. for *D. atratula*, n. sp., Persia, MELICHAR, Ann. Hofmus. Wien xvii, p. 157.
Dichoptera hampsoni, pl. B, fig. 1, p. 50, KIRKALDY, J. Bombay Soc. xiv.
Dictyophara cf. *Pibrocha*.
D. annulipes, Ussuri, MELICHAR, Annuaire Mus. St. Petersb. vii, p. 84, n. sp.
Durium costale, W. China, MELICHAR, t. c. p. 94, n. sp.
Euphanta n. g. for *E. acuminata*, p. 38, Ovalau, *ruficeps*, Australia, p. 39, n. spp., MELICHAR, Ann. Hofmus. Wien xvii.
Eurima n. g., p. 156, for *E. astuta*, n. sp., Persia, p. 157, MELICHAR, t. c.
Exoma n. g. for *E. viduata*, n. sp., Haiti, MELICHAR, t. c. p. 158.
Farona n. g. for *F. fuscipennis*, n. sp., Burma, MELICHAR, t. c. p. 142.
Flata ocellata, pl. A, fig. 5, *F. cornutipennis* n. n. for *Phylliphanta acutipennis* Kirb., KIRKALDY, J. Bombay Soc. xiv, p. 53; *F. nigrocincta*, habits, resemblance to flowers, HINDE (601).
Flatoides signoreti, p. 200, *nossibeanus*, p. 201, *distanti*, p. 202, *elegans*, p. 203, *marmoratus*, Madagascar, *fasciculosus*, *griseus*, Cuba, p. 205, *arcufer*, p. 206, *serenus*, p. 207, Madagascar, *insularis*, Cuba, *angustatus*, p. 209, *undulatus*, p. 210, Madagascar, *planatus*, Africa, *cyrtus*, Madagascar, p. 211, *demissus*, Comores, p. 212, *fulvus*, *sikoræ*, p. 213, *breviceps*, p. 214, *turbatus*, Madagascar, *punctuliger*, p. 215, *punctonervosus*, *delegatus*, p. 216, *planus*, p. 217, S. America, *intermedius*, hab. ?, *signatus*, N. America, p. 219, *scabrosus*, Brazil, p. 220, *servus*, Sikkim, p. 221, *lichenosus*, Haiti, *dotatus*, Cuba, p. 222, MELICHAR, Ann. Hofmus. Wien xvii, n. spp.
Flatomorpha n. g. for *F. inclusa*, n. sp., Sarawak, MELICHAR, t. c. p. 28.
Flatopsis n. g. with *F. guttigera*, n. sp., Madagascar, MELICHAR, t. c. p. 51.
Flatula n. g., p. 62, for *F. cribrata*, n. sp., Palembang, p. 63, MELICHAR, t. c.
Fulgora and *Laternaria*, the types of, KIRKALDY, J. Bombay Soc. xiv, p. 46.
Hansenia n. g. for *Pœciloptera pulverulenta* Guér., KIRKALDY, t. c. p. 53.
Hysteropterum boreale, W. China, MELICHAR, Annuaire Mus. St. Petersb. vii, p. 92, n. sp.
Idume plicata, Sarawak, MELICHAR, Ann. Hofmus. Wien xvii, p. 28, n. sp.
Iolania n. g. near *Cixius*, p. 118, for *I. perkinsi*, n. sp., Hawaii, pl. iv, fig. 3, p. 119, KIRKALDY, Fauna Hawaiiensis iii.
Isthmia fusca, W. China, MELICHAR, Annuaire Mus. St. Petersb. vii, p. 95, n. sp.
Kelisia salina, *parvula*, N. America, BALL, Canad. Ent. xxxiv, p. 264, n. spp.
Lamenia obscura, Colorado, *inflata*, Hayti, BALL, t. c. p. 262, n. spp.
Lichena n. g. for *Flatoides dealbatus* Dist., MELICHAR, Ann. Hofmus. Wien xvii, p. 167.
Lophops pallidus, Persia, MELICHAR, Annuaire Mus. St. Petersb. vii, p. 90, n. sp.

Megamelanus n. g. near *Megamelus*, for *M. bicolor*, n. sp., Colorado, BALL, Canad. Ent. xxxiv, p. 265.
Mesophantia n. g. for *M. pallens*, n. sp., Persia, MELICHAR, Ann. Hofmus. Wien xvii, p. 18.
Mesophylla n. g. for *M. inclinata*, Philippines, *correcta*, W. Africa, n. spp., MELICHAR, t. c. p. 53.
Microflata n. g., p. 9, for *M. stictica*, n. sp., Australia, p. 10, MELICHAR, t. c.
Morsina n. g. *Ricaniides*, p. 97, for *M. persica*, pl. v, fig. 6, n. sp., Persia, p. 98, MELICHAR, Annuaire Mus. St. Petersb. vii.
Myndus viridis, *impiger*, p. 153, *slossoni*, p. 154, N. America, BALL, Canad. Ent. xxxiv, n. spp.
Neocerus n. g. for *N. corniculatus*, n. sp., S. America, MELICHAR, Ann. Hofmus. Wien xvii, p. 132.
Nephesa longipennis, Malacca, *intrusa*, Sumatra, p. 103, *rubrotestacea*, Africa, *albopunctulata*, Java, *brunnea*?, Java, p. 104, *ægrota*, Philippines, p. 105, MELICHAR, t. c., n. spp.
Œcleus lineatus, p. 154, *excavatus*, *obtusus*, p. 155, *camprestis*, p. 156, *fulvidorsum*, *acutus*, p. 157, N. America, BALL, Canad. Ent. xxxiv, n. spp.
Oliarius convergens, p. 87, *fuscofasciatus*, p. 88, Persia, MELICHAR, Annuaire Mus. St. Petersb. vii, n. spp.
Oliarius tamehameha, pl. iv, fig. 4, p. 120, *kanakanus*, fig. 5, p. 121, *hevaheva*, fig. 6, *opuna*, fig. 7, p. 122, *tarai*, figg. 8, 9, with var. *morai*, p. 123, *orono*, fig. 10, *koanoa*, fig. 11, p. 124, Hawaii, KIRKALDY, Fauna Hawaiiensis iii; *O. aridus*, p. 151, *complectus*, *sementinus*, p. 152, N. America, BALL, Canad. Ent. xxxiv : n. spp.
Ormenis fuscula, Africa, *tumida*, N. India, *funerula*, Perak, p. 72, *fuscata*, Ceylon, *conformis*, N. America, p. 73, *umbrosa*, E. India, p. 74, *fusca*, Mexico, p. 75, *albicosta*, Nicobars, *nigromarginata*, S. America, p. 77, *fuscomarginata*, Sumatra, *apicalis*, S. America, *parvula*, Madagascar, p. 78, *separata*, *confusa*, p. 79, *despecta*, p. 80, *distincta*, p. 82, S. America, *proxima*, *conflicta*, Ceylon, *mendax*, Moupin, p. 83, *lævis*, S. America, *venusta*, N. America, p. 84, *similis*, S. America, *pauperata*, N. and Centr. America, p. 85, *indigena*, Philippines, *severa*, Sumatra, p. 86, *conformata*, America, *debilis*, p. 87, *albata*, *cærulescens*, p. 88, *stupida*, *media*, *obtusa*, S. America, *chloris*, N. America, p. 89, *albina*, p. 90, *granulata*, S. America, *pallida*, E. India, *viridana*, p. 91, *exanthema*, p. 92, *viridifusca*, p. 93, *antoniæ*, S. America, *striolata*, Nicobars, p. 94, *ornata*, Java, *colorata*, Amazons, p. 95, MELICHAR, Ann. Hofmus. Wien xvii, n. spp.
Oryxa n. g. for *Fulgora truncata* L., p. 50, with *O. extendens*, n. sp., Sumatra, p. 51, MELICHAR, t. c.
Paracromna n. g. for *F. punctata* and *rotundior* Fowl., MELICHAR, t. c. p. 57.
Paranotus obsoletus, p. 24, *prætextus*, p. 25, Africa, MELICHAR, t. c., n. spp.
Paratella n. g., p. 117, with *P. erudita*, New Guinea, p. 118, *subflava*, Flores, *roseoalba*, N. Guinea etc., p. 119, *miniata*, *discoidalis*, Borneo, p. 120, *fusconigra*, p. 121, *fumaria*, *modesta*, p. 122, Australia, n. spp., MELICHAR, t. c.
Patara vanduzei, New York, BALL, Canad. Ent. xxxiv, p. 260, n. sp.
Peltonotellus rugosus, *bivittatus*, Colorado, BALL, t. c. p. 263, n. spp.
Phantia putoni, *christophii*, p. 423, *rubromarginata*, *flavida*, *lactea*, p. 424, Persia, RUSIECKA, Mt. Schweiz. ent. Ges. x; *P. cylindricornis*, Afghanistan, MELICHAR, Ann. Hofmus. Wien xvii, p. 15 : n. spp.
Phasmena n. g. near *Hysteropterum*, for *P. tellifera*, pl. v, fig. 2, p. 92, *nasuta*, fig. 1, p. 93, n. spp., Persia, MELICHAR, Annuaire Mus. St. Petersb. vii.
Phlebopterum maculatus (referred to *Sephena*, p. 231), Celebes, p. 2,

angulatum, p. 3, *viridis*, p. 4, Madagascar, MELICHAR, Ann. Hofmus. Wien xvii, n. spp.

Phyma n. g., p. 43, with *P. exsoleta*, Africa, *imitata*, Tonkin, p. 45, *divisa*, Borneo, p. 48, *optata*, Sumatra, *arguta*, Columbia, p. 49, MELICHAR, t. c.

Pibrocha n. g. for *Dictyophora egregia* Kirby, KIRKALDY, pl. B, fig. 2, p. 51, J. Bombay Soc. xiv.

Pochazia antigone, Ceylon, KIRKALDY, t. c. p. 52, n. sp.

Polydictya krisna, Ceylon, KIRKALDY, J. Bombay Soc. xiv, p. 49, pl. A, fig. 4; [*P. krisna* cf. *Thaumastodictya*]; n. sp.

Porophlœus n. g., p. 169, with *fuscus*, *gibbulus*, p. 171, *marcidus*, *ignavus*, p. 172, *longiceps*, p. 173, n. spp., Madagascar, MELICHAR, Ann. Hofmus. Wien xvii.

Pundaluoya n. g. for *Delphax ernesti* Kirby, KIRKALDY, pl. B, fig. 3, p. 52, J. Bombay Soc. xiv.

Pyrops cf. *Zanna*. *Pyrops maculatus*, fig. 1, *coccineus*, fig. 2, pl. A, *giganteus* and *sultana* distinguished, KIRKALDY, J. Bombay Soc. xiv, p. 47.

Rhinophantia n. g., p. 17, for *Phantia longiceps* Put., MELICHAR, Ann. Hofmus. Wien xvii.

Ricania melichari n. n. for *subfusca* Mel., KIRKALDY, J. Bombay Soc. xiv, p. 53.

R. berezovskii, W. China, MELICHAR, pl. V, fig. 9, Annuaire Mus. St. Petersb. vii, n. sp.

Sanurus n. g. for *S. dubius*, p. 29, *venosus*, p. 30, n. spp., Sumbawa, MELICHAR, Ann. Hofmus. Wien xvii.

Scamandra clytæmnestra, p. 131, *selene*, p. 132, Celebes, BREDDIN, Hemipt. Celeb., n. spp.

Scolops osborni, p. 147, *uhleri*, *maculosus*, p. 148, *viridis*, *abnormis*, p. 149, *vanduzei*, *robustus*, p. 150, N. America, BALL, Canad. Ent. xxxiv, n. spp.

Seliza variata, Java, *socotrina*, Socotra, p. 137, *partita*, India, p. 138, *simonyi*, p. 139, *squamosa*, p. 140, Socotra, MELICHAR, Ann. Hofmus. Wien xvii, n. spp.

Sephena n. g., p. 123, with *S. punctulata*, p. 124, *scutellata*, N. Guinea, *conspersa*, Solomon Ids., p. 125, *guttifera*, Roon, *rubrovenosa*, Gazelle Hibius, p. 126, *cyanea*, New Pomerania, *lurida*, Celebes, *pulchra*, p. 128, *rufomarginata*, N. Guinea, *despecta*, Roon, p. 129, n. spp., MELICHAR, t. c.

Sephena: cf. also *Phlebopterum*.

Siphanta minuta, St. Helena, MELICHAR, Ann. Hofmus. Wien xvii, p. 38, n. sp.

Thaumastodictya n. g. for *Polydictya krisna*, above, KIRKALDY, J. Bombay Soc. xiv, p. 307.

Tropidocephala (*Conicoda*) *prasina*, Persia, with var. *lateralis*, MELICHAR, Annuaire Mus. St. Petersb. vii, n. sp.

Urana n. g., p. 166, for *U. paradoxa*, n. sp., Madagascar, p. 167, MELICHAR, Ann. Hofmus. Wien xvii.

Uxantis scissa, New Guinea, p. 161, *elongata*, Philippines, p. 162, *reversa*, Singapore, *solennis*, Celebes, p. 164, *nexa*, New Guinea, *illota*, *patula*, Roon, p. 165, MELICHAR, t. c., n. spp.

Zanna n. n. for *Pyrops* auctt., KIRKALDY, J. Bombay Soc. xiv, p. 47.

Zarudnya n. g. for *Z. interstitialis*, p. 131, *fusca*, p. 132, n. spp., Persia, MELICHAR, Ann. Hofmus. Wien xvii.

MEMBRACIDÆ.

Aconophora v. album, Ecuador, BUCKTON, Mon. Membracidæ, p. 132, pl. xxviii, fig. 5, n. sp.

Acutalis flavonervosa, Mexico, p. 176, pl. xxxvii, fig. 5, *lucidus*, Bolivia, p. 177, fig. 6, BUCKTON, t. c., n. spp.
Centrotus nectaris, Ceylon (=*Ceresa bubalus* Green), BUCKTON, t. c. p. 170, n. sp.
Centrogonia maculata, New York, BUCKTON, t. c. p. 174, pl. xxxvi, fig. 7, n. sp.
Ceresa nitidalis, hab.?, BUCKTON, t. c. p. 173, pl. xxxvi, fig. 3, n. sp.
Chelyoidea n. g. with *C. nitida*, n. sp., Amazons, pl. xxxiii, fig. 2, BUCKTON, t. c. p. 156.
Combophora tridens, p. 146, pl. xxxi, fig. 5, *obfuscata*, p. 147, fig. 7, Amazons, BUCKTON, t. c., n. spp.
Cymbomorpha rubropedalis, ?S. America, BUCKTON, t. c. p. 139, pl. xxix, fig. 7, n. sp.
Cyphonia fuscata, pl. xxxiii, fig. 7, *jugalis*, pl. xxxiv, fig. 1, Amazons, BUCKTON, t. c., n. spp.
Darnis limax, Colombia, BUCKTON, t. c. p. 112, pl. xxii, fig. 7, n. sp.
Ennya fairmairei, *chorizans*, *nebulosa*, Ecuador, BREDDIN, Soc. ent. xvi, p. 177, n. spp.
Entaphius n. g. for *E. funebris*, n. sp.?, pl. xxviii, fig. 6, BUCKTON, Mon. Membracidæ, p. 134.
Euritea fasciata, hab.?, *capitata*, Ecuador, pl. xxxvii, fig. 8, BUCKTON, t. c. p. 175, n. spp.
Gargara vulpeculus, Celebes, BREDDIN, Hemipt. Celeb. p. 126, n. sp.
Hemiptycha spatulosa, Brazil, BUCKTON, Mon. Membracidæ, p. 137, pl. xxix, fig. 3, n. sp.
Heteronotus fowleri, Brazil, BUCKTON, t. c. p. 141, pl. xxx, fig. 2, n. sp.
Hoplophora pubescens, Bogota, BUCKTON, t. c. p. 96, pl. xix, fig. 5, n. sp.
Hyphinöe quadrimaculata, Brazil, p. 121, pl. xxv, fig. 3, *subfusca*, Chiriqui, fig. 5, p. 122, *punctorum*, Brazil, pl. xxviii, fig. 3, p. 124, BUCKTON, t. c., n. spp.
Micrutalis stipulipennis, pl. xxxvii, fig. 10, *minutus*, Ecuador, BUCKTON, t. c. p. 178, n. spp.
Nassunia trux, *gentilis*, S. America, BREDDIN, Soc. ent. xvi, p. 178, n. spp.
Platycotis sicula, Amazons, BUCKTON, Mon. Membracidæ, p. 100, pl. xxi, fig. 2, n. sp.
Polyglypta strigata, Java?, BUCKTON, t. c. p. 180, pl. xxxviii, fig. 4, n. sp.
Potnia affinis, Bogota, BUCKTON, t. c. p. 103, pl. xxi, fig. 3, n. sp.
Pyrgauchenia n. g. for *sarasinorum* Bredd., BREDDIN, Hemipt. Celeb. p. 126.
Pyrgophyllum n. g. near *Hypsauchenia*, for *P. wallacei*, *kinabalense*, *fœrsteri*, n. spp., Borneo, BREDDIN, Soc. ent. xvii, p. 91.
Stictocephala semibrunnea, New York, BUCKTON, Mon. Membracidæ, p. 174, pl. xxxvi, fig. 6, n. sp.
Tragopa scutellaris, Amazons, BUCKTON, t. c. p. 156, pl. xxxiii, fig. 1, n. sp.
Triquetra insipida, no locality, BUCKTON, t. c. p. 94, pl. xix, fig. 1, n. sp.
Tropidarnis, hab.?, pl. xxiv, fig. 4, *robustus*, Mexico, fig. 5, BUCKTON, t. c. p. 114, n. spp.

CERCOPIDÆ.

Revision of N. American, BALL, P. Iowa Ac. vi, pp. 204–226.
Foam of *Aphrophora*, PORTA, Rend. Ist. Lombardo xxxiii, pp. 920–928, pl. vii.

Aphrophora; habits, BALL, Ohio Natural. i, pp. 122–124, pl. x.
A. corticina, W. China, p. 106, *consocia*, Ussuri, *bipunctata*, p. 107, *quadriguttata*, p. 108, *perplexa*, *murina*, p. 109, *rubiginosa*, W. China, *media*, Ussuri, p. 110, MELICHAR, Annuaire Mus. St. Petersb. vii; *A. angulata*,

p. 212, *irrorata*, p. 214, *annulata*, p. 216, N. America, BALL, P. Iowa Ac. vi : n. spp.

Cercopis (*Callitettix*) *fusca*, Ussuri, p. 104, *seminiger*, W. China, pl. v, fig. 11, p. 105, MELICHAR, Annuaire Mus. St. Petersb. vii, n. spp.

Clovia multisignata, Celebes, BREDDIN, Hemipt. Celeb. p. 125, n. sp.

Cosmoscarta fruhstorferi, p. 23, *trichodias*, p. 24, Tonkin, JACOBI, SB. Ges. naturf. Berlin 1902; *C. crocale*, Sumba, *hyphinoe*, *phiale*, *aglaie*, N. Guinea, BREDDIN, Soc. ent. xvii, p. 51; *C. dirce*, p. 114, *orithyia*, p. 115, *callirrhoe*, p. 117, *hyale*, p. 118, *psecas*, p. 119, *rhanis*, *liriope*, p. 121, Celebes, BREDDIN, Hemipt. Celeb. : n. spp.

Eoscarta n. g. *Cercopini*, for *E. eos*, *bicolor*, Malacca, *liternoides*, Sumatra, n. spp., BREDDIN, Soc. ent. xvii, p. 58.

Lepyronia gibbosa, Iowa, BALL, P. Iowa Ac. vi, p. 219, n. sp.

Mioscarta n. g. for *forcipata*, Bredd., BREDDIN, Hemipt. Celeb. p. 123.

Mioscarta melichari, Celebes, BREDDIN, Soc. ent. xvii, p. 59, n. sp.

Notoscarta n. g. for *N. croceonigra*, *ptyeloides*, n. spp., N. Guinea, BREDDIN, t. c. p. 59.

Peuceptyelus dubiosus, p. 111, *subfuscus*, p. 112, W. China, MELICHAR, Annuaire Mus. St. Petersb. vii, n. spp.

Philænus bifasciatus, p. 114, *decoratus*, p. 115, W. China, *ferrugineus*, Ussuri, p. 116, MELICHAR, t. c., n. spp.

Philaronia n. g. for part of *Philænus*, BALL, P. Iowa Ac. vi, p. 220, n. sp.

Phymathostetha insignis, *icterica*, p. 24, *quadriplagiata*, *moi*, *peltasta*, p. 25, Tonkin, JACOBI, SB. Ges. naturf. Berlin 1902, n. spp.

Sinophora n. g. for *S. maculosa*, n. sp., W. China, MELICHAR, Annuaire Mus. St. Petersb. vii, p. 113.

Tettigoscarta n. g. for *T. nitidula*, *pulverosula*, with var. *luteicollis*, n. spp., Malacca, BREDDIN, Soc. ent. xvii.

Trichoscarta n. g. near *Cosmoscarta*, p. 51, for *T. ruth*, n. sp., Sumatra, p. 52, BREDDIN, t. c.

JASSIDÆ.

The *Jassidæ* of Japan, MATSUMURA, Termes. Fuzetek xxv, pp. 353–404.

Revision of *Tettigoniidæ* of N. America, BALL, P. Iowa Ac. viii, pp. 35–75, pls. i–v.

Acocephalus bolivari, Spain, MELICHAR, Wien. ent. Zeit. xxi, p. 79, n. sp.

Aconura producta, Japan, MATSUMURA, Termes. Fuzetek xxv, p. 385, n. sp.

Adelungia n. g. *Jassides*, p. 134, for *A. elegans*, n. sp., Persia, pl. v, fig. 3, p. 135, MELICHAR, Annuaire Mus. St. Petersb. vii.

Agallia impressa, Persia, MELICHAR, t. c. p. 122, n. sp.

Agondas n. n. for *Janthe* Stål nec Mars., KIRKALDY, Entomologist 1902, p. 316.

Ahngeria n. g. *Bythoscopini*, for *A. planifrons*, n. sp., Transcaspian, MELICHAR, Wien. ent. Zeit. xxi, p. 76.

Athysanus; N. American revised, with subgenn. n. *Conosanus*, *Commellus*, *Stirellus*, p. 232, OSBORN & BALL, Ohio Natural. ii, pp. 231–256.

A. riguus, Irkutsk, MELICHAR, Wien. ent. Zeit. xxi, p. 77; *A. limbifer*, p. 373, *albinervosus*, p. 374, *onukii*, *ainonicus*, p. 375, *tokitonis*, p. 377, Japan, MATSUMURA, Termes. Fuzetek xxv; *A. flavomarginatus*, W. China, MELICHAR, Annuaire Mus. St. Petersb. vii, p. 141; *A.* (*Stirellus*) *mexicanus*, Orizaba, OSBORN & BALL, Ohio Natural. ii, p. 254 : n. spp.

Bythoscopus fuscus, W. China, MELICHAR, Annuaire Mus. St. Petersb. vii, p. 120; *B. kukanaroa*, p. 114, *kaiamamao*, p. 115, Kauai, KIRKALDY, Fauna Hawaiiensis iii : n. spp.

Chlorotettix balli, Iowa, OSBORN, P. Iowa Ac. v, p. 246, n. sp.

Cicadula unicolor, Transcaspian, MELICHAR, Wien. ent. Zeit. xxi, p. 78; *C. buzensis*, *masatonis*, Japan, MATSUMURA, Termes. Fuzetek xxv, p. 366 : n. spp.

Clavena n. g. for *Parabolocratus thomsonii*, with *C. sulcata*, n. sp., W. China, MELICHAR, Annuaire Mus. St. Petersb. vii, p. 127.

Cochlorhinus, redefined, p. 53, pl. ii, fig. 1, BALL, Canad. Ent. xxxiv.

Commellus subg. n., cf. *Athysanus*.

Conosanus subg. n., cf. *Athysanus*.

Cyrta n. g. *Jassides*, for *C. hirsuta*, n. sp., W. China, pl. v, fig. 10, MELICHAR, Annuaire Mus. St. Petersb. vii, p. 136.

Deltocephalus melsheimeri, note, BAKER, Psyche ix, p. 348; *D. formosus*, transferred to *Paralimnus*, var. n. *ishidæ*, MATSUMURA, Termes. Fuzetek xxv, p. 389; *D. coquilletti*, referred to *Uhleriella*, figure, pl. ii, fig. 2, BALL, Canad. Ent. xxxiv.

D. eurypterus, p. 78, *truncatus*, p. 80, Spain, MELICHAR, Wien. ent. Zeit. xxi; *D. amitinus*, Persia, pl. v, fig. 7, p. 143, *ussuriensis*, Wladiwostok, p. 144, MELICHAR, Annuaire Mus. St. Petersb. vii; *D. fulguralis*, p. 391, *oryzæ*, p. 392, *latifrons*, p. 393, *tezuyæ*, p. 394, *bipunctatus*, p. 395, *maritimus*, p. 396, *tritici*, p. 398, *nigrifemoratus*, p. 399, *yanonis*, p. 400, Japan, MATSUMURA, Termes. Fuzetek xxv : n. spp.

Dicyphonia n. g. *Acocephalina*, for *D. ramentosa*, n. sp., pl. v, figg. 1–5, BALL, p. 69, P. Iowa Ac. vii.

Dorada n. g. *Acocephalides*, for *D. lativentris*, n. sp., Columbia, pl. v, fig. 4, MELICHAR, Berlin. ent. Zeitschr. 1903, p. 276.

Doratura heros, Persia, pl. v, fig. 8, MELICHAR, Annuaire Mus. St. Petersb. vii, p. 126, n. sp.

Dorydium breviceps, Persia, MELICHAR, t. c. p. 125, n. sp.

Dræculacephala n. g., type *Tettigonia mollipes* Say, p. 66, with *D. manitobana*, pl. vii, fig. 5, p. 70, *floridana*, pl. vi, fig. 6, *gillettei*, fig. 7, p. 72, n. spp., N. America, BALL, P. Iowa Ac. viii.

Errhomenellus irroratus, California, BALL, Canad. Ent. xxxiv, p. 18, n. sp.

Euacanthus flavonervosus, W. China, MELICHAR, Annuaire Mus. St. Petersb. vii, p. 128, n. sp.

Eupteryx melanocephala, Ussuri, MELICHAR, t. c. p. 145, n. sp.

Eutettix pannosa, California, *fenestrata*, Mexico, p. 12, *palliolata*, Texas, p. 13, BALL, Canad. Ent. xxxiv, n. spp.

Gnathodus rubrinervis, p. 357, *viridis*, p. 359, *incisus*, *zionoensis*, p. 360, Japan, MATSUMURA, Termes. Fuzetek xxv, n. spp.

Harmonides n. n. for *Parmula* Fairm. nec Heyd., KIRKALDY, Entomologist 1902, p. 316.

Homalodisca liturata, N. America, BALL, P. Iowa Ac. viii, p. 48, pl. ii, fig. 2, n. sp.

Huleria n. g., p. 57, for *H. 4-punctata*, n. sp., California, p. 58, BALL, Canad. Ent. xxxiv.

Idiocerus suturalis, varr., pp. 311, 312, *rufus* var. n. *cingulatus*, p. 312, *amœnus* var. n. *depictus*, p. 313, BALL, t. c.

I. prodigiosus, Persia, MELICHAR, Annuaire Mus. St. Petersb. vii, p. 121; *I. dolosus*, p. 304, *formosus*, p. 305, *concinnus*, *amabilis*, p. 306, *femoratus*, p. 307, *ensiger*, *musteus*, p. 308, *verrucosus*, *morosus*, p. 309, *obstinatus*, p. 310, N. America, BALL, Canad. Ent. xxxiv : n. spp.

Janthe see *Agondas*.

Ledropsis adelungi, W. China, MELICHAR, Annuaire Mus. St. Petersb. vii, p. 119, n. sp.

Macraspis bisignata, Colorado, BALL, Canad. Ent. xxxiv, p. 303, n. sp.

Macroceps ahngeri, Transcaspian, MELICHAR, Wien. ent. Zeit. xxi, p. 75, n. sp.

Macropsis scutellaris, *viridula*, W. China, MELICHAR, Annuaire Mus. St. Petersb. vii, p. 120, n. spp.

Melicharella n. n. for *Ahngeria* Mel., SEMENOW, Rev. Russe Ent. ii, p. 353.
Memnonia n. g. *Acocephalina*, for *M. consobrina*, p. 66, *fraterna*, p. 67, n. spp., Colorado, BALL, P. Iowa Ac. vii.
Metropis lugubris is ♀, *Jassidæus morio* is ♂ of one *Jassidæus*, characters, MATSUMURA, Allg. Zeitschr. Ent. vii, pp. 44–47.
Nephotettix n. g. for *Selenocephalus cinctipes* Uhler, etc., MATSUMURA, Termes. Fuzetek xxv, p. 378.
Pagaronia n. g. near *Tettigonia*, p. 19, for *P. 15-punctata*, n. sp., California, with var. *truncata*, p. 20, BALL, Canad. Ent. xxxiv.
Parabolocratus brunneus, Colorado, BALL, P. Iowa Ac. vii, p. 71, n. sp.
Paralimnus n. g. for part of *Deltocephalus*, p. 386, with *P. fallaciosus*, n. sp., Japan, p. 387, MATSUMURA, Termes. Fuzetek xxv.
Paramesus stramineus, Iowa, OSBORN, P. Iowa Ac. v, p. 241, n. sp.
Parmula, see *Harmonides*.
Paropulopa interrupta, California, p. 21, *mexicana*, Chihuahua, p. 22, BALL, Canad. Ent. xxxiv, n. spp.
Pediopsis trivialis, Colorado, BALL, t. c. p. 304, n. sp.
Penthimia scutellata, Persia, MELICHAR, Annuaire Mus. St. Petersb. vii, p. 128, n. sp.
Petalocephala potanini, W. China, MELICHAR, t. c., n. sp.
Phlepsius lobatus, Iowa, OSBORN, P. Iowa Ac. v, p. 247; *P. ishidæ*, Japan, MATSUMURA, Termes. Fuzetek xxv, p. 382 : n. spp.
Platymetopius undatus var. n. *distinctus*, MELICHAR, Annuaire Mus. St. Petersb. vii, p. 124.
Scaphoideus festivus, Japan, MATSUMURA, Termes. Fuzetek xxv, p. 384; *S. ochraceus*, p. 242, *picturatus*, p. 243, Iowa, OSBORN, P. Iowa Ac. v; *S. scrupulosus*, California, BALL, Canad. Ent. xxxiv, p. 14 : n. spp.
Sphinctogonia n. g. for *S. quinquncula*, p. 128, *servula*, p. 129, *reginula*, p. 130, n. spp., Celebes, BREDDIN, Hemipt. Celeb.
Stirellus subg. n. cf. *Athysanus*.
Tettigonia hieroglyphica varr. n. *dolobrata*, *uhleri*, BALL, P. Iowa Ac. viii, p. 52.
T. bistriata, W. China, p. 130, *dorsimaculata*, Ussuri, *excelsa*, pl. v, fig. 5, p. 131, *trilineata*, *honesta*, p. 132, W. China, MELICHAR, Annuaire Mus. St. Petersb. vii; *T. hartii*, N. America, BALL, P. Iowa Ac. viii, p. 61, pl. v, fig. 4; *T. quimbayensis*, Columbia, KUHLGATZ, Berlin. ent. Zeitschr. 1902, p. 274, pl. v, fig. 3; *T. cruciatula*, *larvatula*, Ecuador, BREDDIN, Soc. ent. xvi, p. 178; *T. stillatula*, *serratula*, Ecuador, BREDDIN, Soc. ent. xvii, p. 2 : n. spp.
Thamnotettix lactea, Persia, p. 138, *maculosus*, W. China, p. 139, *misellus*, Persia, p. 140, MELICHAR, Annuaire Mus. St. Petersb. vii; *T. litoralis*, p. 368, *tobæ*, p. 369, Japan, MATSUMURA, Termes. Fuzetek xxv; *T. ciliata*, p. 244, *cyperaceus*, *pallidula*, p. 245, N. America, OSBORN, P. Iowa Ac. v; *T. collaris*, New York, p. 15, *mendica*, p. 16, *bullata*, *languida*, p. 17, California, BALL, Canad. Ent. xxxiv : n. spp.
Uhleriella n. g. near *Cochlorhinus*, p. 54, for *U. stygica*, p. 55, pl. ii, fig. 3, *signata*, p. 56, fig. 4, n. spp., California, BALL, t. c.
Xestocephalus guttatus, Japan, MATSUMURA, Termes. Fuzetek xxv, p. 403, n. sp.
Zyzzogeton n. g. *Tettigoniini*, for *Z. haenschi*, n. sp., Ecuador, BREDDIN, Soc. ent. xvi, p. 178.

PSYLLIDÆ.

[Cf. DESTEFANI PEREZ (323), GIARD (531), KIRKALDY (705), MALLY (851, 852), RÜBSAAMEN (1175).]

Psyllid galls, with young, on *Populus* in Persia, RÜBSAAMEN, Zool. Jahrb. Syst. xvi, pp. 283–295.

Aphalara exilis var. n. *rumicis*, MALLY, P. Iowa Ac. ii, p. 166.
Hevaheva n. g. for *H. perkinsi*, n. sp., Oahu, pl. iv, fig. 1, KIRKALDY, Fauna Hawaiiensis iii, p. 113.
Pachypsylla celtidis, natural history, MALLY, P. Iowa Ac. i, pt. iv, pp. 131–137.
P. celtidis-inteneris, N. America, id., t. c. p. 138, n. sp.
Psylla ilicina, Sicily, DESTEFANI PEREZ (323); *P. negundinis*, p. 155, *amorphæ*, p. 159, N. America, MALLY, P. Iowa Ac. ii : n. spp.
Trioza kiefferi n. n. for gall on *Rhamnus alaternus*, GIARD, Bull. Soc. ent. France 1902, p. 121; *T. salicis*, Iowa, MALLY, P. Iowa Ac. ii, p. 161; *T. iolani*, Kauai, KIRKALDY, Fauna Hawaiiensis iii, p. 114, pl. iv, fig. 2 : n. spp.

APHIDÆ.

[Cf. CHOLODKOVSKY (238–240), COCKERELL (257), DESTEFANI PEREZ (323), FISHER (442), HEMPEL (588), NOEL (965), OSBORN & SIRRINE (986), RÜBSAAMEN (1175, 1177), SCHOUTEDEN (1210, 1212), SIRRINE (1273), THIELE (1367), WARREN (1444), WASMANN (1451).]

Life-cycle of *Chermes viridanus*, CHOLODKOVSKY, Rev. Russe Ent. ii, p. 139.
Influence of food and external conditions on the cycles, CHOLODKOVSKY (240).
Hermaphrodite *Chermes*, CHOLODKOVSKY, Zool. Anz. xxv, p. 521.
Root-*Aphidæ* in Belgium, relations with ants, SCHOUTEDEN, Ann. Soc. ent. Belgique xlvi, pp. 136–142.
Variation in parthenogenetic generations, WARREN (1444).

Aphis spirææ, Brussels, SCHOUTEDEN, Zool. Anz. xxv, p. 656; *A. tetrapteralis*, California, COCKERELL, Bull. S. Calif. Ac. i, p. 40 : n. spp.
Cerataphis = (*Ceratovacuna* Zehnt.), *C. lataniæ* = (*Cerato. brasiliensis* Hemp.), HEMPEL, Ann. Nat. Hist. ix, p. 400.
Chermes on *Abies nordmanniana*, JACOBI, Allg. Forst- Jagd-Zeit., April, 1902.
Cryptosiphum nerii, Sicily, DESTEFANI PEREZ (323), n. sp. [but reputed since to be *Myzus asclepiadis*].
Macrosiphum jaceæ L., sexual forms, SCHOUTEDEN, Rev. Russe Ent. ii, p. 333.
Paracletus cimiciformis, winged ♀, SCHOUTEDEN, Zool. Anz. xxv, p. 654.
Pemphigus; galls on *Pistacia* in the East, RÜBSAAMEN, Zool. Jahrb. Syst. xvi, pp. 277–282; *P. poschingeri*, note on, HORVÁTH, Rev. Ent. franc. xxi, p. 44.
P. attenuatus, Iowa, OSBORN & SIRRINE, P. Iowa Ac. i, pt. 3, p. 100; *P. corrugatans*, Iowa, SIRRINE, t. c. pt. iv, p. 130 : n. spp.
Phylloxera; FISHER, Enc. Brit. xxxi, pp. 710, 711.
Pterochlorus roboris, causing swellings on oaks, NOEL (965).
Schizoneura corni and annectant forms or varieties, OSBORN & SIRRINE, P. Iowa Ac. ii, pp. 78–91; habits of Blutlaus, THIELE (1367), RÜBSAAMEN (1177).
Termitaphis n. g. for *T. circumvallata*, n. sp., Brazil, with Termites, WASMANN, Tijdschr. Ent. xlv, p. 105, pl. ix, fig. 7.

ALEURODIDÆ.

List of species, COCKERELL, P. Ac. Philad. liv, pp. 279–282.
Natural History of *Aleyrodes vaporariorum*, BRITTON, 2nd Rep., pp. 148–163, pls. viii–xi.

Aleurodes, note on metamorphosis, WOODWORTH, Psyche ix, p. 311.

Aleurodicus jamaicensis, West Indies, COCKERELL, P. Ac. Philad. liv, p. 280, n. sp.
Dialeurodes subg. n. type *A. citri*, COCKERELL, t. c. p. 283.
Dialeurodicus subg. n. type *A. cockerelli*, COCKERELL, t. c. p. 280.
Tetraleurodes subg. n. type *A. perileuca*, COCKERELL, t. c. pp. 54, 283.
Trialeurodes subg. n. type *A. pergaudei*, COCKERELL, t. c. p. 283.

COCCIDÆ.

[Cf. BANKS (66), COCKERELL (259–271), COLEMAN (274), EHRHORN (387), FERNALD (431), FOWLER (474), GIARD (531, 533), GOETHE (547), GREEN (553, 554), GUERCIO (571), KING (691–696), KIRKALDY (705), KOTINSKY (734), KUWANA (747–750), MARLATT (860), MAXWELL-LEFROY (876), OSBORN (982), PATTERSON (1003), PETTITT (1016), REH (1114, 1115), RÜBSAAMEN (1175), SANDERS (1186), SMITH (1304, 1305), THEOBALD (1362).]

Coccidæ of Japan, 116 species, KUWANA, Pap. Calif. Ac. iii, pp. 44–86, pls. vii–xiii.
The *Coccidæ* of Hawaii, KIRKALDY, Fauna Hawaiiensis iii, pp. 102–112.
Coccidæ of the West Indies, MAXWELL-LEFROY (876).
Importance of parasites in destroying *Coccidæ*, EMBLETON (392).
Species of *Coccidæ* that live in association, KING, Psyche ix, pp. 401–404.
Coccid gall on *Quercus*, RÜBSAAMEN, Zool. Jahrb. Syst. xvi, p. 316, pl. xv, fig. 34.
Statistics as to age and sex of *Coccidæ* found on American products at Hamburg, REH (1115).
Dorsal and ventral shields, nature of; mining *Coccidæ*, REH (1114).
Variation in proportional numbers of the two sexes, means of dissemination, GOETHE (547).

Akermes n. g. near *Lecanium* for *A. bruneri*, n. sp., Paraguay, COCKERELL, Canad. Ent. xxxiv, p. 89.
Alichtensia n. g., *Lecaniinæ*, for *Lichtensia attenuata* Hemp., COCKERELL, Ann. Nat. Hist. ix, p. 451.
Amorphococcus n. g. *Asterolecaniinæ*, for *A. mesuæ*, n. sp., Ceylon, GREEN, Ent. Mag. xxxviii, p. 261.
Anomalococcus n. g. *Asterolecaniinæ*, p. 260, for *A. cremastogastri*, n. sp., Ceylon with ants, p. 261, GREEN, t. c.
Arctorthezia n. sect. of *Orthezia* with *O. occidentalis* and *cataphracta*, COCKERELL, Entomologist 1902, p. 114.
Ascelis = (*Cystococcus* Fuller), COCKERELL, t. c. p. 114.
Aspidiotus ancylus var. n. *serratus*, NEWELL & COCKERELL, P. Iowa Ac. v, p. 229; *A. hederæ* in Australia, LIDGETT, Ent. News Philad. xiii, p. 43 and COCKERELL, t. c. p. 89; *A. perniciosus*, original home, HOWARD, P. ent. Soc. Washington v, p. 54; *A. perniciosus* in Japan and China, parasites, MARLATT (860); *A. perniciosus*, natural modes of spread, enemies, SMITH (1305); *A. lataniæ*, p. 31, pl. v, figg. 23, 24, *smilacis*, p. 32, figg. 25, 26, details, KUWANA, J. N. York Ent. Soc. x; *A.* (*Diaspidiotus*) *fernaldi hesperius*, n. subsp., Arizona, COCKERELL, Ann. Nat. Hist. ix, p. 450.
A. cryptomeriæ, pl. xii, figg. 66–68, *jordani*, figg. 69–71, p. 69, *A.* (*Chrysomphalus*) *kelloggi*, pl. xii, figg. 72–74, Japan, KUWANA, Pap. Calif. Ac. iii; *A. osborni*, Iowa, NEWELL & COCKERELL, P. Iowa Ac. v, p. 229; *A.* (*Diaspidiotus*) *glanduliferus*, Ohio, COCKERELL, Ohio Natural. ii, p. 287 : n. spp.
Bambusaspis n. sect. of *Asterolecanium*, COCKERELL, Entomologist 1902, p. 114.

Asterolecanium pustulans, details, KUWANA, J. N. York Ent. Soc. x, p. 29, pl. v, figg. 5–11; *A. rhamni* is a Psyllid, = *Trioza kiefferi*, GIARD, Bull. Soc. ent. France 1902, p. 121.

A. townsendi, Mexico, COCKERELL, Ann. Nat. Hist. x, p. 468; *A. viridulum*, Tucuman, COCKERELL, Canad. Ent. xxxiv, p. 89 : n. spp.

Aulacaspis, characters and list of species, COCKERELL, Entomologist 1902, p. 58.

Austrolichtensia n. g., *Lecaniinæ*, for *Lichtensia hakearum* Fuller, COCKERELL, Ann. Nat. Hist. ix, p. 451.

Calypticus Costa has priority over *Lecanium*, FERNALD, Canad. Ent. xxxiv, p. 177.

Calypticus and *Lecanium*, synonyms of *Coccus*, FERNALD, t. c. p. 232.

Ceroplastes egbarum fulleri subsp. n., COCKERELL, Entomologist 1902, p. 113.

C. candela, Natal, COCKERELL & KING, Entomologist 1902, p. 113; *C. bruneri*, p. 91, *scutigera*, *novesi-mendezæ*, p. 92, *bernardensis*, p. 93, Paraguay, COCKERELL, Canad. Ent. xxxiv : n. spp.

Chionaspis exalbida, Natal, COCKERELL, Entomologist 1902, p. 112; *C.* (!) *hikosani*, p. 76, pl. xiii, figg. 82, 83, *C. colemani*, fig. 84, p. 77, Japan, KUWANA, Pap. Calif. Ac. iii : n. spp.

Chrysomphalus (*Melanaspis*) *tonilensis*, Mexico, COCKERELL, Ann. Nat. Hist. x, p. 470, n. sp.

Cissococcus n. g. *Eriococcini* for *C. fulleri*, n. sp., S. Africa, COCKERELL, p. 23, op. cit. ix.

Coccus; type; *C. cacti* synonomy, FERNALD, Canad. Ent. xxxiv, pp. 232, 233; *C. acaciæ*, cf. *Epicoccus*.

Cryptokermes brasiliensis, instars, COCKERELL, Ann. Nat. Hist. x, p. 469.

Cryptophyllaspis rubsaameni, Bismarck Arch., COCKERELL, op. cit. ix, p. 26; *C. liquidambaris*, N. America, KOTINSKY, P. ent. Soc. Washington v, p. 149; *C.-rübsaameni*, Bismarck Arch., COCKERELL, Canad. Ent. xxxiv, p. 75 : n. spp.

Dactylopius; to be used for *D. coccus* Costa = (*Monophlebus cacti* auctt.), COCKERELL, Ann. Nat. Hist. ix, p. 454; *D. neomexicanus* var. β, COCKERELL, p. 22, t. c.; *D. comstocki*, pl. ix, figg. 34, 35, p. 52, *pini*, figg. 36–38, p. 54, *kraunhiæ*, figg. 39, 40, p. 55, Japan, KUWANA, Pap. Calif. Ac. iii; *D. wheeleri*, Texas, KING, Canad. Ent. xxxiv, p. 285; *D. salinus*, California, COCKERELL, p. 21, Ann. Nat. Hist. ix : n. spp.

Diaspis rosæ, SMITH, Bull. 159 N. Jersey exp. Stat.

Douglasia subg. n. for *Orthezia floccosa*, GREEN, Victorian Natural. xix, p. 96.

Epicoccus n. g. *Dactylopiini*, for *Coccus acaciæ* Maskell, COCKERELL, Ann. Nat. Hist. ix, p. 24, n. sp.

Eriococcus palmeri var. *a*, COCKERELL, p. 23, t. c.; *E. armatus* referred to *Erium*, COCKERELL, Revist. chilena v, p. 180.

E. japonicus, p. 50, pl. viii, figg. 23–25, *onukii*, p. 51, pl. viii, figg. 26–28, pl. ix, figg. 29–33, Japan, KUWANA, Pap. Calif. Ac. iii; *E. texanus*, Texas, KING, Canad. Ent. xxxiv, p. 286; *E. aurescens*, Mexico, COCKERELL, Ann. Nat. Hist. x, p. 469 : n. spp.

Erium zapotlanum, Mexico, COCKERELL, t. c. p. 465, n. sp.

Eulecanium robiniæ var. n. *subsimile*, COCKERELL, Entomologist 1902, p. 178.

E. fraxini, Ottawa, KING, Canad. Ent. xxxiv, p. 158, n. sp.

Exeretopus caricis, California, EHRHORN, Canad. Ent. xxxiv, p. 193, n. sp.

Fiorinia fioriniæ var. n. *japonica*, KUWANA, p. 79, Pap. Calif. Ac. iii.

Geococcus n. g. *Dactylopiinæ*, for *G. radicum*, n. sp., Ceylon, GREEN, Ent. Mag. xxxviii, p. 262.

Halimococcus n. g. near *Phœnicococcus*, for *H. lampas*, n. sp., S. Africa, COCKERELL, Entomologist 1902, p. 15.

Hemichionaspis; table of species, COCKERELL, Bull. Soc. ent. France 1902, pp. 81, 82.
H. marchali, Guinea, id. l. c., n. sp.
Howardia lobulata, Italy on Olive, GUERCIO, Bull. Soc. ent. Ital. xxxiv, pp. 179–185, n. sp.
Icerya palmeri in Chili, adult ♀, GIARD, Bull. Soc. ent. France 1902, p. 314; *I. albolutea*, a valid species, COCKERELL, Ent. Mag. xxxviii, p. 86.
Kermes nakagawæ, pl. vii, figg. 9–15, *nawæ*, pl. viii, figg. 16–22, Japan, KUWANA, p. 49, Pap. Calif. Ac. iii, n. spp.
Lecanium hesperidum var. n. *pacificum*, KUWANA, J. N. York Ent. Soc. x, p. 30, pl. v, figg. 17–22; *L. hemisphæricum*, details, KUWANA, t. c. p. 30, pl. iv, figg. 12–16; *L. filicum*, *hemisphæricum*, *depressum*, *nigrum*, characters and synonymy, KING, Psyche ix, pp. 296–298.
L. (*Eulecanium*) *takachihoi*, Japan, KUWANA, pl. xi, figg. 60–64, p. 63, Pap. Calif. Ac. iii, n. sp.
Leucaspis riccæ, see *Rhopaloaspis*.
L. bambusæ, Japan, KUWANA, Pap. Calif. Ac. iii, p. 74, pl. xiii, figg. 75–81, n. sp.
Lichtensia simillima, Paraguay, COCKERELL, Canad. Ent. xxxiv, p. 90; *L. colimensis*, *zapotlana*, Mexico, COCKERELL, Ann. Nat. Hist. x, p. 467 : n. spp.
Luzulaspis n. n. for *Signoretia* Targ. nec Stål, COCKERELL, op. cit. ix, p. 25.
Mesolecanium n. g. type *L. nocturnum*, COCKERELL, t. c. p. 451.
Monophlebinæ, *Orthezinæ*, taxonomy, COCKERELL, Entomologist 1902, pp. 232 etc.
Monophlebinæ; the nomenclature, n. names mentioned, COCKERELL, Science xv, p. 717.
Monophlebus; the author of discussed, COCKERELL, Entomologist 1902, pp. 317–319.
M. corpulentus, Japan, KUWANA, Pap. Calif. Ac. iii, p. 46, pl. vii, figg. 1–3; *M. championi*, Centr. America, COCKERELL, Ann. Nat. Hist. ix, p. 26 : n. spp.
Mytilaspis nigra, characters, COCKERELL, op. cit. x, p. 472; *M. pomorum* var. n. *japonica*, p. 80, *M. newsteadi* var. n. *tokionis*, p. 81, KUWANA, Pap. Calif. Ac. iii; *M. beckii*, in California, COCKERELL, Ent. News Philad. xiii, p. 17.
M. euryæ, Japan, KUWANA, pl. xiii, figg. 85–89, p. 80, Pap. Calif. Ac. iii, n. sp.
Neolecanium; characters and components, COCKERELL, Ann. Nat. Hist. ix, p. 451.
N. herreræ, Mexico, COCKERELL, Mem. Soc. Ant. Alzate xvii, p. 143, and Bol. Com. parasit. Agric. Mexico i, p. 339, n. sp.
Newsteadia subg. n. of *Orthezia*, for *O. floccosa*, GREEN, Ent. Mag. xxxviii, p. 285.
Odonaspis secretus var. n. *greenii*, COCKERELL, Ann. Nat. Hist. ix, p. 25.
Orthezia floccosa in Australia, subg. n. *Newsteadia*, GREEN, p. 285, Ent. Mag. xxxviii.
O. galapagoensis, Galapagos Ids., KUWANA, J. N. York Ent. Soc. x, p. 28, pl. i, figg. 1–4; *O. ultima*, Argentine Rep., COCKERELL, Canad. Ent. xxxiv, p. 88 : n. spp.
Paralecanium marianum, Rio de Janeiro, COCKERELL, Ann. Nat. Hist. ix, p. 455, n. sp.
Phenacaspis natalensis, Durban, COCKERELL, t. c. p. 25, n. sp.
Phenacobrym n. sect. of *Asterolecanium*, COCKERELL, Entomologist 1902, p. 114.
Phenacoccus (*Paroudabilis*) *osborni*, Ohio, SANDERS, Ohio Natural. ii, p. 284; *P. acericola*, N. America, KING, Canad. Ent. xxxiv, p. 211;

P. simplex, California, KING, Ent. News Philad. xiii, p. 42; *P. cavalliæ*, New Mexico, COCKERELL, Canad. Ent. xxxiv, p. 315 : spp.

Philephedera; position, COCKERELL, Ann. Nat. Hist. ix, p. 451.

Poliaspis carissæ, Natal, COCKERELL, Entomologist 1902, p. 112, n. sp.

Pseudococcus; this name to be used instead of *Dactylopius*, COCKERELL, Ann. Nat. Hist. ix, p. 454; *P. ephedræ* var., COCKERELL, Bol. Com. parasit. Agric. Mexico i, p. 339; *P. neomexicanus* var. n. *alkalinus*, COCKERELL, Canad. Ent. xxxiv, p. 315; *P. ephedræ* var., COCKERELL, Mem. Soc. Ant. Alzate xvii, pp. 145, 146.

Pseudolecanium digitatum, Natal, COCKERELL, p. 24, Ann. Nat. Hist. ix; *P. disticlium*, California, KUWANA, Ent. News Philad. xiii, p. 134, cuts : n. spp.

Pulvinaria horii, pl. x, figg. 44–52, p. 59, *oyamæ*, pl. xi, figg. 53–56, p. 60, *hazeæ*, p. 61, pl. xi, figg. 57–59, Japan, KUWANA, Pap. Calif. Ac. iii, n. spp.

Rhopaloaspis n. g. for *Leucaspis riccæ* Targ., GUERCIO, Bull. Soc. ent. Ital. xxxiv, pp. 185–188.

Ripersia fimbriatula, p. 41, *cockerellæ*, p. 42, New Mexico, in ants'-nests, KING, Ent. News Philad. xiii; *R. sporoboli*, New Mexico, COCKERELL, p. 20, Ann. Nat. Hist. ix : n. spp.

Saissetia nigrella, Natal, KING, Psyche ix, p. 296, n. sp.

Sasakia n. g. *Xylococcini*, for *S. quercus*, n. sp., Japan, pl. vii, figg. 4–8, KUWANA, p. 47, Pap. Calif. Ac. iii.

Signoretia, cf. *Luzulaspis*.

Stictolecanium n. g. type *L. ornatum* Hemp., COCKERELL, Ann. Nat. Hist. ix, p. 452.

Takahashia jaliscensis, Mexico, COCKERELL, op. cit. x, p. 466, n. sp.

Termitococcus aster, note on, SILVESTRI, Boll. Mus. Torino 1902, No. 419, p. 22.

Ultracœlostoma subg. n. type *Cœlostomidia assimilis* Mask., COCKERELL, Entomologist 1902, p. 114.

ANOPLURA.

Hæmatopinus præcitus, Abyssinia on Rodent, NEUMANN, Arch. parasit. v, p. 600, n. sp.

Hæmatopinus præcitus, corrected to *præcisus*, characters illustrated, id. op. cit. vi, p. 144.

(F.) *NEUROPTERA.*

New fossil *Neuropteron* with prothoracic appendages, AGNUS (7).

TRICHOPTERA.

[The following memoirs relate to *Trichoptera*, viz.:—BETTEN (102), KLAPÁLEK (713, 715, 717), MORTON (930, 931), NEEDHAM (945), RICHTERS (1152), SILFVENIUS (1266), ULMER (1397–1399).]

The genitalia of *Rhyacophilidæ*, *Philopotamidæ* and *Hydroptilidæ*, KLAPÁLEK (715).

The metamorphoses of *Phryganeides* and *Limnophilides*, SILFVENIUS, Acta Soc. Faun. Fenn. xxi, No. 4, 100 pp., 4 pls.

Notes on various larvæ found in the Schwarzwald, ULMER (1399).

Notes as to collecting larvæ and list of German larvæ, ULMER, Allg. Zeitschr. Ent. vii, pp. 143–149.

Form with peculiar prepupa, NEEDHAM, Psyche ix, pp. 375–378, cuts.

Agrypnetes crassicornis ♀, WEURLANDER, Medd. Soc. Faun. Fenn. xxviii, p. 21.

Agrypnia pagetana, metamorphosis, SILFVENIUS, Acta Soc. Faun. Fenn. xxi, No. 4, p. 26.

Anabolia sororcula, larva, SILFVENIUS, t. c. p. 74.

Apatania; females distinguished, MORTON, Ent. Mag. xxxviii, pp. 150–156, pl. iii.

Chætopteryx villosa, larva, SILFVENIUS, Acta Soc. Faun. Fenn. xxi, No. 4, p. 91.

C. singularis, Bosnia, KLAPÁLEK, Termes. Fuzetek xxv, p. 162, n. sp.

Glossosoma discophorum, Bosnia, KLAPÁLEK, t. c. p. 165, n. sp.

Glyphotaulius punctatolineatus, larva, SILFVENIUS, Acta Soc. Faun. Fenn. xxi, No. 4, p. 39.

Grammotaulius atomarius, larva, nymph, ULMER, Allg. Zeitschr. Ent. vii, pp. 429–432, cuts.

Halesus tesselatus, larva, SILFVENIUS, Acta Soc. Faun. Fenn. xxi, No. 4, p. 87.

H. hammoniensis, Hamburg, ULMER, Stettin Ent. Zeit. 1902, p. 365, n. sp.

Holocentropus picicornis, black var., MCLACHAN, Ent. Mag. xxxviii, p. 112.

Holostomis phalaenoides, metamorphosis, SILFVENIUS, Acta Soc. Faun. Fenn. xxi, No. 4, p. 30.

Hydropsyche; nets, SIMPSON, P. ent. Soc. Washington v, pp. 93–95.

Ithytrichia lamellata, early stages, ULMER, Stettin Ent. Zeit. 1902, p. 364.

I. violacea, India, MORTON, Ent. Mag. xxxviii, p. 283, n. sp.

Limnophilides; larvæ, general characters, SILFVENIUS, Acta Soc. Faun. Fenn. xxi, No. 4, pp. 33–38.

Limnophilus griseus, larva, case, ULMER, Allg. Zeitschr. Ent. vii, p. 117; *L. flavicornis*, larva, cases, ULMER, t. c. pp. 231–234, cuts; *L. rhombicus*, *borealis*, *flavicornis*, *decipiens*, *stigma*, *centralis*, *griseus*, *despectus*, *extricatus*, metamorphoses, SILFVENIUS, Acta Soc. Faun. Fenn. xxi, No. 4, pp. 43–71; *L. indivisus*, larval habits, SIMPSON, P. ent. Soc. Washington v, pp. 98, 99.

Lype sinuata and *phæopa*, ULMER, Stettin Ent. Zeit. 1902, p. 363.
Micrasema sericeum, Bosnia, KLAPÁLEK, Termes. Fuzetek xxv, p. 164, n. sp.
Molanna cinerea, larva, anatomy, BETTEN, J. N. York Ent. Soc. x, pp. 147–154.
Odontocerum albicorne, metamorphoses, ULMER, Stettin Ent. Zeit. 1902, pp. 360, 384.
Phacopteryx brevipennis, case, etc., Ent. Mag. xxxviii, p. 185.
Phryganea grandis, *striata*, *obsoleta*, *minor*, metamorphoses, SILFVENIUS, Acta Soc. Faun. Fenn. xxi, No. 4, pp. 11–25.
Phryganeides, larvæ, general characters, SILFVENIUS, t. c. pp. 6–10.
Rhyacophila præmorsa, larva, ULMER, Allg. Zeitschr. Ent. vii, p. 373.
Stactobia eatoniella, larva, ♂ characters, KLAPÁLEK, Bull. Ceska Ak. vi, p. 73, 1 pl.
Stenophylax nigricornis, *stellatus*, larvæ, SILFVENIUS, Acta Soc. Faun. Fenn. xxi, No. 4, pp. 79–86.
S. winneguthi, Bosnia, KLAPÁLEK, Termes. Fuzetek xxv, p. 161, n. sp.

NEUROPTERA-PLANIPENNIA (incl. PANORPIDÆ).

[Cf. ANTHONY (29A), BANKS (65), KIRBY (660), KLAPÁLEK (713), McCLENDON (879), McLACHLAN (882), NAVÁS (941, 942), WEELE (1474).]

Details of internal metamorphosis, *Myrmeleo*, etc., BERLESE, Riv. Patol. Veg. ix, pp. 318–328.

Albardia n. g. near *Haplogenius*, p. 234, for *A. furcata*, n. sp., Brazil, p. 235, WEELE, Notes Leyden Mus. xxiii.
Bittacus australis noticed, FROGGATT, P. Linn. Soc. N. S. Wales xxvii, p. 359.
Brachynemurus cockerelli, New Mexico, BANKS, Ent. News Philad. xiii, p. 86, n. sp.
Chrysopa of Spain, NAVÁS (942); *C. tenella* var., McLACHLAN, Ent. Mag. xxxviii, p. 248.
Cymothales johnstoni, Uganda, KIRBY in Johnston Uganda Protectorate i, p. 469, n. sp.
Dilar dissimilis, p. 4, *pictus*, p. 7, *saldubensis*, p. 8, *campestris*, p. 10, Spain, NAVÁS, Mem. Ac. Barcelona iv, No. 28, n. spp.
Glenurus; notes on Australian, FROGGATT, P. Linn. Soc. N. S. Wales xxvii, pp. 360–362.
Mantispa spp., mimics, SHELFORD, P. Zool. Soc. London 1902, ii, pp. 235–237, pl. xix; *M. interrupta*, sexes, HINE, Ohio Natural. ii, p. 190.
Myrmeleon texanus, and *rusticus*, larvæ, McCLENDON, Ent. News Philad. xiii, p. 209, pl. xi.
Panorpa clavigera, Herzegowina, KLAPÁLEK, Termes. Fuzetek xxv, p. 166, n. sp.
Nymphes myrmelionides, larva etc., FROGGATT, P. Linn. Soc. N. S. Wales xxvii, p. 365.
Psychopsis mimica, larva etc., FROGGATT, P. Linn. Soc. N. S. Wales xxvii, p. 367.
P. marshalli, S. Africa, McLACHLAN, Ent. Mag. xxxviii, p. 234, n. sp.
Sialis americana, characters, HINE, Ohio Natural. ii, p. 190.
Sisyra; metamorphosis, structure of mouth, larval anatomy, wing development, ANTHONY, Amer. Natural. xxxvi, pp. 615–631, cuts.
Suphalasca sabulosa, *flavipes*, notes, FROGGATT, P. Linn. Soc. N. S. Wales xxvii, pp. 363, 364.
Ulula hyalina, habits, repagula, life-history, McCLENDON, Amer. Natural. xxxvi, pp. 421–429, cuts.

PSEUDO-NEUROPTERA.

PSOCIDÆ.

Hatching process, HOWARD, P. ent. Soc. Washington v, p. 103.
External structure and internal anatomy of *Trichopsocus*, RIBAGA (1150).

Heteropsocus n. g. near *Psoquilla*, p. 817, for *H. dispar*, n. sp., Bermudas, p. 818, VERRILL, Tr. Connecticut Ac. xi.

MALLOPHAGA.

[The following memoirs relate to *Mallophaga*, viz.:—CARRIKER (215), KELLOGG & CHAPMAN (670, 671), KELLOGG & KUWANA (672), LE SOUEF (802, 803), LE SOUEF & BULLEN (804, 805), NEUMANN (949), OSBORN (980).]
Characters, relations to *Psocidæ*, KELLOGG, Psyche ix, pp. 339–343.

Akidoproctus kelloggi, pl. xxii, figg. 1, 2, on *Aythya*, Nebraska, CARRIKER, J. N. York Ent. Soc. x, p. 228, n. sp.
Boopia nota-fusca, *bettongia*, p. 50, *minuta*, p. 51, Australia, LE SOUEF, Victorian Natural. xix, n. spp.
Colpocephalum vinculum, Australia, LE SOUEF & BULLEN, Victorian Natural. xviii, p. 158; *C. kilauensis*, on *Heteractites*, Hawaii, pl. xiv, fig. 1, *epiphanes*, on *Anous*, Hawaii, fig. 2, p. 161, *brachysomum*, on *Asio*, Maui, fig. 3, p. 162, *conspicuum*, on *Carpodaccus*, Maui, fig. 4, p. 163, *discrepans*, on *Carpodaccus*, Maui, pl. xv, fig. 1, p. 164, KELLOGG & CHAPMAN, J. N. York Ent. Soc. x; *C. milleri*, Galapagos Ids., KELLOGG & KUWANA, P. Washington Ac. iv, pl. xxx, fig. 6, p. 483; *C. pectinatum*, Nebraska, on *Speotyto*, OSBORN, Ohio Natural. ii, p. 202, pl. xiv, fig. 2; *C. quadrimaculatus*, pl. xxi, fig. 4, on *Loxia*, Nebraska, CARRIKER, J. N. York Ent. Soc. x; *C. kelloggi*, Iowa, on Turkey buzzard, OSBORN, Ohio Natural. ii, pl. xi, fig. 2 : n. spp.
Docophorus fuliginosus hawaiiensis var. n., KELLOGG & CHAPMAN, J. N. York Ent. Soc. x, p. 157; *D. validus* var. n. *minor*, KELLOGG & KUWANA, P. Washington Ac. iv, p. 460.
D. macgregori, on *Chlorodrepanis*, Maui, KELLOGG & CHAPMAN, J. N. York Ent. Soc. x, p. 156, pl. xiii, fig. 1; *D. platycephalus*, pl. xxviii, fig. 1, p. 461, *peristictus*, fig. 2, p. 462, *breviformis*, fig. 3, p. 463, *galapagensis*, fig. 4, p. 464, *albemarlensis*, fig. 5, p. 465, *insulicola*, fig. 6, p. 466, Galapagos Ids., KELLOGG & KUWANA, P. Washington Ac. iv; *D. barbatus*, Nebraska, on *Scolecophagus*, OSBORN, Ohio Natural. ii, p. 201; *D. cephalosus*, on *Colaptes*, Nebraska, CARRIKER, J. N. York Ent. Soc. x, p. 217 : n. spp.
Goniocotes chinensis, on *Turtur*, Maui, KELLOGG & CHAPMAN, J. N. York Ent. Soc. x, p. 160, pl. xiii, fig. 5; *G. galapagensis*, Albemarle Id., KELLOGG & KUWANA, p. 481, pl. xxx, fig. 5 : n. spp.
Gonoides retractus, *longus*, Australia, LE SOUEF, Victorian Natural. xix, p. 90, n. spp.
Heterodoxus n. g. for *H. macropus*, n. sp., Australia, on Kangaroo, LE SOUEF & BULLEN, Victorian Natural. xviii, p. 159.
Læmobothrum loomisi, on *Anser*, San Francisco, KELLOGG & CHAPMAN, J. N. York Ent. Soc. x, p. 23, pl. iii, fig. 3, n. sp.
Latumcephalum n. g. for *L. macropus*, n. sp., Australia, LE SOUEF, Victorian Natural. xix, p. 51.
Lipeurus diversus, var. n., *major*, KELLOGG & KUWANA, P. Washington Ac. iv, p. 477; *L. docophoroides minhaensis* var. n., KELLOGG & CHAPMAN, J. N. York Ent. Soc. x, p. 159.

L. giganteum, *ibis*, p. 156, *menura*, *albus*, p. 157, Australia, LE SOUEF & BULLEN, Victorian Natural. xviii; *L. languidus*, pl. xxix, fig. 8, p. 475, *potens*, pl. xxx, fig. 1, p. 477, *exiguus*, fig. 2, *helleri*, fig. 3, p. 479, *miriceps*, fig. 4, p. 480, Galapagos, KELLOGG & KUWANA, P. Washington Ac. iv; *L. comstocki*, on *Rallus*, New York, KELLOGG & CHAPMAN, J. N. York Ent. Soc. x, p. 23, pl. iii, fig. 2; *L. marginalis*, Iowa, on Turkey buzzard, OSBORN, Ohio Natural. ii, p. 176, pl. xiv, fig. 4 : n. spp.

Menopon psittacus, *menura*, Australia, LE SOUEF & BULLEN, Victorian Natural. xviii, p. 158; *M. hawaiiensis*, on *Chlorodrepanis*, Maui, pl. xv, fig. 2, *cyrtostigmum*, on *Vestiaria*, Maui, fig. 3, p. 165, *hilensis*, on *Vestiaria*, Hawaii, fig. 4, p. 166, *invadens*, on *Acridotheres*, Maui, fig. 5, p. 167, KELLOGG & CHAPMAN, J. N. York Ent. Soc. x; *M. singularis*, pl. xxxi, fig. 1, *narboroughi*, fig. 2, p. 485, *snodgrassi*, fig. 3, p. 486, *galapagensis*, fig. 4, p. 487, *albemarlei*, fig. 5, p. 488, Galapagos Ids., KELLOGG & KUWANA, P. Washington Ac. iv; *M. alternatum*, Ohio, on Turkey buzzard, OSBORN, Ohio Natural. ii, p. 175, pl. xi, fig. 1; *M. kuwani*, on *Phalacrocorax*, California, p. 26, pl. iii, fig. 4, *alaskensis*, on *Cinclus* and *Pinicola*, p. 27, fig. 5, CHAPMAN & KELLOGG, J. N. York Ent. Soc. x : n. spp.

Nirmus truncatus var. n. *magnocephalus*, p. 218, pl. xx, fig. 4, *biocellatus* var. n. *nigropictus*, p. 219, pl. xxi, fig. 1, CARRIKER, J. N. York Ent. Soc. x; *N. orarius hawaiiensis*, *N. gloriosus emarginatus*, varr. n., KELLOGG & CHAPMAN, J. N. York Ent. Soc. x, p. 159; *N. vulgatus* var. n. *galapagensis*, KELLOGG & KUWANA, P. Washington Ac. iv, p. 474.

N. setosum, *menura*, Australia, LE SOUEF & BULLEN, Victoria Natural. xviii, p. 157; *N. minhaensis*, on *Acridotheres*, Maui, p. 157, pl. xiii, fig. 2, *stenozonus*, on *Munia* and *Vestiaria*, Hawaii, fig. 3, *diaprepes*, on *Vestiaria*, Hawaii, fig. 4, p. 158, KELLOGG & CHAPMAN, J. N. York Ent. Soc. x; *N. gloriosus*, pl. xxix, fig. 1, p. 467, *obtusus*, fig. 2, p. 468, *paludicola*, fig. 3, p. 469, *curvilineatus*, fig. 4, *galapagensis*, fig. 5, p. 471, *separatus*, fig. 6, p. 472, *lepidus*, fig. 7, p. 473, Galapagos Ids., KELLOGG & KUWANA, P. Washington Ac. iv; *N. infrequens*, on *Calcarius*, p. 220, pl. xx, fig. 3, *angustifrons*, on *Chondestes*, p. 221, pl. xxi, fig. 2, *trimarginis*, on *Certhia*, p. 222, pls. xx, fig. 2 and xxi, fig. 5, Nebraska, CARRIKER, J. N. York Ent. Soc. x; *N. luprepes*, on *Arenaria*, California, KELLOGG & CHAPMAN, J. N. York Ent. Soc. x, p. 21 : n. spp.

Nitzschia pulicaris var. n. *tibialis*, pl. xxii, figg. 4, 5, CARRIKER, J. N. York Ent. Soc. x, p. 225.

Ornithobius fuscus, Australia, LE SOUEF, Victorian Natural. xix, p. 91, n. sp.

Physostomum hastatum, Colorado, on *Junco*, OSBORN, Ohio Natural. ii, p. 203, pl. xiv, fig. 3; *P. picturatus*, pl. xxiii, fig. 3, on *Helmithophila*, Nebraska, CARRIKER, J. N. York Ent. Soc. x, p. 224 : n. spp.

Trichodectes setosus on *Erethizon epixanthus*, COCKERELL, Ent. Mag. xxxviii, p. 182.

T. acuticeps, Abyssinia, on *Viverra*, NEUMANN, Arch. parasit. v, p. 601; *T. nasuatis*, pl. xi, fig. 3, Costa Rica, *thoracicus*, fig. 4, California, OSBORN, Ohio Natural. ii : n. spp.

Trinotum conspurcatum, pl. xxi, fig. 3, CARRIKER, J. N. York Ent. Soc. x, p. 226.

T. niger, Australia, LE SOUEF, Victorian Natural. xix, p. 90, n. sp.

TERMITIDÆ.

[The memoirs indicated by the following title numbers relate to Termites, viz.:—DESNEUX (319), HAVILAND (584), LAMEERE (762), MARLATT (866), MILLETT (917), SHARP (1256), SILVESTRI (1267, 1268), SJÖSTEDT (1276, 1278, 1279), WASMANN (1450, 1451, 1453, 1456).]

Termites; SHARP, Enc. Brit. xxxiii pp. 253–256.
Biology of S. American Termites, SILVESTRI (1268).
Notes on the habits of numerous S. American *Termitidæ*, SILVESTRI, Boll. Mus. Torino 1902, No. 419.
Termites and ants: WASMANN (1456).
Value of the soldier in classification, WASMANN, Biol. Centrbl. xxii, pp. 715–717.
Repairing termitarium, MILLETT (917).
The termite fungus, *Agaricus rajap*, Holtermann, KARAWAEW, Mem. Soc. Kiev xvii, pp. 298–303, pl. ii.
The termite fungus, *Podaxis carcinomalis*, SWANTON, Natural. J. xi, pp. 173, 183, etc.

Amitermes, defined, composition, WASMANN, Zool. Jahrb. Syst. xvii, p. 122.
A. quadriceps, Bombay, id. t. c. p. 123; *A. foreli*, Columbia, WASMANN, Tijdschr. Ent. xlv, p. 106 : n. spp.
Arrhinotermes n. g., pp. 103 and 160, for *A. heimi*, n. sp., Ceylon, p. 104, WASMANN, Zool. Jahrb. Syst. xvii: but cf. p. 160 where this is said to be in part *Leucotermes indicola*.
Arrhinotermes oceanicus, Cocos Isd., WASMANN, t. c. p. 139, n. sp.
Calotermes pallidicollis, *agilis*, Cameroons, SJÖSTEDT, Ent. Tidskr. xxiii, p. 302, n. spp.
Capritermes longicornis, Ceylon, WASMANN, Zool. Jahrb. Syst. xvii, p. 126.
Eurytermes n. g. for *E. assmuthi*, n. sp., E. India, WASMANN, t. c. p. 124.
Eutermes monoceros, the forms, p. 129, *E. sjostedti* n. n. for *latifrons* Sjöst. nec Havil., p. 133, *inanis*, subsp. n. *horni*, p. 137, WASMANN, t. c.; *E. sjostedti* n. n. for *latifrons* Sjöst. nec Haviland, WASMANN, Biol. Centrbl. xxii, p. 717.
E. desertorum, Algeria, DESNEUX, Ann. Soc. ent. Belgique xlvi, p. 439; *E. dispar*, Zomba, *gemellus*, S. Africa, p. 303, *coarctatus*, Zomba, p. 304, SJÖSTEDT, Ent. Tidskr. xxiii; *E. mitis*, Madagascar, *infuscatus*, Zomba, SJÖSTEDT, t. c. p. 40; *E. flaviventris*, Malacca, p. 131, *biformis*, Ceylon, p. 133, *heimi*, India, p. 135, WASMANN, Zool. Jahrb. Syst. xvii : n. spp.
Leucotermes flavipes subsp. n. *paraensis* (house-Termite of Pará), WASMANN, t. c. p. 119; *L. insularis*, Cocos Isd., WASMANN, t. c. p. 139, n. sp.: but cf. p. 160 where this is considered to be part of *Arrhinotermes oceanicus*; *L. indicola*, Bombay, WASMANN, t. c. p. 118, n. sp.: but cf. p. 160 where this is considered to be probably *Arrhinotermes heimi*.
Microcerotermes, characters and composition, WASMANN, t. c. p. 120.
M. heimi, p. 120, *cylindriceps*, p. 121, Ceylon, id. t. c., n. spp.
Microtermes n. g. type *Termes incertus* Hag., p. 115, with *M. globicola*, n. sp., Ceylon, p. 116, WASMANN, t. c.
Psammotermes n. g. near *Calotermes*, p. 436, for *P. hybostoma*, n. sp., Algeria, p. 437, DESNEUX, Ann. Soc. ent. Belgique xlvi.
Speculitermes n. g. for *S. cyclops*, n. sp., E. India, WASMANN, Zool. Jahrb. Syst. xvii, p. 161.
Termes; restricted, taxonomy, WASMANN, p. 104; *T. obesus* subsp. n. *wallonensis*, p. 106, habits, p. 108, *T. redemanni*, nests, etc., p. 109, t. c.; *T. flavipes*, ravages in Baltimore, supplementary queen, JOHNSON,

P. ent. Soc. Washington v, p. 2; *T. flavipes*, queen, SCHAEFFER, J. N. York Ent. Soc. x, p. 251.

T. transvaalensis, Africa, SJÖSTEDT, Ent. Tidskr. xxiii, p. 302; *T. terricola*, Cameroons, SJÖSTEDT, t. c. p. 252; *T. horni*, p. 111, *ceylonicus*, p. 112, *obscuriceps*, p. 113, Ceylon, WASMANN, Zool. Jahrb. Syst. xvii : n. spp.

EMBIIDÆ.

Habits and spinning apparatus, apterous form, MELANDER, Biol. Bull. iii, pp. 16–26.

Embia texana, Austin, MELANDER, t. c. p. 19, n. sp.

Olyntha wheeleri, Mexico, MELANDER, t. c. p. 17, n. sp.

PERLIDÆ.

[Cf. BANKS (62), BOLIVAR (123), KEMPNY (675), KLAPÁLEK (713, 714, 717), NAVÁS (943), RIS (1157).]

Notes, synonymical and faunistic on *Perlidæ* of Spain, BOLIVAR, Bol. Soc. espan. ii, pp. 204–207.

The *Perlidæ* of Spain, 24 species, NAVÁS, Bull. Inst. Catalan. Hist. Nat. No. 6.

Notes on the genitalia of European species, KLAPÁLEK (716).

Æmopteryx n. g. type *Tæniopteryx loewii*, KLAPÁLEK, Termes. Fuzetek xxv, p. 179.

Amphinemura subg. n. cf. *Nemura*.

Capnia atra, brachypterous, EVANS, Ann. Scott. Nat. Hist. 1902, p. 185.

Capnopsis pygmæa Zett. = (*schilleri* Rost.), KEMPNY, Verh. Ges. Wien lii, p. 227.

Chloroperla 5-punctata, New Mexico, BANKS, Canad. Ent. xxxiv, p. 124, n. sp.

Nemura: the Swiss species; abdominal structure, RIS, Mt. Schweiz. ent. Ges. x, pp. 378–405.

N. (*Protonemura*) *brevistyla*, p. 386, *fumosa* (= *nitida* Klap.), p. 387, *nimborum*, p. 389, *intricata*, p. 392, *N.* (*Amphinemura* subg. n., p. 393), *standfussi*, p. 395, *triangularis*, p. 396, *N. obtusa*, p. 401, *mortoni*, p. 402, *sinuata*, p. 403, Switzerland, RIS, t. c.; *N. bolivari*, p. 113, *fulviceps*, p. 114, Spain, KLAPÁLEK, Bol. Soc. espan. ii; *N. pallida*, Colorado, BANKS, Canad. Ent. xxxiv, p. 125 : n. spp.

Nephopteryx n. g. type *Tæniopteryx nebulosa* L., KLAPÁLEK, Termes. Fuzetek xxv, p. 179.

Perla capitata = (*tristis* Hag.), BANKS, Canad. Ent. xxxiv, p. 123.

P. fumosa, Washington, BANKS, t. c. p. 123, n. sp.

Perlinella frontalis, p. 123, *signata*, p. 124, N. America, BANKS, t. c., n. spp.

Rhabdiopteryx n. g. type *Tæniopteryx hamulata* (below), KLAPÁLEK, Termes. Fuzetek xxv, p. 179.

Tæniopteryx lowii, characters, KLAPÁLEK, t. c. p. 175.

T. arcuata, Spain, KLAPÁLEK, Bol. Soc. espan. ii; *T. seticornis*, p. 168, *araneoides*, p. 169, *hamulata*, p. 172, Hungary, KLAPÁLEK, Termes. Fuzetek xxv : n. spp.

EPHEMERIDÆ.

Regeneration, experiments on larvæ, HÜBNER (628).

ODONATA.

[Cf. BILLINGHURST (107), CALVERT (194–196, 545), HINE (603), HÜBNER (628), KRÜGER (741), LAIDLAW (752–754), NEEDHAM (946), PIERRE (1065), SJÖSTEDT (1275), WILLIAMSON (1498–1499B).]

Odonata of Sweden, SJÖSTEDT, Ent. Tidskr. xxiii, pp. 1–27.
The Odonata of Sumatra, Part IIIb, *Libellulinæ*, KRÜGER, Stettin Ent. Zeit. 1902.
Classification of *Zygoptera*, CALVERT, Ent. Mag. xxxviii, p. 30.
Notes on habits of Malay species, LAIDLAW, P. Zool. Soc. London 1902, i, pp. 63, 64.
Migration of *Libellula*, account of, FONTAINE, Ann. Soc. ent. Belgique xlvi, pp. 7, 8.
Collector's notes on Australian, BILLINGHURST, Victorian Natural. xix, pp. 24–28.
Regeneration, experiments on *Agrion* larvæ, HÜBNER (628).

Acanthagrion gracile, pl. v, fig. 20, the varr., p. 115, CALVERT, Biol. Centr.-Amer. Neuropt.
A. latapistylum, Paraguay, CALVERT, An. Mus. Buenos Aires vii, p. 26, n. sp.
Agrion elegantulum Zett., merged in *hastulatum* Charp., the types, SJÖSTEDT, Ent. Tidskr. xxiii, p. 235.
Agrionoptera longitudinalis Sel., KRÜGER, Ent. Zeit. Stettin 1902, pp. 171–177.
Amphilestes mima ♀, LAIDLAW, P. Zool. Soc. London 1902, ii, p. 382.
Anisagrion truncatipenne, Guatemala, pl. v, fig. 17, p. 106, CALVERT, Biol. Centr.-Amer. Neuropt., n. sp.
Argia; list of the species, and figures of the terminal segments drawn by the late H. A. Hagen, CALVERT, Bull. Mus. Harvard xxxix, No. 4, pp. 103–120, pls. 1, 2; The Central American, reviewed, with numerous figures, pl. iv, *A. vivida* varr. n. *plana*, *munda*, p. 96, *violacea* var. n. *pallens*, p. 98, *agrioides* var. n. *nahuana*, p. 99, CALVERT, Biol. Centr.-Amer. Neuropt. pp. 73–100.
A. percellulata, Mexico, p. 74, pl. iv, figg. 5, 27, *wilsoni*, Guatemala, p. 75, pl. iv, fig. 28, *tezpi*, Lower California, etc., p. 77, figg. 19, 31, *ulmeca*, Mexico, figg. ix, 34, *adamsi*, Panama, fig. 35, p. 80, *herberti*, fig. 37, *popoluca*, figg. 8, 38, *indicatrix*, figg. 23, 39, p. 82, Mexico, *rogersi*, Costa Rica, fig. 40, p. 83, *cupraurea*, figg. 24, 42, Panama, p. 85, *barretti*, Mexico, fig. 46, p. 87, *chelata*, Costa Rica, fig. 47, p. 88, *tonto*, Arizona, p. 89, *deami*, figg. 13, 52, *tarascana*, figg. 14, 51, Mexico, p. 90, *rhoadsi*, Mexico, fig. 55, p. 92, CALVERT, t. c., n. spp.
Brachydiplax pruinosa, Malay penins., LAIDLAW, P. Zool. Soc. London 1902, i, p. 67, n. sp.
B. farinosa, Sumatra, KRÜGER, Ent. Zeit. Stettin 1902, p. 135, n. sp.
Calothemis biappendiculatus ♂, LAIDLAW, P. Zool. Soc. London 1902, i, p. 70.
Climacobasis n. g. near *Echo*, for *C. lugens*, n. sp., Malay penins., pl. vi, fig. 5, LAIDLAW, t. c. p. 85.
Crocothemis servilia Dr., KRÜGER, Ent. Zeit. Stettin 1902, pp. 117–126.
Diplax; the Spanish, NAVÁS, Bol. Soc. espan. ii, pp. 132–135.
Dysphæa limbata, race, LAIDLAW, P. Zool. Soc. London, 1902, i, p. 88.
Echo modesta, Kwala Aring, LAIDLAW, t. c. p. 84, pl. v, fig. 6, n. sp.
Enallagma calverti, characters, WILLIAMSON, P. Indiana Ac. 1900, p. 17; *E. cyathigerum* = (*annexum* Hag.), id. op. cit. 1901, p. 121.
E.? maldiviensis, Maldives, LAIDLAW, Gardiner Fauna Maldive i, p. 221;

**E. piscinarium*, Indiana, WILLIAMSON, Rep. Dep. Geol. Indiana xxiv, p. 273; *E. basidens*, N. America and Mexico, pl. v, fig. 16, CALVERT, Biol. Centr.-Amer. Neuropt. p. 114 : n. spp.

Gomphidia perakensis, Perak, LAIDLAW, P. Zool. Soc. London 1902, i, p. 81, pl. vi, figg. 1, 2, n. sp.

Gomphus kelantanensis n. n. for *G. consobrinus* (below), LAIDLAW, op. cit. ii, p. 382; *G. villosipes*, *furcifer*, characters, HINE, Ohio Natural. ii, p. 61, pl. v.

G. consobrinus, Malay penins., LAIDLAW, P. Zool. Soc. London 1902, i, p. 80, pl. v, fig. 5; *G. lentulus*, p. 275, *cavillaris*, p. 276, N. America, NEEDHAM, Canad. Ent. xxxiv; *G. viridifrons*, Ohio, HINE, Ohio Natural. i, p. 60; *G. hybridus*, N. America, WILLIAMSON, Ent. News Philad. xiii, p. 47 : n. spp.

Hesperagrion n. g., p. 103, type *A. heterodoxum*, its varieties, p. 103, pl. v, figg. 11, 12, pl. vi, figg. 1–6, CALVERT, Biol. Centr.-Amer. Neuropt.

Hetærina; variation in nervuration, CALVERT, Ent. News Philad. xiii, p. 192.

Idionyx dohrni ♀, LAIDLAW, P. Zool. Soc. London 1902, i, p. 78, pl. v, fig. 4.

Ischnura, the Central American, pp. 122–128, pl. v, CALVERT, Biol. Centr.-Amer. Neuropt.; *I. graellsi* var. n. *Aurantiaca*, SELYS LONGCHAMPS, Ann. Soc. ent. Belgique xlvi, p. 431.

I. damula, New Mexico, CALVERT, Biol. Centr.-Amer. Neuropt. p. 126, n. sp.

Leptobasis vacillans, pl. v, figg. 22–25, var. n. *atrodorsum*, p. 121, CALVERT, t. c.

Lestes viridis, oviposition, PIERRE, Rev. Sci. Bourbonnais xv, pp. 181–194.

L. ridleyi, Perak, LAIDLAW, P. Zool. Soc. London 1902, i, p. 92, n. sp.

Lyriothemis laui, Sumatra, p. 156, *daui*, Sumba, p. 157, KRÜGER, Ent. Zeit. Stettin 1902, n. spp.

Macromia gerstaeckeri, sexes, LAIDLAW, P. Zool. Soc. London 1902, i, p. 76.

Micromerus affinis, Kwala Aring, LAIDLAW, t. c. p. 90, pl. vi, fig. 7, n. sp.

Nannophlebia dohrni, Sumatra, KRÜGER, Stettin Ent. Zeit. 1902, p. 186, n. sp.

Neurocena ida, variation, LAIDLAW, P. Zool. Soc. London 1902, i, p. 72, pl. v, fig. 1.

Onychogomphus geometricus var. n. *nigrescens*, LAIDLAW, t. c. p. 80.

Onychothemis testacea, Malay penins., LAIDLAW, t. c. p. 75, pl. v, fig. 2, n. sp.

Ophiogomphus phaleratus, Oregon, NEEDHAM, Canad. Ent. xxxiv, p. 277, n. sp.

Orthemis cultriformis, Paraguay, CALVERT, An. Mus. Buenos Aires vii, p. 31, n. sp.

Orthetrum; the Spanish, NAVÁS, Bol. Soc. espan. ii, pp. 69–71; Sumatran species, KRÜGER, Ent. Zeit. Stettin 1902, pp. 140–153.

Oxygastra curtisii, nymph, LUCAS, Entomologist 1902, p. 34, pl. i.

Pornothemis n. g., p. 159, with *P. serrata*, n. sp., Sumatra, p. 163, KRÜGER, Stettin Ent. Zeit. 1902.

Protosticta foersteri, Perak, LAIDLAW, P. Zool. Soc. London 1902, ii, p. 383, n. sp.

Rhinocypha inas, Malay penins., LAIDLAW, op. cit. i, p. 88, pl. vi, fig. 6, n. sp.

Rhyothemis; the Sumatran species, KRÜGER, Ent. Zeit. Stettin 1902, pp. 87–105.

Sieboldius grandis ♂, LAIDLAW, P. Zool. Soc. London 1902, i, p. 82, pl. vi, figg. 3, 4.

---

* Paper not seen; this information has been given by its author.

Teinobasis kirbyi, Perak, LAIDLAW, op. cit. ii, p. 386, n. sp.
Telebasis collopistes, pl. v, figg. 27, 28, p. 116, *digiticollis*, pl. v, fig. 21, Mexico, *isthmica*, Panama, figg. 29, 30, p. 118, CALVERT, Biol. Centr.-Amer. Neuropt.
Tetrathemis hyalinia, sex distinction, LAIDLAW, P. Zool. Soc. London 1902, i, p. 70.
T. pulchra, Malay penins., LAIDLAW, t. c. p. 71, pl. v, fig. 3; *T. flava*, Java, p. 190, *sumatrana*, Sumatra, p. 191, KRÜGER, Stettin Ent. Zeit. 1902 : n. spp.
Thaumatoneura inopinata, note on, CALVERT, Ent. Mag. xxxviii, p. 29.
Tholymis tillarga and *pallida*, KRÜGER, Ent. Zeit. Stettin 1902, pp. 74–78.
Tramea basilaris, extension, KRÜGER, t. c. pp. 81–87.
Trithemis animaculata, notes on, CALVERT, An. Mus. Buenos Aires vii, p. 29.
Zygonidia malayana, Kwala Aring, LAIDLAW, P. Zool. Soc. London 1902, i, p. 73, n. sp.

THYSANOPTERA.

[Cf. HINDS (602), LUDWIG (835), REUTER (1138, 1139), VEVEY (1412).]

N. American *Thysanoptera*, natural history and systematic, HINDS, P. U. S. Mus. xxvi, pp. 79–242.
Carnivorous sp., *Æolothrips fasciata* etc., REUTER, Medd. Soc. Faun. Fenn. xxviii, pp. 75–83.
Thrips infesting a sick man, VEVEY (1412).

Australian *Thysanopterid* gall, "Mulga-galls," LUDWIG, Allg. Zeitschr. Ent. vii, p. 451.
Acanthothrips magnafemoralis, p. 199, Florida, HINDS, P. U. S. Mus. xxvi, p. 199, n. sp.
Æolothrips bicolor, Massachusetts, HINDS, t. c. p. 130, n. sp.
Cephalothrips yuccæ, Massachusetts, HINDS, t. c. p. 194, n. sp.
Chirothrips crassus, p. 136, *obesus*, p. 137, N. America, HINDS, t. c., n. spp.
Cryptothrips aspersus, Massachusetts, HINDS, t. c. p. 205, n. sp.
Eurythrips n. g. for *E. ampliventralis*, p. 202, *osborni*, p. 203, n. spp., Massachusetts, HINDS, t. c.
Limothrips avenæ, Massachusetts, HINDS, t. c. p. 139, n. sp.
Euthrips fuscus, Massachusetts, HINDS, t. c. p. 154, n. sp.
Heliothrips fasciapennis, Massachusetts, HINDS, t. c. p. 171, n. sp.
Malacothrips n. g. for *M. zonatus*, n. sp., Massachusetts, HINDS, t. c. p. 200.
Phlœothrips uzeli, p. 196, *pergandei*, p. 197, N. America, HINDS, t. c., n. spp.
Pseudothrips n. g. for *Thrips inequalis* Beach, HINDS, t. c. p. 146.
Rhaphidothrips fuscipennis, Massachusetts, HINDS, t. c. p. 159, n. sp.
Scolothrips n. g. for *Thrips 6-maculatus* Perg., HINDS, t. c. p. 157.
Sericothrips cingulatus, Massachusetts, HINDS, t. c. p. 141, n. sp.
Trichothrips beachi, Massachusetts, HINDS, t. c. p. 192, n. sp.
Thrips communis etc. attacking *Helleborus*, LUDWIG, Allg. Zeitschr. Ent. vii, p. 449.

(G.) *APTERA.*

THYSANURA.

[Cf. FOLSOM (455), MARLATT (865), VERHOEFF (1409).]
Anatomy and morphology of coxal organs and abdominal appendages, VERHOEFF (1409).

Grassiella termitobia, *synocketa*, note on, SILVESTRI, Boll. Mus. Torino 1902, No. 419, p. 22.
Machilis arctica, Alaska, FOLSOM, P. Washington Ac. iv, p. 103, pl. v, n. sp.
Projapyx, ! larva of *Japyx*, COOK, P. ent. Soc. Washington v, p. 88 etc.

COLLEMBOLA.

[Cf. ABSOLON (1), AXELSON (48, 49), BANKS (63), BÖRNER (137–140), CARPENTER (211, 212), FOLSOM (455–457), LÉCAILLON (787, 788), REUTER (1144, 1145), SKORIKOW (1284, 1285), WILLEM (1495–1497).]

The *Collembola* of Fürnrohr's overlooked work, REUTER, Medd. Soc. Faun. Fenn. xxvi, pp. 140–143.
Collembola of Spitzbergen, chiefly in Russian, SKORIKOW (1285).
Collembola of Irish caves, CARPENTER (212).
Collembola on snow, REUTER, Medd. Soc. Faun. Fenn. xxiii, pp. 44–46, xxiv, pp. 127–130, 186.
Snow-*Podura*, *Achorutes socialis*, in numbers, REUTER, op. cit. xxviii, p. 40.
Structure of antennal-organs, BÖRNER, Zool. Anz. xxv, pp. 92–106.
Testis, spermatogenesis, *Anurida maritima*, LÉCAILLON (787, 788).

Achorutes purpurascens var. n. *pallens*, WILLEM, Ann. Soc. ent. Belgique xlvi, p. 278; *A. schötti* var. n. *obtusa*, AXELSON, Medd. Soc. Faun. Fenn. xxvi, p. 110; *A. nivicola* = (*socialis* Uz. = *spinifer* Sch.), FOLSOM, Psyche ix, p. 317.
A. distinctus, p. 104, *lapponicus*, p. 105, Finland, AXELSON, Medd. Soc. Faun. Fenn. xxviii; *A. packardi*, p. 319, with var. *dentatus*, p. 320, *harveyi*, p. 320, N. America, FOLSOM, Psyche ix, pl. iii : n. spp.
Actaletes; anatomy; peculiarities, WILLEM (1495).
Actaletinæ subfam. nov. for *Actaletes* Giard, BÖRNER, Zool. Anz. xxv, pp. 114–116.
Anurida amorita, Alaska, FOLSOM, P. Washington Ac. iv, p. 90, pl. iv, fig. 3, n. sp.
Anurophoriens; value of the group; classification of *Collembola*, WILLEM, Ann. Soc. ent. Belgique xlvi, pp. 21, 23.
Aphorura severini, caverns Belgium, WILLEM, t. c. p. 277; *A. dentata*, Alaska, FOLSOM, P. Washington Ac. iv, p. 91 : n. spp.
Borneria n. g. *Achorutidæ*, for *B. clavisetis*, n. sp., Finland, AXELSON, Medd. Soc. Faun. Fenn. xxviii, p. 101.
Dicyrtoma frontalis, Washington, BANKS, P. ent. Soc. Washington v, p. 154, n. sp.
Entomobrya lucifuga, N. America, FOLSOM, Psyche ix, p. 365, pl. iv, figg. 9, 10; *E. kincaidi*, Alaska, FOLSOM, P. Washington Ac. iv, p. 96 : n. spp.

Folsomia n. g. *Anurophorini*, for *F. candida*, n. sp., caverns Belgium, WILLEM, Ann. Soc. ent. Belgique xlvi, p. 280.
Friesea claviseta, Finland, AXELSON, Medd. Soc. Faun. Fenn. xxvi, p. 112, n. sp.
Isotoma violacea varr. n. *mucronata*, *divergens*, AXELSON, t. c. p. 118.
I. westerlundi, Finland, REUTER, Medd. Soc. Faun. Fenn. xxiii, p. 45; *I. thermophila*, p. 113, *affinis*, p. 119, *nivicola*, p. 120, Finland, AXELSON, Medd. Soc. Faun. Fenn. xxvi; *I. anophthalma*, *diplophthalma*, p. 106, *propinqua*, p. 107, *inopinata*, p. 108, Finland, AXELSON, op. cit. xxviii; *I. sepulcralis*, N. America, FOLSOM, Psyche ix, p. 364, pl. iv, figg. 3–8; *I. klovstadi*, Tierra del Fuego, CARPENTER, Voyage Southern Cross, p. 222, pl. xlvii : n. spp.
Lepidocyrtus borneri, caverns Belgium, WILLEM, Ann. Soc. ent. Belgique xlvi, p. 281, n. sp.
Micranurida papillosa, Finland, REUTER, Medd. Soc. Faun. Fenn. xxviii, p. 103, n. sp.
Neanura gigantea, pl. iv, fig. 1, FOLSOM, P. Washington Ac. iv, p. 88.
N. ornata, Alaska, FOLSOM, t. c. p. 89, pl. iv, fig. 2, n. sp.
Octomma n. g. *Neanurini*, for *O. longispina*, n. sp., caverns Belgium, WILLEM, Ann. Soc. ent. Belgique xlvi, p. 279.
Papirius fuscus var. n. *flavescens*, AXELSON, Medd. Soc. Faun. Fenn. xxviii, p. 111.
P. palmatus, Alaska, FOLSOM, P. Washington Ac. iv, p. 102, n. sp.
Paranura n. g. *Achorutidæ*, for *P. sexpunctata*, n. sp., Finland, AXELSON, Medd. Soc. Faun. Fenn. xxviii, p. 102.
Proctostephanus n. g., p. 606, for *P. stuckeni*, n. sp., Palermo, p. 607, BÖRNER, Zool. Anz. xxv.
Pseudosinella argentea, *candida*, N. America, FOLSOM, Psyche ix, p. 366, n. spp.
Schottella media, Finland, AXELSON, Medd. Soc. Faun. Fenn. xxvi, p. 110, n. sp.
Sinella tenebricosa, N. America, FOLSOM, Psyche ix, p. 365, n. sp.
Sminthurides globosus, Finland, AXELSON, Medd. Soc. Faun. Fenn. xxviii, p. 109, n. sp.
Sminthurinus igniceps var. n. *bimaculata*, *S. niger* var. n. *ochracea*, AXELSON, t. c. p. 110.
Sminthurus viridis var. n. *irroratus*, REUTER, p. 53, *S. frontalis* Fitch =(*pruinosus* Tullb.) p. 54, Medd. Soc. Faun. Fenn. xxv; *S. lubbocki* var. n. *maculata*, AXELSON, op. cit. xxvi, p. 123.
S. facialis, p. 154, *trilineatus*, p. 155, Washington, BANKS, P. ent. Soc. Washington v : n. spp.
Tetracanthella; characters and position, BÖRNER, Zool. Anz. xxv, pp. 106–111.
Tomocerus niger and *americanus*, variation etc. p. 99, *T. niger* var. *arcticus*, p. 100, var. *americanus*, p. 101, FOLSOM, P. Washington Ac. iv.
T. baschkiricus, E. Russia, SKORIKOW, Trav. Soc. Univ. Kharkov xxxv, p. 75, pl. ii, n. sp.
Tullbergia, to include *Stenaphorura*, table of species, BÖRNER, pp. 126–128.
T. bisetosa, Kerguelen, p. 128, *callipygos*, p. 129, *tricuspis*, *affinis*, p. 130, Sicily, id. t. c., n. spp.
Xenylla grisea, Finland, AXELSON, Medd. Soc. Faun. Fenn. xxvi, p. 108, n. sp.

(H.) *ORTHOPTERA.*

Orthoptera divided into *Dermaptera*, *Oothecaria*, *Phasmodea* and *Saltatoria*, VERHOEFF (1404, 1405).
The nomenclature of *Orthoptera*, with discussion as to the name of the Order, and those of its divisions and principal genera, KRAUSS, Zool. Anz. xxv, pp. 530–543.
Nomenclatorial notes, BURR, Ent. Rec. xiv, pp. 328–330.
VOSSELER discusses the ethology and structural peculiarities of the Saharan *Orthoptera*, and considers their ætiology (1429, 1430).
The means of protection of desert *Orthoptera*, VOSSELER (1431).
Orthoptera of Sweden, HANSSON, Ent. Tidskr. xxiii, pp. 29–39.
Biblical locusts and grasshoppers, WALKER (1437).
Notes on stridulation, REGEN (1110).
Orthoptera as mimics, SHELFORD, P. Z. S. 1902, ii, pp. 231–235.

FORFICULIDÆ or DERMAPTERA.

[Cf. BORELLI (135), BURR (181, 182), COOK (280), SEMENOW (1247), VERHOEFF (1405–1407).]

New classification of the *Dermaptera*, with two suborders *Eudermaptera*, *Paradermaptera* (this latter consisting of the genus *Apachys*), and nine families, *Anisolabidæ*, *Gonolabidæ*, *Diplatyidæ*, *Pygidicranidæ*, *Labiduridæ*, *Karschiellidæ*, *Chelidurídæ*, *Forficulidæ* (with seven subfamm.), *Apachyidæ*, VERHOEFF, Zool. Anz. xxv, pp. 181–203.
Taxonomical notes, BURR, Ent. Rec. xiv, pp. 96–98.
Hemimerus is a suborder, *Dermodermaptera*, of *Dermaptera*, VERHOEFF, SB. Ges. naturf. Berlin 1902, p. 87.
Abdominal morphology, VERHOEFF, t. c. p. 16.
Use of forceps, phylogeny, *Dyscritina*, COOK, P. ent. Soc. Washington v, pp. 84–92.
Forficulidæ of Ceylon, descriptive paper, BURR, J. Bombay Soc. xiv.

Allodahlia n. g. for *Anechura hugeli* and *brachynota*, VERHOEFF, Zool. Anz. xxv, p. 194.
Anechura eoa, Askold Id., SEMENOW, Rev. Russe Ent. ii, p. 100, n. sp.
Anisolabis kudagæ, Ceylon, BURR, J. Bombay Soc. xiv, p. 320 ; *A. cæca*, Argentina, BORELLI, Boll. Mus. Torino 1902, No. 418, p. 2 : n. spp.
Apachys javanus, Java, VERHOEFF, Zool. Anz. xxv, p. 200, n. sp.
Apterygida lingua, Java, BURR, Termes. Fuzetek xxv, p. 486, pl. xx, fig. 8, n. sp.
Bormansia n. g. for *B. africana*, *impressicollis*, n. spp., E. Africa, VERHOEFF, Zool. Anz. xxv, p. 184.
Brachylabis philetas, Ceylon, BURR, J. Bombay Soc. xiv, p. 322, n. sp.
Chætospania stella, New Guinea, BURR, Termes. Fuzetek xxv, p. 483, pl. xx, fig. 6, n. sp.
Chelidurella n. g. for *C. acanthopygia* and *mutica*, VERHOEFF, Zool. Anz. xxv, p. 187.
Chelidurides ; redefined with n. subfam. *Isolabellinæ*, VERHOEFF, SB. Ges. naturf. Berlin 1902, p. 15.

Chelisochella n. g. for *C. superba* Dohrn, etc., VERHOEFF, Zool. Anz. xxv, p. 196.
Cosmiella n. g. for *C. aptera*, n. sp., Java, *dubia* Borm., and *rebus* Burr, VERHOEFF, t. c. p. 195.
Ctenisolabis n. g., p. 11, for *C. togoensis*, n. sp., Africa, p. 14, VERHOEFF, SB. Ges. naturf. Berlin 1902.
Forficula ætolica, in Russia, ADELUNG, Annuaire Mus. St. Petersb. vii, p. xii.
F. vicaria, Korea, SEMENOW, Rev. Russe Ent. ii, p. 99, n. sp.
Gonolabidæ n. fam., VERHOEFF, SB. Ges. naturf. Berlin 1902, p. 7.
Gonolabina n. g. for *G. kuhlgatzi*, Chili, VERHOEFF, t. c. p. 8.
Gonolabis silvestrii, Patagonia, BORELLI, Boll. Mus. Torino 1902, No. 418, p. 4, n. sp.
Isolabella n. g., p. 15, for *I. græca*, n. sp., Greece, p. 16, VERHOEFF, SB. Ges. naturf. Berlin 1902.
Isolabis n. g., p. 11, for *I. braueri*, n. sp., Africa, p. 14, VERHOEFF, t. c.
Isolabidæ n. fam. for *Isolabis*, *Ctenisolabis*, *Leptisolabis*, qq.v., VERHOEFF, t. c. p. 10.
Karschiella n. g., p. 183, for *Pygidicrana buttneri* and *K. camerunensis*, n. sp., Africa, p. 184, VERHOEFF, Zool. Anz. xxv.
Labia sicaria, New Guinea, BURR, Termes. Fuzetek xxv, p. 482, pl. xx, fig. 4, n. sp.
Leptisolabis n. g. for *L. usambarana*, p. 12, *theoriæ*, p. 13, n. spp., E. Africa, VERHOEFF, SB. Ges. naturf. Berlin 1902.
Mesochelidura n. g. for *C. bolivari* Borm., VERHOEFF, Zool. Anz. xxv, p. 187.
Nannopygia merged in *Diplatys*, BURR, J. Bombay Soc. xiv, p. 74.
Neolobophora tamul, Ceylon, BURR, t. c. p. 67, n. sp.
Nesogaster n. g. for *N. fruhstorferi*, n. sp., Celebes, VERHOEFF, Zool. Anz. xxv, p. 191.
Nesogastrella n. g. for *N. ruficeps*, n. sp., Borneo, VERHOEFF, t. c. p. 192.
Opisthocosmia neolobophoroides, Ceylon, BURR, J. Bombay Soc. xiv, p. 335; *O. biroi*, New Guinea, BURR, Termes. Fuzetek xxv, p. 485, pl. xx, fig. 7 : n. spp.
Platylabia quadrata, New Guinea, BURR, t. c. p. 482, pl. xx, fig. 4, n. sp.
Pseudochelidura n. g. for part of *Chelidura*, VERHOEFF, Zool. Anz. xxv, p. 196.
Pterygida n. g. for *Apt. jagori* and *circulata*, VERHOEFF, t. c. p. 197.
Sparattina n. g. for *S. flavicollis*, n. sp., Java, VERHOEFF, t. c. p. 198.
Spongiphora nigrorufa, New Guinea, BURR, Termes. Fuzetek xxv, p. 480, pl. xx, fig. 3, n. sp.
Strongylopsalis inca, note, SEMENOW, Rev. Russe Ent. ii, p. 102.

HEMIMERIDÆ.

Hemimerus a suborder of *Dermaptera* to be called *Dermodermaptera*; abdominal morphology, VERHOEFF, SB. Ges. naturf. Berlin 1902, pp. 87–89.
Hemimerus talpoides, habits, *H. hanseni* Sharp is this species, POCHE, Zool. Anz. xxv, p. 667.

BLATTIDÆ.

[Cf. CAUDELL (217), DISTANT (332), MARLATT (867), REHN (1126), VERHOEFF (1408).]

Oothecaria; new order to consist of two suborders *Blattodea* and *Mantodea* VERHOEFF, Zool. Anz. xxvi, pp. 29–31.
Blattidæ; nomenclatorial notes, REHN, Ent. News Philad. xiii, p. 101.

Derocalymma elateroides, fig. 13, *intermedia*, fig. 17, *clavigera*, fig. 18, pl. i, DISTANT, Ins. transvaal. pp. 27, 28.
Elliptoblatta uniformis, pl. 1, fig. 19, DISTANT, t. c. p. 25.
Homœogamia subdiaphana, ♀, REHN, P. Ac. Philad. liv, p. 717.
Latindia schwarzi, Arizona, CAUDELL, P. ent. Soc. Washington v, p. 165, n. sp.
Pilema saussurei, pl. 1, fig. 16, DISTANT, Ins. transvaal. p. 26.
Pronaonota cribrosa, male, pl. 1, fig. 14, DISTANT, t. c. p. 25.
Stenopilema pallicornis, pl. i, fig. 15, DISTANT, t. c. p. 26.

MANTIDÆ.

[Cf. CAUDELL (217), DISTANT (332), FINOT (438), GIARDINA (354), KRAUSS (737), MARSHALL (868), VERHOEFF (1408), VOSSELER (1429).]

Biology of *Mantidæ*, specially of *M. religiosa*, formation of ootheca, early stages, oothecas of other species, GIARDINA (354).
Food-habits, MARSHALL & POULTON (868).
S. African *Mantidæ*, DISTANT, Ins. transvaal. pp. 29–42.
Introduction of Mantids to N. America, SLINGERLAND (1288).

Acanthomantis rendalli, pl. ii, fig. 6, DISTANT, Ins. transvaal. p. 41.
Blepharopsis n. n. for *Blepharis* Serv., REHN, Canad. Ent. xxxiv, p. 316.
Eremiaphila denticollis, characters and habits, p. 347, *numida*, p. 349, VOSSELER, Zool. Jahrb Syst. xvi; *E. barbara*, characters, KRAUSS, Verh. Ges. Wien lii, p. 234, cuts.
Idolomorpha; ootheca, VOSSELER, Zool. Jahrb. Syst. xvi, p. 351, pl. xvii, fig. 1.
Mantis religiosa and victims at Reims, BELLEVOYE, Bull. Soc. Reims x, pp. 20–30; *M. religosa* and "Chinese *Mantis*," *Tenodera* ?, in N. America, SMITH, Rep. N. Jersey exp. Stat. 1901, pp. 501–504, pls.
Severinia n. g. for *Heterochæta lemoroi* Fin., FINOT, Ann. Soc. ent. Belgique xlvi, p. 432.
Solygia distanti, pl. ii, fig. 5, DISTANT, Ins. transvaal. p. 38.
Tarachodes smithi, Somaliland, REHN, P. Ac. Philad. 1901, p. 278 (overlooked last year), n. sp.

PHASMIDÆ.

[Cf. ANNANDALE (28), CAUDELL (218), DISTANT (332), HANITSCH (580), KARAWAEW (666), KIRBY (700), REHN (1122), TEPPER (1360).]

Eggs of *Cyphocrania* and *Phyllium pulchrifolium*, KARAWAEW, Mem. Soc. Kiev xvii, pp. 317–327 (in Russian).
Phasmidæ of S. Africa, DISTANT, Ins. transvaal. pp. 42–48.
List of Australian and Polynesian *Phasmidæ*, TEPPER (1360).
Notes on habits of Malayan, ANNANDALE, P. Phys. Soc. Edinb. xiv, pp. 439–442.

Bacillus palmeri, Mexico, CAUDELL, Ent. News Philad. xiii, p. 274, n. sp.
Bactrododema lugardi, p. 448, *wayi*, p. 449, Trop. Africa, KIRBY, Ann. Nat. Hist. ix; *B. aculiferum*, Transvaal, KIRBY, in Distant Ins. transvaal. p. 47, pl. ii, figg. 1, 2 : n. spp.
Eurycnema herculeana, ♀, parthenogenesis, HANITSCH, J. Straits Asiat. Soc. 38, pp. 35–38.
Hyrtacus carinatus, Barberton, KIRBY, in Distant Ins. transvaal. p. 46, pl. ii, figg. 3, 4, n. sp.
Sermyle arbuscula, California, REHN, Canad. Ent. xxxiv, p. 141, n. sp.
Tinema californica; taxonomy doubtful, CAUDELL, P. ent. Soc. Washington v, p. 73.

GRYLLIDÆ.

[Cf. BARRETT (69), BOLIVAR (122), BORDAS (129, 130), CAUDELL (219), KRAUSS (738), MIALL & GILSON (916), REHN (1126), SCUDDER (1238, 1239).]

Aquatic cricket, cf. *Hydropedeticus*.
Malpighian tubes, BORDAS (129, 130).

Brachytrupes megacephalus, habits, KRAUSS, Verh. Ges. Wien lii, p. 249.
Ellipes n. g. (= *Heteropus* Sauss.) for *Tridactylus minutus*, SCUDDER, Psyche ix, p. 308.
Gryllus domesticus, habits in Sahara, KRAUSS, Verh. Ges. Wien lii, p. 250.
G. palmetorum, p. 250, *hygrophilus*, p. 251, Sahara, KRAUSS, t. c.; *G. armatus*, p. 293, *firmus*, *rubens*, p. 295, N. America, SCUDDER, Psyche ix; *G. alogus*, New Mexico, REHN, P. Ac. Philad. liv, p. 725 : n. spp.
Hydropedeticus n. g. *Trigonidiides*, for *H. vitiensis*, n. sp., Fiji, MIALL & GILSON, Tr. ent. Soc. London 1902, p. 284, pls. vii, viii.
Miogryllus oklahomæ, Indian Territory, CAUDELL, Tr. Amer. ent. Soc. xxxv, p. 90, n. sp.
Scapteriscus didactylus in Porto Rico, BARRETT (69).

LOCUSTIDÆ.

[Cf. ADELUNG (2), BOLIVAR (126, 127), CAUDELL (219, 220), KIRBY (703), MCCLUNG (881), MONTI (924), NAVÁS (940), REHN (1121, 1126), SJÖSTEDT (1274), VOSSELER (1429–1431), WERNER (1486).]

Habits and internal anatomy of *Dolichopoda*, MONTI (924).
Defensive exudations of *Locustidæ*, VOSSELER, Zool. Jahrb. Syst. xvii, pp. 52–83.

Æmodogryllus n. g. *Stenopelmatides*, p. 66, for *Æ. brunneri*, n. sp., Japan, p. 67, ADELUNG, Annuaire Mus. St. Petersb. vii.
Agnapha longipes, p. 195, *rufosignata*, p. 196, New Guinea, BOLIVAR, Termes. Fuzetek xxv, n. spp.
Aphroptera n. g. *Phaneropterinæ* near *Acridopeza*, for *A. biroi*, n. sp., New Guinea, BOLIVAR, t. c. p. 181.
Arantia melanotus, W. Africa, SJÖSTEDT, Bih. Svenska Ak. xxvii, No. 3, p. 6, pl. ii, fig. 1, n. sp.
Bongeia n. g., *Psyræ*, for *B. puncticollis*, n. sp., W. Africa, SJÖSTEDT, t. c. p. 9, pl. iv, fig. 3.
Cœdicia chyzeri, p. 182, *clavata*, *chloronota*, p. 183, *affinis*, p. 184, *flexuosa*, p. 185, New Guinea, BOLIVAR, Termes. Fuzetek xxv, n. spp.
Corycus karschi ♀, SJÖSTEDT, Bih. Svenska Ak. xxvii, No. 3, p. 26, pl. iii, fig. 3.
C. siccifolium, Gaboon, SJÖSTEDT, t. c. p. 25, pl. i, fig. 2, n. sp.
Cosmoderus femoralis, W. Africa, SJÖSTEDT, t. c. p. 41, n. sp.
Dapanera genuteres, pl. iv, fig. 1, SJÖSTEDT, t. c. p. 11.
Decticus verrucivorus var. n. *buyssoni*, AZAM, Rev. Sci. Bourbonnais xv, p. 39.
Diastellidea n. g. *Phaneropterinæ*, p. 186, for *D. pisifolia*, n. sp., New Guinea, p. 187, BOLIVAR, Termes. Fuzetek xxv.
Dichopetala brevihastata n. n. for *D. brevicauda* Scudder, MORSE, Psyche ix, p. 381.
Ephippigera seoanei var. n. *læta*, NAVÁS, Bol. Soc. espan. ii, p. 333.
E. nerii, N. Africa, VOSSELER, Zool. Jahrb. Syst. xvi, p. 398, pl. xviii, figg. 7, 8; *E.* (*Uromenus*) *poncyi*, Atlas, BOLIVAR, Bull. Soc. ent. France 1902, p. 222 : n. spp.
Eremopedes balli, Colorado, CAUDELL, Canad. Ent. xxxiv, p. 100, n. sp.

Eugaster; ecdysis, spermatophores, squirting mechanism and fluid, VOSSELER, Zool. Jahrb. Syst. xvii, pp. 48 etc.
Eurycorypha montana, Cameroons, SJÖSTEDT, Bih. Svenska Ak. xxvii, No. 3, p. 20, pl. iii, fig. 2, n. sp.
Gravenreuthia saturata, pl. iii, fig. 1, SJÖSTEDT, t. c. p. 17.
Gryllodes carrascoi, Spain, BOLIVAR, Bol. Soc. espan. ii, p. 87, n. sp.
Gymnæta n. g. *Stenopelmatides*, p. 62, for *G. beresowskii*, p. 63, *gansuicus*, p. 64, n. spp., W. China, ADELUNG, Annuaire Mus. St. Petersb. vii.
Itokiia n. g. *Psyræ*, for *I. silvarum*, n. sp., W. Africa, SJÖSTEDT, Bih. Svenska Ak. xxvii, No. 3, p. 10.
Lichenochrus marmoratus, p. 32, *maculosus*, p. 34, pl. ii, fig. 2, *flavifrons*, p. 35, W. Africa, SJÖSTEDT, t. c., n. spp.
Magrettia zarudnyi, p. 72, *persica*, p. 73, Persia, ADELUNG, Annuaire Mus. St. Petersb. vii, n. spp.
Mangomaloba n. g. *Poreuomenæ*, p. 14, for *M. monticola*, n. sp., Cameroons, p. 15, pl. iii, fig. 4, SJÖSTEDT, Bih. Svenska Ak. xxvii, No. 3.
Miltinobates n. g. *Poreuomenæ*, p. 15, for *M. blandus*, n. sp., Congo, p. 16, pl. iv, fig. 2, SJÖSTEDT, t. c.
Mustius superbus, Cameroons, SJÖSTEDT, t. c. p. 29, n. sp.
Orchesticus nigromarginata, Texas, CAUDELL, Tr. Amer. ent. Soc. xxxv, p. 89, n. sp.
Orchestridoptera n. g. *Pseudophyllidæ* near *Mormotus*, p. 36, for *O. rufipes*, n. sp., W. Africa, p. 37, pl. i, fig. 1, SJÖSTEDT, Bih. Svenska Ak. xxvii, No. 3.
Paracœdicia (*Procœdicia* subg. n., p. 189) *regia*, *dimidiata*, p. 191, *terminalis*, p. 192, *P. melanocondyles*, *femorata*, p. 193, *centrifera*, p. 194, *proxima*, p. 195, New Guinea, BOLIVAR, Termes. Fuzetek xxv, n. spp.
Parapolichne subg. n., cf. *Polichne*.
Phrixocnemis hastiferus, Arizona, REHN, Ent. News Philad. xiii, p. 241, n. sp.
Platystolus; spermatophores, p. 49, squirting apparatus, p. 55, VOSSELER, Zool. Jahrb. Syst. xvii.
Pleminia personata, Cameroons, SJÖSTEDT, Bih. Svenska Ak. xxvii, No. 3, p. 31, n. sp.
Pœcilimon holtzi, Greece, WERNER, Berlin. ent. Zeitschr. 1902, p. 116, n. sp.
Polichne (*Parapolichne* subg. n.) *elegantula*, p. 188, *P. huoniensis*, p. 189, New Guinea, BOLIVAR, Termes. Fuzetek xxv, n. spp.
Pomatonota bipunctata, Natal, KIRBY, Entomologist 1902, p. 22, n. sp.
Poreuomena forcipata, Cameroons, SJÖSTEDT, Bih. Svenska Ak. xxvii, No. 3, p. 12, pl. ii, figg. 3, 4, n. sp.
Procœdicia subg. n., cf. *Paracœdicia*.
Pseudophyllus harrisoni, Sumatra, REHN, P. Ac. Philad. liv, p. 21, n. sp.
Pycnogaster; synopsis of Spanish, NAVÁS, Bol. Soc. espan. ii, pp. 266–270.
Scudderia texensis (cranberry Katydid), natural history, ovaries etc., SMITH, Rep. N. Jersey exp. Stat. 1901, pp. 511–526, pls.
Stenopelmatus terrenus, Texas, REHN, Ent. News Philad. xiii, p. 240, n. sp.
Tachycines n. g. *Stenopelmatides*, p. 56, for *T. asynamorus*, n. sp., St. Petersburg imported, p. 59, ADELUNG, Annuaire Mus. St. Petersb. vii.
Udeopsylla vierecki, New Mexico, REHN, P. Ac. Philad. liv, p. 725, n. sp.
Xiphidium senegalense ♂, SJÖSTEDT, Bih. Svenska Ak. xxvii, No. 3, p. 40.

ACRIDIIDÆ (= Locustidæ of some authors).

[Cf. BOLIVAR (122, 124, 125), BRUNER (173, 174, 545), BURR (180), CAUDELL (219, 221), FINOT (437–439), GIARDINA (535), HANCOCK (578), KIRBY (697–699, 701, 702), KRAUSS (738), LAMEERE (762), REHN (1120, 1122, 1124–1126), SNODGRASS (1312), VOSSELER (1429, 1430), WALKER (1435, 1436), WOODWORTH (1501).]

Oviposition and ootheca of *Acridiidæ*, GIARDINA (535).
Stink-glands ; *Œdaleus* etc., VOSSELER, Zool. Jahrb. Syst. xvii, p. 83, pl. ii.
BRUNER, in his first report (173) discusses the natural history and ravages of *Schistocerca paranensis*, and figures the instars.
BRUNER, in his second report (174) revises the *Acridiidæ* of Argentina, describing numerous new forms.
Aquatic *Acridiidæ* in Ceylon, GREEN, Ent. Mag. xxxviii, p. 214.
Habits and development of N. American *Tettigidæ*, HANCOCK (578).
KIRBY's paper on S. African Locustidæ contains synonymical discussions for which reference must be made to the paper itself (698).

Acrida = (*Truxalis* Fabr.), monograph, BURR, Tr. ent. Soc. London 1902, pp. 149–187 ; *A.* (*Acridella*) *unguiculata* var. n. *indica*, BOLIVAR, Ann. Soc. ent. France 1902. *Acrida*, cf. *Tryxalis*.
A. liberta, W. Africa, p. 160, *intercalata*, Madagascar, p. 162, *lugubris*, E. Asia, Malay Arch., p. 170, *subtilis*, Madagascar, *propinqua*, Africa, p. 171, *somalia*, Somaliland, p. 177, BURR, Tr. ent. Soc. London 1902 ; *A. rendalli*, p. 62, *aspersata*, p. 63, S. Africa, KIRBY, Tr. ent. Soc. London 1902 : n. spp.
Acridoderes punctatus, Transvaal, KIRBY, t. c. p. 239, n. sp.
Acrotylus femoralis, p. 233, *zonatus*, p. 234, *annulatus*, p. 235, *saltator*, p. 236, *gillettæ*, p. 237, S. Africa, KIRBY, t. c., n. spp.
Acrydium and *Locusta* ; nomenclatorial, REHN, Ent. News Philad. xiii, p. 102.
A. distanti, Transvaal, KIRBY, Tr. ent. Soc. London 1902, p. 59, n. sp.
Æoloplus chenopodii arcuatus, subsp. n., REHN, Canad. Ent. xxxiv, p. 146.
Apotettix n. g., p. 99, with *A. eurycephalus*, Texas, n. sp., p. 102, and var. *brevipennis*, p. 103, HANCOCK, Tettig. N. Amer.
Aptenopedes clara, Florida, REHN, Ent. News Philad. xiii, p. 14, n. sp.
Arphia ramona, p. 142, *hesperiphila*, p. 143, California, REHN, Canad. Ent. xxxiv, n. spp.
Aulacobothrus n. g. near *Stenobothrus*, p. 597, for *A. strictus*, p. 598, *socius*, *infernus*, p. 599, *tæniatus*, p. 600, n. spp., E. India, BOLIVAR, Ann. Soc. ent. France 1901.
Bibracte rugulosa, India, BOLIVAR, t. c. p. 620, n. sp.
Calliptamus antennatus, p. 109, *tibialis*, p. 110, Transvaal, KIRBY, Tr. ent. Soc. London 1902, n. spp.
Caloptenopsis crassiusculus, redescribed, BOLIVAR, Ann. Soc. ent. France 1901, p. 628.
C. johnstoni, Uganda, KIRBY, P. Zool. Soc. London 1902, i, p. 101 ; *C. femoralis*, S. Africa, KIRBY, Ann. Nat. Hist. x, p. 241 ; *C. fratercula*, p. 111, *uniformis*, p. 112, Transvaal, KIRBY, Tr. ent. Soc. London 1902 : n. spp.
Caloptenus italicus var. n. *deserticola*, VOSSELER, Zool. Jahrb. Syst. xvi, p. 395.
Capellea n. g. near *Metopa*, for *C. argenteo-vittata*, n. sp., E. India, BOLIVAR, Ann. Soc. ent. France 1901, p. 616.
Castetsia n. g. near *Praxilla*, for *C. dispar*, n. sp., E. India, BOLIVAR, t. c. p. 614.
Catantops humilis var. n. *interruptus*, BOLIVAR, t. c. p. 625.
C. indicus, *acuticercus*, p. 626, *angustulus*, p. 627, India, id. t. c. ; *C. vittata*, p. 106, *arania*, p. 107, S. Africa, KIRBY, Tr. ent. Soc. London 1902 : n. spp.
Chlæobora grossa, amended characters, BOLIVAR, Ann. Soc. ent. France 1901, p. 604.
C. thalassina, Uganda, KIRBY, P. Zool. Soc. London 1902, i, p. 96, n. sp.
Choriphyllum westwoodi, *foliatum*, Jamaica, HANCOCK, Tettig. N. Amer. p. 42, n. spp.

Chortoicetes interruptus, Transvaal, KIRBY, Tr. ent. Soc. London 1902, p. 232, n. sp.

Chrotogonus brachypterus, E. India, BOLIVAR, Ann. Soc. ent. France 1901, p. 605 ; *C. angustipennis*, p. 77, *capitatus*, *distanti*, p. 78, *rendalli*, p. 79, *carinatus*, *rotundatus*, p. 80, *johnstoni*, p. 81, S. Africa, KIRBY, Tr. ent. Soc. London 1902 : n. spp.

Clypeotettix n. g. for *Paratettix schochi*, HANCOCK, Tettig. N. Amer. p. 123.

Coptacra ensifera, India, BOLIVAR, Ann. Soc. ent. France 1901, p. 621 ; *C. pauperula*, Transvaal, KIRBY, Tr. ent. Soc. London 1902, p. 238 : n. spp.

Coptacrella n. g. near *Coptacra*, for *C. martini*, n. sp., India, BOLIVAR, Ann. Soc. ent. France 1901, p. 622.

Criotettix indicus, p. 581, *flavopictus*, p. 582, *exsertus*, p. 583, E. India, BOLIVAR, t. c., n. spp.

Cyrtacanthacris pallidicornis n. n. for *ruficornis* Burm., KIRBY, P. Zool. Soc. London 1902, i, p. 99.

C. distanti, S. Africa, KIRBY, Tr. ent. Soc. London 1902, p. 103, n. sp.

Diablepia n. g. near *Phlæoba*, p. 68, for *D. viridis*, n. sp., Transvaal, p. 69, KIRBY, t. c.

Dichroatettix n. g. near *Stenobothrus*, p. 32, for *D. viridifrons*, n. sp., Argentina, p. 33, BRUNER, 2nd Rep. Locust Comm.

Dichromorpha australis, Argentina, BRUNER, t. c. p. 28, n. sp.

Dichroplus obscurus, *cinereus*, p. 73, *pratensis*, p. 74, *conspersus*, p. 76, *vittatus*, p. 77, Argentina, BRUNER, t. c., n. spp.

Diponthus schulzi, p. 63, *communis*, p. 64, Argentina, BRUNER, t. c., n. spp.

Dittopternis? rosacea, S. Africa, KIRBY, Ann. Nat. Hist. x, p. 240, n. sp.

Egnatioides n. g. near *Leptoscirtus* for *E. striatus*, n. sp., Algeria, pl. xvii, figg. 5–7, VOSSELER, Zool. Jahrb. Syst. xvi, p. 361.

Elæochlora angustipennis, Argentina, BRUNER, 2nd Rep. Locust Comm. p. 58, n. sp.

Encoptolophus subgracilis, Arizona, CAUDELL, P. ent. Soc. Washington v, p. 164, n. sp.

Epacromia affinis, E. India, BOLIVAR, Ann. Soc. ent. France 1901, p. 600, n. sp.

Epamontor n. g. near *Maura*, p. 87, for *E. antennalis*, n. sp., Transvaal, p. 88, KIRBY, Tr. ent. Soc. London 1902.

Epistaurus sinetyi, Trichinopoly, BOLIVAR, Ann. Soc. ent. France 1901, p. 623, n. sp.

Eremobia claveli var. n. *mozabitica*, KRAUSS, Verh. Ges. Wien lii, p. 244.

Eremogryllus n. g. *Truxalinarum*, p. 238, for *E. hammadæ*, n. sp., Sahara, p. 239, t. c.

Eucoptacra n. g. for *Copt. præmorsa* Stål, BOLIVAR, Ann. Soc. ent. France 1901, p. 623.

Euplectrotettix n. g. near *Plectrotettix*, p. 38, for *E. ferrugineus*, p. 39, *conspersus*, p. 40, *schulzi*, p. 41, *prasinus*, p. 42, n. spp., Argentina, BRUNER, 2nd Rep. Locust Comm.

Euprepocnemis pulchra, India, BOLIVAR, Ann. Soc. ent. France 1901, p. 630, n. sp.

Eupropacris genuale Walk. (as *Acridium*), redescribed, KIRBY, Tr. ent. Soc. London 1902, p. 105.

Euthymia saussurei, p. 625, *bolivari*, p. 627, Madagascar, *kirbyi*, India, p. 629, *scudderi*, p. 630, *kraussi*, p. 632, *brunneri*, p. 633, Madagascar, FINOT, Ann. Soc. ent. France 1902, n. spp.

Eutryxalis n. g. *Tryxalinæ*, for *Metaleptea minor*, and *E. strigata*, n. sp., Argentina, BRUNER, 2nd Rep. Locust Comm. p. 24.

Fenestra pulchripennis, p. 30, *intermedia*, *argentina*, p. 31, Argentina, BRUNER, t. c., n. spp.

Gastrimargus acutangulus Stål nec Sauss. described, KIRBY, Tr. ent. Soc. London 1902, p. 72.
Gelastorrhinus, transferred to *Truxalidæ*, BURR, Ent. Rec. xiv, p. 40.
G. tryxaloides, India, BOLIVAR, Ann. Soc. ent. France 1901, p. 617; *G. selache*, Sikkim, *lucius*, Java, p. 182, *esox*, Japan, p. 183, BURR, Tr. ent. Soc. London 1902 : n. spp.
Græa monstrosa, Argentina, BRUNER, 2nd Rep. Locust Comm. p. 52, n. sp.
Gymnobothrus indicus, E. India, BOLIVAR, Ann. Soc. ent. France 1901, p. 596, n. sp.
Halmenus choristopterus, *cuspidatus*, Galapagos Ids., SNODGRASS, P. Washington Ac. iv, p. 450, n. spp.
Helioscirtus fonti, Rio de Oro, BOLIVAR, An. Soc. Espan. ii, p. 291; *H. gracilis*, Gafsa, VOSSELER, Zool. Jahrb. Syst. xvi, p. 368 : n. spp.
Heteracris bettoni, E. Africa, KIRBY, P. Zool. Soc. London 1902, i, p. 100, n. sp.
Heteropternis vittata, Zomba, KIRBY, Tr. ent. Soc. London 1902, p. 75; *H. guttifera*, *saussurei*, p. 240, *pallida*, p. 241, S. Africa, KIRBY, Ann. Nat. Hist. x : n. spp.
Hyalopteryx exaggeratus, Bolivia, BURR, Tr. ent. Soc. London 1902, p. 183, n. sp.
Jodacris? nebulosa, p. 67, *cæruleipennis*, p. 68, Argentina, BRUNER, 2nd Rep. Locust Comm., n. spp.
Lactista boscanus, Texas, REHN, P. Ac. Philad. liv, p. 721, n. sp.
Leprus wheeleri ♂, COCKERELL, Ent. News Philad. xiii, p. 305.
Leptopternis maculata, p. 380, pl. xvii, fig. 14, *calcarata*, p. 382, pl. xviii, figg. 9, 10, N. Africa, VOSSELER, Zool. Jahrb. Syst. xvi, n. spp.
Leptoscirtus aviculus, note on, VOSSELER, t. c. p. 363.
Lerina n. g. near *Celes*, p. 602, for *L. œdipodioides*, n. sp., E. India, p. 603, BOLIVAR, Ann. Soc. ent. France 1901.
Ligurotettix kunzei, Arizona, CAUDELL, P. ent. Soc. Washington v, p. 162, n. sp.
Madurea n. g. near *Gymnobothrus*, p. 596, for *M. cephalotes*, n. sp., E. India, p. 597, BOLIVAR, Ann. Soc. ent. France 1901.
Maura atriceps, *flavomaculata*, p. 86, *bolivari*, p. 87, S. Africa, KIRBY, Tr. ent. Soc. London 1902, n. spp.
Mazarredia cristulata, E. India, BOLIVAR, Ann. Soc. ent. France 1901, n. sp.
Mecostethus magister, Japan, REHN, P. Ac. Philad. liv, p. 631, n. sp.
Melanoplus inconspicuus, Indian Territory, CAUDELL, Tr. Amer. ent. Soc. xxxv, p. 87; *M. brownii*, Arizona, CAUDELL, Canad. Ent. xxxiv, p. 169 : n. spp.
Mermiria texana, early stages, COCKERELL, Pysche ix, p. 430.
Micronotus n. g. *Tettigidæ*, for *T. quadriundulatus* Brunn., HANCOCK, Tettig. N. Amer. p. 97.
Nomotettix floridanus, p. 64, *armatus*, p. 65, HANCOCK, t. c., n. spp.
Neotettix bolivari var. n. *longipennis*, HANCOCK, t. c. p. 165.
N. coarctatus, *variabilis*, Florida, HANCOCK, t. c. p. 165, n. spp.
Nephele gracilis, Buenos Aires, BRUNER, 2nd Rep. Locust Comm. p. 15, n. sp.
Notopleura n. g. near *Stauronotus*, p. 240, for *N. saharica*, n. sp., Sahara, p. 241, KRAUSS, Verh. Ges. Wien lii.
N. pygmæa, Gabès, VOSSELER, Zool. Jahrb. Syst. xvi, p. 356, pl. xvii, figg. 2, 3, n. sp.
Ochrilidia longiceps, E. India, BOLIVAR, Ann. Soc. ent. France 1901, p. 595, n. sp.
Oenerodes brunneri var. n. *cyanipes*, BOLIVAR, Bol. Soc. espan. ii, p. 86.
Œdaleus nigrofasciatus, variation, REHN, P. Ac. Philad. liv, pp. 632–634.
Opaon n. g. near *Opomala*, p. 380, for *O. granulosus*, n. sp., Ecuador, p. 381, cut, KIRBY, Ann. Nat. Hist. x.

Orthacris ruficornis, p. 608, *elegans*, p. 609, *acuticeps*, p. 610, *simulans*, p. 611, E. India, BOLIVAR, Ann. Soc. ent. France 1901, n. spp.

Pamphagus marmoratus var. n. *tunetanus*, VOSSELER, p. 391, pl. xviii, fig. 3, Zool. Jahrb. Syst. xvi.

P. djelfensis, N. Africa, id. p. 392, pl. xviii, figg. 4–6; *P. punctatus*, Spain, BOLIVAR, Bol. Soc. espan. ii, p. 86 : n. spp.

Paraeuprepocnemis pictipes, India, BOLIVAR, Ann. Soc. ent. France 1901, p. 631, n. sp.

Paraphlæoba n. g. with subg. n. *Phlæobida*, p. 592, with *P. platyceps*, *carinata*, *simoni*, p. 592, *P.* (*Phlæobida*) *angustipennis*, p. 592, n. spp., E. India, BOLIVAR, t. c.

Parapleurus fastigiatus, Japan, REHN, P. Ac. Philad. liv, p. 629, n. sp.

Paratettix carinata, Transvaal, KIRBY, Trans. ent. Soc. London 1902, p. 59; *P. texanus*, p. 113, pl. viii, figg. 4, 5, *tuberculatus*, Mexico, fig. 3, p. 117, *morsei*, California, p. 119, figg. 10, 11, *robustus*, Wyoming, p. 121, HANCOCK, Tettig. N. Amer. : n. spp.

Parorphula n. g. *Tryxalinæ*, p. 25, for *P. graminea*, *pallidinota*, p. 26, *strigata*, p. 27, n. spp., Argentina, BRUNER, 2nd Rep. Locust Comm.

Pelecinotus n. g. near *Ecphantus*, p. 619, for *P. brachypterus*, *cristagalli*, n. spp., India, p. 620, BOLIVAR, Ann. Soc. ent. France 1901.

Phlæoba rufescens, Uganda, KIRBY, P. Zool. Soc. London 1902, i, p. 95; *P. panteli*, p. 589, *augustidorsis*, p. 590, E. India, BOLIVAR, Ann. Soc. ent. France 1901 : n. spp.

Phlæobida subg. n., cf. *Paraphlæoba*.

Phrynotettix taosanus, Texas, REHN, P. Ac. Philad. liv, p. 597; *P. magellanicus*, Magellan, BRUNER, 2nd Rep. Locust Comm. p. 44 : n. spp.

Phyllonotus n. g. for part of *Choriphyllum* Bol., p. 45, HANCOCK, Tettig. N. Amer.

Phyllotettix n. n. for *Phyllonotus*, HANCOCK, Ent. News Philad. xiii, p. 188.

Platypterna gracilis, p. 236, *filicornis*, p. 237, Sahara, KRAUSS, Verh. Ges. Wien lii, n. spp.

Plectrotettix pictus, Argentina, BRUNER, 2nd Rep. Locust Comm. p. 37, n. sp.

Podisma mikado, male, REHN, P. Ac. Philad. liv, p. 637.

Pœcilotettix n. g. for *P. gibbiceps*, n. sp., E. India, BOLIVAR, Ann. Soc. ent. France 1901, p. 580.

Pyrgomorpha indica, p. 606, *aptera*, p. 607, E. India, BOLIVAR, t. c., n. spp.

Schistocerca melanocera varr. n. *minor*, p. 421, *pallida*, p. 422, *lineata*, *immaculata*, p. 423, Galapagos Ids., SNODGRASS, P. Washington Ac. iv; *S. alutacea* and *rubiginosa*, one species, REHN, Ent. News Philad. xiii, p. 89; *S. alutacea*=(*rubiginosum* Scudd.), REHN, t. c. p. 312; *S. peregrina*, egg-masses and young, KRAUSS, Verh. Ges. Wien lii, p. 246.

S. intermedia, p. 431, with var. *borealis*, p. 435, Galapagos Ids., SNODGRASS, P. Washington Ac. iv, n. sp.

Spathalium viridis (sic), p. 48, *obscurum*, *hispidum*, p. 49, *testaceum*, p. 51, Argentina, BRUNER, 2nd Rep. Locust Comm., n. spp.

Sphingonotus desertorum, p. 372, pl. xvii, fig. 12, *diadematus*, p. 376, pl. xvii, fig. 13, and xviii, fig. 12, N. Africa, VOSSELER, Zool. Jahrb. Syst. xvi; *S. vosseleri*, Sahara, KRAUSS, Verh. Ges. Wien lii, p. 242; *S. lameerei*, Algeria, FINOT, Ann. Soc. ent. Belgique xlvi, p. 434; *S. trinesiotis*, with varr. *chathamensis*, p. 439, *indefatigabilensis*, p. 441, *albemarlensis*, p. 443; *S. tetranesiotis*, with varr. *charlesensis*, p. 444, *barringtonensis*, p. 445, *hoodensis*, p. 446, *indefatigabilensis*, p. 447, Galapagos Ids., SNODGRASS, P. Washington Ac. iv : n. spp.

Sphodromerus cruentatus, Algeria, KRAUSS, Verh. Ges. Wien lii, p 247, n. sp.

Stenobothrus and *Gomphocerus*; variation at Reims, BELLEVOYE, Bull. Soc.

Reims x, pp. 31–37; *S. bicolor* var. n. *brunneri*, WERNER, Berlin. ent. Zeitschr. 1902, p. 114.

S. saugiorgii, Cephalonia, FINOT, Bull. Soc. ent. France 1902, p. 53, n. sp.

Stenocrobylus (?) *trifasciatus*, *whytei*, S. Africa, KIRBY, Tr. ent. Soc. London 1902, p. 108; *S. femoratus*, India, BOLIVAR, Ann. Soc. ent. France 1901, p. 628 : n. spp.

Stirapleura mescalero, New Mexico, REHN, P. Ac. Philad. liv, p. 719; *S. signatipennis*, p. 34, *pallida*, p. 35, *variabilis*, *obscura*, p. 36, Argentina, BRUNER, 2nd Rep. Locust Comm. : n. spp.

Systolederus greeni, E. India, BOLIVAR, Ann. Soc. ent. France 1901, p. 584, n. sp.

Telmatettix hesperus, *parviverticis* var. n. p. 130, HANCOCK, Tettig. N. Amer.

T. aridus, California, p. 133, pl. vi, fig. 3, *minutus*, Mexico, p. 134, pl. vii, figg. 5, 6, with var. *rugosus*, p. 135, HANCOCK, t. c., n. spp.

Tettigidea polymorpha var. n. *medialis*, pl. x, fig. 10, HANCOCK, t. c. p. 152; *T. gracilis*, Argentina, BRUNER, 2nd Rep. Locust Comm. p. 17, n. sp.

Tettix blatchleyi, Florida, HANCOCK, Tettig. N. Amer. p. 91, n. sp.

Trimerotropis longicornis, p. 4, *huroniana*, p. 6, *sordida*, p. 9, Canada, WALKER, Canad. Ent. xxxiv, n. spp.

Tropidonotus panteli, E. India, BOLIVAR, Ann. Soc ent. France 1901, p. 612; *T. schulzi*, *conspersus*, Argentina, BRUNER, 2nd Rep. Locust Comm. p. 56 : n. spp.

Tryxalinæ; table of genera of Central America, BRUNER, Biol. Centr.-Amer. Orthopt. ii, pp. 25–32.

Tryxalis not *Acrida* to be used, BRUNNER, P. ent. Soc. London 1902, p. xxxiii.

Xenippa prasina, India, BOLIVAR, Ann. Soc. ent. France 1902, p. 617, n. sp.

Xiphicera gibba, Uganda, KIRBY, P. Zool. Soc. London 1902, i, p. 98; *X. eblis*, p. 93, *rugosipes*, p. 94, *paupercula*, p. 95, *compressa*, p. 96, *granulosa*, *obsoleta*, p. 97, *rendalli*, p. 98, S. Africa, KIRBY, Tr. ent. Soc. London 1902 : n. spp.

Zygophlæoba n. g. near *Phlæoba*, for *Z. sinuaticollis*, *truncaticollis*, n. spp. E. India, BOLIVAR, Ann. Soc. ent. France 1901, p. 591.

XIV. ECHINODERMA.

BY

F. A. Bather.

CONTENTS.

Page

Introduction 3

Addenda et Corrigenda in Previous Records 9

I.—Titles 9

II.—Biology.

A. Evolution.

i General Principles 33

ii Relations of Echinoderma 34

iii Phylogenies of smaller groups 34

B. Morphology.

i Anatomy 34

(This is divided into Classes a—h, as under IV, and each Class is subdivided as follows):—

1. General Accounts.
2. Symmetries.
3. Homologies of Classes.
4. Skeletal tissue or Stereom.
5. Skeletal anatomy.
6. Hydrocoel and associated cavities, Respiratory organs.
7. Coelom and other Body-cavities and their Contents.
8. Digestive system. Cuvierian organs.
9. Nervous systems and sense-organs.
10. Mesodermal tissues (exc. skeletal).
11. Axial organ or Ovoid gland.
12. Generative organs and gonads.

ii Variation:—

a. In form 37

b. In form and surface-characters . . . 37

c. In colour 37

d. Meristic (1 & 2) 37

e. Abnormalities 38

Page

iii Secondary Sexual Characters :—
a. Differences of Form or Structure . . 38
b. Differences of colour 38
c. Protection of young 38

C. Physiology :—
i General 38
ii Circulation 38
iii Respiration 38
iv Alimentation and Digestion 38
v Excretion and its Products 38
vi Sensation 38
vii Miscellanea and Experimental 39

D. Bionomics :—
i General Accounts 39
ii Special habits 39
iii Habitat (in Classes a—h, as under IV) . . 39
iv Feeding (ditto) (ditto) . 39
v Defence and Protection. (a. Active. b. Concealment. c. Protective coloration. d. Other protective adaptations) 39
vi Locomotion 39
vii Autotomy and Regeneration 39
viii Parasites and Commensals (in Classes a—h, as under IV) 40
ix Echinoderms as Food 40
x Echinoderms as Geological Agents . . . 40

E. Miscellaneous :—
i Research and Instruction (a. Preservation. b. Methods of research. c. Museum exhibits and Collections. d. Instruction) . . 41
ii Economics 41
iii Bibliography 41
iv Historical, Popular notions, &c. . . . 42

F. Auxology :—
i General principles 42
ii General accounts 42
iii Formation of Gonads 42
iv Oviposition, Fertilisation, Segmentation . . 42
v Larval stages 43
vi Organogeny, *1–12*, as under II, B, i . . . 43
vii Post-larval growth-stages 44
viii Developmental mechanics and Experimental Embryology 44

(Under each of the above a—h indicate Classes as under IV.)

III.—Distribution.

A. Geographical :—
i General 45
ii Atlantic Ocean and adjacent Seas . . . 45
iii Indian Ocean and adjacent Seas . . . 46
iv Pacific Ocean and adjacent Seas . . . 46
v Arctic Ocean and adjacent Seas . . . 46
vi Antarctic Ocean and adjacent Seas . . . 46

Page

B. Geological :—

i General 46
ii Cainozoic :—
a. General 47
b. Pleistocene 47
c. Pleiocene 47
d. Meiocene 47
e. Oligocene 47
f. Eocene 48

iii Mesozoic :—
a. General 48
b. Cretaceous (*1.* Upper. *2.* Lower) . . 48
c. Jurassic (*1.* Upper. *2.* Middle. *3.* Lower) 51
d. Lias (including Rhaetic) 52
e. Trias 52

iv Palæozoic :—
a. General 53
b. Permian 53
c. Permo-Carboniferous 53
d. Upper Carboniferous 53
e. Lower Carboniferous 53
f. Devonian 53
g. Silurian 54
h. Ordovician 54
k. Cambrian 54
l. Pre-Cambrian . . . . . (Vacant)

IV.—Systematic.

A. Echinoderma, general 54
B. Holothurioidea 55
C. Echinoidea 56
D. Asteroidea 77
E. Ophiuroidea 80
F. Crinoidea 82
G. Cystidea and Edrioasteroidea 87
H. Blastoidea 88
K. Incertæ Sedis 88

INTRODUCTION.

I. Titles. There are 307 numbered items in this list, gathered from the following years: 1872, 1; 1892, 2; 1893, 1; 1895, 2; 1896, 4; 1897, 3; 1898, 3; 1899, 6; 1900, 7; 1901, 25; 1902, 251; 1903, 2. The last two are included as being essentially abstracts or reviews of papers published in 1902 or earlier. Some of the belated titles are due to certain periodicals becoming accessible to the Recorder in 1903 for the first time; among these may specially be mentioned *Bulletin de la Société scientifique et médicale de l'Ouest*, *Proceedings of the Iowa Academy of Sciences*, and *Transactions of the Newbury District Field Club*, all of which are now in the British Museum (Nat. Hist.) and have been searched through from

their first volumes. The totals for the six previous years now stand at: 1896, 215; 1897, 217; 1898, 227; 1899, 260; 1900, 306; 1901, 292. The sudden drop to 251 for 1902 is only apparent, since there are a large number of publications which the Recorder has preferred to postpone till some future year, rather than to include with only such imperfect information as is at present at his command. If any author feels aggrieved that his work has not been noticed he has only to send a copy, *with full bibliographic details*, when prompt attention will be paid to it. Repaged reprints are always laid aside until the volume from which they have been taken can be referred to. This often involves a delay of several years. As illustrating the extraordinary difficulty of seeing papers, even when by writers of repute, and when published under Government auspices in the Proceedings of the chief scientific society of a State, reference may be made to KEYES (151), a paper that might have been of much service to European workers. The richness of our London libraries is remarkable; but the gaps in their collections are more remarkable still. Some people seem to produce books merely to sit on them. For proof of this one need only read the remarks, under ADDENDA ET CORRIGENDA, on an alleged work by MUNIER-CHALMAS, or those that have appeared in previous Records on the work of POMEL. This annual protest is the only opportunity one has of venting the indignation accumulated during twelve months of drudgery. It does not seem to have much effect, but if it only produces in his readers one hundredth part of the weariness and disgust the Recorder feels himself, then it is not without value.

II. BIOLOGY. Philosophers rarely condescend to Crinoids, and it is therefore refreshing to find JAEKEL (134) drawing on that class for examples of the methods of phylogenesis; his terminology for the methods he imagines to have been followed is more novel than the conceptions themselves; in his concrete illustrations, however, he is not merely novel but revolutionary: to regard the *Calceocrinidae* as the starting-point of the *Heterocrinidae*, or the *Cystidea* as derived from various abnormal larvae of *Cladocrinoidea* [*Crinoidea camerata*], or *Uintacrinus* and *Marsupites* as reversions from comatulids, is paralleled by little else than JAEKEL's own hypothesis of the origin of fish from land animals. The paper is stimulating in the highest degree.

K. C. SCHNEIDER (255) has produced a very big book, which contains useful summaries of the minute anatomy of a starfish, a crinoid, and a holothurian; the value of his hypotheses as to the origin and relations of the Echinoderm classes may be estimated from such remarks as these: "Die Crinoiden sind die phylogenetisch ältesten Formen", "eine Reihe von Merkmalen sich von den Verhältnissen der Alcyonarier ableiten lassen"; "bei den uebrigen Echinodermen liegt der Mund dauernd in Benachbarung des apicalen Poles": obviously the author has not been prejudiced by the opinions of previous writers on Echinoderms. MASTERMAN'S account of the embryonic and larval stages of *Cribrella* (195) makes known a new type of irregular segmentation, resulting in a morula, from which the interior cells migrate outwards, tending to produce a blastula, when gastrulation intervenes. In the history of the coelom, Masterman recognises, in addition to the usual features, a central coelom developed from the posterior wall of the anterior coelom, and a fusion of the right and left posterior coeloms; he discusses the homologies of these with those recognised in other classes and with the body-cavities of the adult; some light is thus thrown on Grave's account of Ophiuran development. Except for the slight modification entailed on the homology of the posterior coeloms, Masterman's theory agrees, in its main lines, with the evolution of *Dipleurula*, Crinoid, and Asteroid maintained in BATHER (14A). The article last mentioned, written of course in 1900, discusses the trend of Echinoderm morphology during the last quarter of the century, criticising

the various theories, and elaborating the views already expressed in (19) Zool. Rec. 1900, and (18) Zool. Rec. 1901. The memoir (245) in which RUSSO sums up his researches, expresses somewhat different views. In Holothurians, he says, the sexual cells originate (*a*) in the wall of a mesentery formed by the coalescence of the horns of the left posterior coelom. The same is the case in Crinoids, but here this series *a* disappears at the end of the larval stage, while there are added two other series: (*b*) the genital stolon, which is axial, (*c*) a series of perioesophageal cords, which become connected with the series *b* and with the rachides of the arms, but not with series *a*. In Ophiuroids and Asteroids, series *a* proliferates into a genital ring, on which (*d*) the interradial genital glands develop. In Echinoids the same development is carried a stage further by atrophy of the ring between the glands. Thus Holothurians and Crinoids are primitive in the possession of the single series *a*, though this series, functional in Holothurians, disappears in Crinoids. Although he places these two classes together, with Holothurians as the more primitive, RUSSO is nevertheless inclined to admit their common descent from a *Dipleurula*, through 'the primitive Pelmatozoon' and the Cystids. His derivation of Blastoids from Crinoids seems based on a confusion of spiracles with hydrospires, and on a misconception of the morphology of those structures. As to the origin of the other section of the Echinoderms, he expresses no opinion, but regards the Asteroids as the most primitive, and the Echinoids as evolved from Ophiuroids. This hypothesis, one may retort, "attende ulteriore conferma, specialmente dalla" *Paleontologia "comparata!"*

MACBRIDE'S big memoir on the development of *Echinus esculentus* comes into 1903, but in three preliminary notes (181–183) he brings out some important points, such as the presence of a rudimentary right hydrocoel, the transverse segmentation of the coelom, as first made known by BURY, the origin of the epineural and perihaemal spaces, the lantern, the ovoid gland which is a genital stolon; in short, "the main features of the development of *Asterina* can be recognised in *Echinus*" though much modified. THEEL'S account of the development of *Echinus miliaris* (277) differs in some points from MACBRIDE'S results in *E. esculentus*. Thus, the amniotic pore closes in the latter but not in the former; the developing hydrocoel forms a horseshoe in *E. miliaris*, but is at first a flattened pentagon in *E. esculentus*, becoming a ring when pierced by the stomodaeum; the teeth, according to THEEL, are formed in invaginations of ectoderm, but, according to MACBRIDE, in outgrowths of the left posterior coelom. The observations of GRAVE (105) on *Mellita* seem to support MACBRIDE as regards the masticatory apparatus; but it is possible that THEEL has observed appearances which have merely escaped the notice of the other workers.

HÉROUARD (126) bases an "anatomie comparée des Échinodermes" on the homologies between the body-wall of Holothurians and that of the other *Eleutherozoa*. He distinglishes three layers corresponding essentially to the three layers recognised by BATHER (19, Zool. Rec. 1900, p. 45); but when he infers, from the relations of the nerves and lacunae, that the ambulacrals of Asteroids are not homologous with those of Echinoids, one pauses to ask whether comparative anatomy alone is competent to decide this vexed question.

Turning to special groups, we find a valuable account by ACKERMANN (2) of the anatomy of *Cucumaria laevigata* and of its curious hermaphroditism; the function of the phagocytes resembles that described by THEEL (298, Zool. Rec. 1901). The five parts of Bronn's Thierreich edited by HAMANN (119) complete the anatomy and embryology of *Echinoidea*, and include a careful summary by PRZIBRAM of those experiments in physiology and embryology for which the sea-urchin has served as *corpus vile*. KOEHLER & BATHER (156) give a detailed description of the external anatomy of a new

deep-sea crinoid, allied to the rare *Hyocrinus*, but distinguished by the suspension of the tegminal subvective grooves on a membrane.

Under **Bionomics** the important papers are that by SCOTT (256) on the feeding of *Strongylocentrotus*, and "Regeneration" by PRZIBRAM (227). The discovery that certain distally thickened spines of *Calveria* contained a female copepod, described by HANSEN (120), suggests an explanation for the swollen and bored spines of a fossil *Cidaris* previously described by GRÖNWALL (144, Zool. Rec. 1900).

The papers dealing with **Larval development** and **Organogeny** from the morphologists' point of view have been alluded to above. The physiologist will find valuable discussions on maturation, fertilisation, and segmentation by BOVERI, BRYCE, BULLER, DELAGE, GIARDINA, and others, with a large series of papers by the usual writers on experimental embryology and parthenogenesis.

III. DISTRIBUTION. A. There is little of general interest. GRIEG (114) has made a careful revision of the Echinoderm fauna of northern Norway. HÉROUARD (127) contributes to the splendidly produced "Résultats des campagnes scientifiques...par Albert Ier. Prince souverain de Monaco," a description of the Holothurians collected from 1892 to 1897. The recent voyages of the 'Princesse Alice' have been fruitful of interesting results, and RICHARD (238) relates how the Prince of Monaco has obtained Ophiurids and an Asteroid from a greater depth than hitherto achieved—7000 metres [4½ miles]; the Prince himself (4) is more modest by 965 metres. The Echinoderms collected at the Maldive and Laccadive Islands by J. S. Gardiner, and those obtained by the Antarctic expedition of the 'Southern Cross' are briefly discussed by BELL (19 & 17). CLARK (46 & 48) records fresh occurrences at various N. Pacific localities; and DOEDERLEIN (69 & 70) discusses Japanese *Euryalidae* and Asteroids.

B. Here are several important works, especially those dealing with Cretaceous and Lower Tertiary faunas of Europe and Asia Minor. OPPENHEIM (210) revises the Lower Tertiary Echinoids, and less critically the Crinoids, of Venetia and the Trentino, with study of many of the type-specimens of Dames, Quenstedt, Mazzetti and others—a much needed bit of work. Tertiary Echinoids of Italy also form the subject of papers by AIRAGHI, CHECCHIA, DE STEFANI, LOVISATO, MARIANI, MARTELLI, PATRINI, and RAGUSA. GAUTHIER (96) describes 21 species of Echinoids from the Cretaceous, and 13 from the Eocene, collected by J. de Morgan in W. Persia; of these the most interesting is a *Cionobrissus* of Upper Eocene age, the genus having up till now been known only by a species from the Indian Ocean. *Echinometra* is another genus now first found fossil, being described by DE LORIOL (176) from Upper Meiocene beds. The Echinoderms collected by the Princeton Expedition from the Patagonian beds, are described by ORTMANN (212), who refers them to Lower Meiocene.

The magnificent volumes by A. DE GROSSOUVRE (116) on the Chalk, now first render accessible to the public LAMBERT'S monograph on *Micraster*, which was privately distributed to some palaeontologists in 1895, and was indexed in the Record for that year; it is now supplemented by numerous additions and corrections, while in the rest of the work are valuable notes on the Upper Cretaceous Echinoids, with tables of distribution. LAMBERT (161) also publishes what one gathers incidentally is the first part of a memoir on the fossil Echinoids of the province of Barcelona, dealing in his usual masterly manner with Cretaceous and Eocene species from various localities in Catalonia, not merely from Barcelona, while genera and species from other countries also come up for discussion.

SCHLUETER'S study of *Caratomus* (252) deserves mention under the head of Cretaceous palaeontology, whilst among the crowd of less important works one may note WANNER (292) on the Danian of the Libyan desert,

SAVIN (247) on Echinoids of Dauphiné, ARNAUD (12) on *Echinocorys* of Tercis, VALETTE (283) on Santonian Asteroids, SEMENOW (258) on Transcaspian Echinoids, KOSSMAT (159) on Echinoids from the Gulf of Aden, and BROILI (33) on Neocomian Echinoids from the Crimea.

The papers indexed under **Jurassic** to **Trias** contain little more than records of occurrences, except that by REMEŠ (234), which describes the curious Crinoid fauna of the Tithonian beds at Nesselsdorf. One cannot, however, pass by WALFORD (291) without a protest against his "Ferro-crinoids," for the echinodermal nature of which there is not a scrap of evidence.

Under **Palaeozoic** there is little to note, except some new Coal Measure Crinoids described by BEEDE (15), Lower Carboniferous Crinoids by ROWLEY (244), and various Lower Carboniferous and Devonian Crinoids and Blastoids described by the same author in GREENE (110 & 111), but requiring rather better illustration before judgment can be passed on them. All the foregoing are from the United States.

IV. SYSTEMATIC. Under *Holothurioidea* the chief work is that by HÉROUARD (127) noticed above; he revises the genera of Elpidiinae and founds two new genera of *Synallactinae*—*Allantis* and *Paroriza*.

As usual the new *Echinoidea* are mostly extinct. DE LORIOL (176) completes the first decade of his "Notes pour servir &c." with the description of 20 spp. of fossil urchins and the new genera *Phaleropygus*, *Herklotzia*, and *Pyguropsis*. In LAMBERT'S memoir (161) above noticed, there are the new genera *Fourtaunia*, *Leiopleurus*, *Phalacrocidaris*, and *Prospatangus*, while in his contribution to GROSSOUVRE (116) he institutes the subgenus *Isomicraster*. The former paper includes many observations of systematic importance; especially should one note the remarks on the *Brissidae*, the *Cidaridae*, *Brissoides*, and *Spatangus*. Zoologists will only regret that LAMBERT does not accept the convention that dates systematic nomenclature from Linnaeus, 'Syst. Nat.' Ed. x, but goes back at least to Klein, 1734. But if he ascribes *Spatangus* to Klein, why does he not take *Spatangus cor-anguinum* as the type, instead of a species not mentioned by Klein at all? To such inconsistencies does a return to Klein lead the seeker for 'justice.' Why not Aristotle?—or Adam? LAMBERT'S paper (163) also contains some important remarks on the value of certain characters in the taxonomy of the Micrasters. Another valuable contribution is SCHLUETER'S revision of *Caratomus* (252), to which is appended the description of a new genus—*Hemicara*. The only other new genus is the Eocene *Distefanaster* of CHECCHIA (40 & 41) which does *not* mean "a star with two crowns." OPPENHEIM'S useful revision (210) has already been referred to: it contains many new species, as also do several of the papers mentioned under **Distribution**. The well-meant but isolated attempts of scattered authors seem to be breeding confusion in the species of *Scutella*: it is time the genus were monographed.

The *Asteroidea* have yielded no new genera, and reference need only be made to the papers of DOEDERLEIN (70) on Japanese species, of VALETTE (283) on Senonian specimens, both of which describe new species, of GRIEG on the Norwegian Echinoderms (113) and on *Solaster papposus* (114), of BELL (17 & 19), and of CLARK (48).

BELL'S account of Antarctic Echinoderms (17) also provides two new genera of *Ophiuroidea*—*Ophionotus* and *Ophiosteira*. The remaining one —*Ophiophycis*—is due to KOEHLER (155) and was discovered by the Prince of Monaco, along with some new species of *Ophioglypha*. DOEDERLEIN (69) describes, but does not figure, many new species of Japanese *Euryalidae*. FARQUHAR'S new *Amphiura* (77) was described some years ago, but the reprint bore no page-number or date, and the volume was first accessible to the Recorder this year.

Except for the new Hyocrinid, *Gephyrocrinus*, described by KOEHLER &

BATHER (156), the new genera of *Crinoidea* are all fossil—indeed Palaeozoic—and are divided between JAEKEL (134) & SPRINGER (266). The latter paper is a much needed revision of the several genera of *Flexibilia impinnata*, but is preliminary to a fuller monograph, and perhaps for this reason the establishment of some of the new genera is not so precise as might be wished: the names are *Leiocrinus*, *Oligocrinus*, *Parichthyocrinus*, *Temnocrinus*, and *Wachsmuthicrinus*. JAEKEL's paper is a contribution to the philosophy of evolution, and is not the place in which one expects to find the names of new genera and species introduced; but if their introduction be a necessity, the new conceptions should be supported by something better than a casual allusion with, perhaps, an outline diagram. Of the names thus foisted on systematists, *Prodromocrinus* is certainly a *nomen nudum*, while *Metabolocrinus* is little better; *Promelocrinus anglicus* is doubtful, and *Perittocrinus* is for the present a genus without a species.

For the rest there are only the papers of BEEDE, REMEŠ and ROWLEY already referred to under III. B. *Actinometra iowensis* described by SPRINGER (265), not from Iowa but from Florida, is distinguished by the persistence of covering-plates on the arms. WELLER (295) refers some species of North American *Cyathocrinus* to *Crotalocrinus*.

Under *Cystidea*, including *Edrioasteroidea*, there is nothing of importance, but in *Blastoidea* there are several new species described in the above mentioned papers by ROWLEY.

In estimating the value of the following analysis, it should be remembered that many of the names both of alleged new genera and species have already been recognised as either synonyms or homonyms. One has also to reckon with the extreme difficulty, in many cases, of deciding whether a name be new or no. If authors would only add the signs "n. g." or "n. sp." to their new genera and species, while refraining from attaching them to genera and species that they have previously described, the task of the Recorder would be greatly lightened and less confusion would be introduced into nomenclature; but this again is a protest that has been raised *ad nauseam*.

	New genera	New species	Altered specific names	New varieties
Holothurioidea	2	6	0	0
Echinoidea	9	140+4 ?	2	17
Asteroidea	0	4	0	3
Ophiuroidea	3	13	0	0
Crinoidea	9+1 n.n.	26	0	1
Cystidea	0	0	0	0
Blastoidea	0	7	0	6
Total	23+1 n.n.	196+4 ?	2	27

ADDENDA et CORRIGENDA in previous Records.

Record for 1897, vol. XXXIV :—

p. 11. No. 68. For "pls. xiv–xviii," read "pls. xiv–xvii."
p. 19. No. 156. For "Rep. Iowa Acad.", read "Proc. Iowa Acad." For "1896" read "1897."

Record for 1900, vol. XXXVII :—

p. 113. *Flexaster.* Add [err. pro *Hexaster*].
p. 115. *Mayraster* also appears to be a misprint in the original, but the true reading has not yet been discovered.
p. 118. *Steraster.* Add [err. pro *Pteraster*].

Record for 1901, vol. XXXVIII :—

p. 9. "ANGELIS D'OSSAT, G. DE. See VERRI & ANGELIS D'OSSAT (111)," should be "(311)."
p. 33. No. 284. SLUITER. Add the reference [II, B, ii, b].
p. 66. "*Ludwigia* **n.g.**", insert [non Bayle, Explic. Carte géol. France, 1878, for Ammonite].
p. 78. *Horiopleura lamberti.* Delete this entry. The name occurred in a long list of echinoderms, but belongs to the *Rudistidae.*
p. 83. *Scagliaster*, n.g.; MUNIER-CHALMAS (219). Mr J. Lambert casts even stronger doubts on the existence of Munier-Chalmas' paper than I ventured to express, and believes the name to be due to R. NICKLÈS (37) Zool. Rec. 1892, p. 112, the genotype being *Cardiaster italicus.* Oppenheim, however, still quotes Munier-Chalmas.

The Recorder is always glad to receive corrections, and would be specially grateful if Authors, Editors, or Publishers would occasionally enable him to remove the asterisk indicating that a work has not been seen.

Further personal remarks by the Recorder are placed in [ ].

I. TITLES.*

1. †ABICH, H. Raisonirender Catalog einer Sammlung von Petrefacten und Gebirgsarten aus Daghestan. [With Russian Preface by N. LEBEDEV.] Mater. gheol. Kavkaza (3) ii, pp. 1–42, pls. i–iv. (1899, recd. Nov. 1902.) [III, B, iii, b, *1*, *2*.]

2. ACKERMANN, [G.] A. Ueber die Anatomie und Zwittrigkeit der *Cucumaria laevigata.* Zeitschr. wiss. Zool. lxxii, pp. 721–749, pl. xxxix, 8 text-figg. [II, B, i, b, *1*, *5*, *12*: F, iii.]
Abstracts: in LUDWIG (178) & in J. R. Micr. Soc. 1902, p. 653 (Dec.).

AIRAGHI, C. (1) Zool. Rec. 1901. Abstracts: Boll. Com. geol. Ital. xxxiii, p. 46 (April, 1902); by VINASSA DE REGNY, Geol. Centrbl. ii, p. 766 (15 Nov. 1902).

---

* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Paper or Work referred to.

The Symbols in [ ] refer to the divisions of the Subject-Index, II, III, IV. Those referring to the Systematic portion [IV, A—K] are inserted only when some question of definite importance to the systematist is dealt with in the work. The names of the genera mentioned in any work can generally be gathered from the lists given under Distribution [III, A or B], and the species can then be traced by turning to Section IV. Only where this was not possible have names been inserted after the title.

3. [AIRAGHI, C.] Echinofauna oligomiocenica della conca Benacense. Boll. Soc. geol. Ital. xxi, pp. 371–388, pl. xv. (Oct.) [III, B, ii, d & de. IV, C.]
Abstract: by G. CHECCHIA, Riv. ital. Pal. ix, pp. 1, 2 (May 1902). Review by J. LAMBERT, Rev. paleozool. vii, p. 173 (July, 1903).

4. ALBERT HONORÉ CHARLES (Prince de Monaco). Sur la troisième campagne de la Princesse Alice II. C.R. Ac. Sci. cxxxiv, pp. 961–964. (May.) [III, A, ii.]

5. ALCOCK, A. [W.] Naturalist in Indian Seas: or, Four years with the Royal Indian Marine Survey Ship, "Investigator." 8vo, xxiv+328 pp., 98 figg. as plates, & frontisp. London: Murray. 18*s*. [Dec.] [II, B, ii, C: D, viii, X: E, iii. III, A, iii.]

6. ALLEN, E. J. & TODD, R. A. The Fauna of the Exe Estuary. J. Mar. Biol. Ass. (n. s.) vi, pp. 295–335, 1 chart. (Jan.) [III, A, ii.]

7. ALLEN, H. A. Catalogue of Types and Figured Specimens of British Palaeozoic Echinodermata preserved in the Museum of Practical Geology, London; being Appendix B of Summary of Progress, Mem. geol. Surv. U. K., 1901, pp. 204–211. (Oct.) [II, E, i, c. III, B, iv, a.]

8. ANDERSON, F. M. Cretaceous deposits of the Pacific Coast. P. Calif. Ac. (3), Geology, vol. ii, No. 1, 154 pp., xii pls. (24 Dec.) [III, B, iii, b, *1*.]

ANDRUSOW, N. J. (15) Zool. Rec. 1900. Abstract: by Author, Geol. Centrbl. ii, p. 732 (1 Nov. 1902).

9. ANGELIS D'OSSAT, G. DE. Fauna liasica di Castel del Monte (Umbria). Boll. Soc. geol. Ital. xxi, pp. 30–32. (31 May.) [III, B, iii, d.]

10. ——. Un pozzo trivellato presso Napoli. Boll. Soc. geol. Ital. xxi, pp. 33–35. (31 May.) [III, B, ii, b.]

11. ARIOLA, V. La natura della partenogenesi nell' *Arbacia pustulosa*. Atti Soc. Ligustica xii, pp. 192–203, pl. ix. (Dated 1901, recd. Oct. 1902.) [II, F, viii.]
Abstract: in LUDWIG (178).

12. ARNAUD, H. Les "*Echinocorys*" de Tercis (Landes). Act. Soc. Bordeaux, lvii, pp. 29–39, pls. ii–x, 1 folding table. (July.) [II, B, ii, e. III, B, iii, b, *1*. IV, C.]
Abstract: by A. TORNQUIST, N. Jahrb. Min. 1903, i, p. 529 (June, 1903). Review: by J. LAMBERT, Rev. paleozool. vii, pp. 47, 48 (Jan. 1903).

13. ARNOLD, D. & A. The marine Pliocene and Pleistocene stratigraphy of the coast of Southern California. J. Geol. x, pp. 117–138, pls. i–v. (March.) [III, B, ii, b.]

14. BARTHELS, P. Zur histologie der Cuvier'schen Organe der Holothurien. Zool. Anz. xxv, pp. 392–395. (19 May.) [II, B, i, b, *8*.]
Abstracts: J. R. Micr. Soc. 1902, p. 436 (Aug.); in LUDWIG (178).

BASSLER, R. S. See HARPER, G. W. (121).

BATHER, F. A. (18) Zool. Rec. 1901. Abstract: in LUDWIG (178).

14A. ——. Echinodermata. Encycl. Britan. Supplement, xxvii, pp. 617–624, 12 text-figg. (11 July.)

——. See KOEHLER, R. & BATHER, F. A. (156).

15. BEEDE, J. W. New fossils from the Upper Carboniferous of Kansas. Kansas Univ. Bull. i=Kansas quart. (A), xi, pp. 147–154 (last 2 as pl. v). (Sept.) [III, B, iv, d. IV, F.]

16. [BEEDE, J. W.] & ROGERS, A. F. Coal Measures faunal studies. II. Fauna of the Shawnee Formation (Haworth), the Wabaunsee Formation (Prosser), the Cottonwood Limestone. (By J. W. BEEDE) Kansas Univ. Bull. i = Kansas quart., (A) xi, pp. 163–181. (Sept.) [III, B, iv, d.]

17. BELL, F. J. Echinoderma. Being Chapter viii of Report on the Collections of Natural History made in the Antarctic Regions during the voyage of the "Southern Cross," pp. 214–220, pls. xxvi–xxviii. 8vo, London. British Museum (Natural History). 40 sh. (June.) [II, B, ii, b. III, A, vi. IV, D, E.]

18. —— "exhibited two arms of an injured...*Luidia*." P. Zool. Soc. London, 1902, i, p. 238. (Aug.) [II, D, vii.]
See also report in Nature, lxvi, p. 46 (8 May).

19. ——. The Actinogonidiate Echinoderms of the Maldive and Laccadive Islands. In "The Fauna and Geography of the Maldive and Laccadive Archipelagoes" by J. S. GARDINER, vol. i, part 3, pp. 223–233. [II, B, ii, C: D, iii; vii. III, A, iii.]
Abstract: by K. J. B., Amer. J. Sci. (4) xv, p. 240 (March 1903).

20. BELL, R. *Holaster laevis* De Luc. var. *planus* Mantell, in Chloritic Chalk, Belfast. Irish Natural. xi, p. 222. (Sept.) [III, B, iii, b, *1*.]

21. BERTRAND, G. Sur l'existence de l'arsenic dans la série animale. C.R. Ac. Sci. cxxxv, pp. 809–812. (Nov.) [II, C, vii.]

22. BÉZIER, T. & LEBESCONTE, P. Observations sur le terrain silurien dans le synclinal de Gosné (Ille-et-Vilaine). Bull. Soc. sci. med. Ouest France ix, pp. 273–278. (1901.) [III, B, iv, h.]

23. BIEDERMANN, W. Ueber die Bedeutung von Krystallisationsprocessen bei der Bildung der Skelete wirbelloser Thiere, namentlich der Molluskenschalen. Zeitschr. allg. Physiol. i, pp. 154–208, pls. iii–vi. [II, B, i, a, *4*: F, vi, a, *4*.]
Abstract: in LUDWIG (178).

BLAKE, J. F. See GEOLOGICAL SOCIETY OF LONDON (101); & WALFORD, E. A.

BLANCKENHORN, M. See FOURTAU, R.

BOEHM, J. See PERON, P. A.

24. BOFILL Y POCH, A. Indicaciones sobre algunos fósiles de la caliza basta blanca de Muro, Isla de Mallorca. Mem. Ac. Barcelona, ii, pp. 391–413. (? 1898.) [III, B, ii, d.]

25. BOGHDANOVĬCH, K. (BOGDANOWITSCH, K.) Dva peresyecheniya ghlavnagho Kavkazskagho khrebta. Zwei Uebersteigungen der Hauptkette des Kaukasus. Trudui geol. Kom. xix, No. 1; xxviii + 210 pp., 3 pls., 27 figg., 1 map. [III, B, iii, b, *2*.]

26. BONNEVIE, KRISTINE. *Enteroxenos östergreni*, ein neuer, in Holothurien schmarotzender Gastropode. Zool. Jahrb. Anat. xv, pp. 731–792, pls. xxxvii–xli, 6 text-figg. (28 Jan.) [II, D, viii.]

27. BORRADAILE, L. A. Marine Crustaceans. I. On varieties. II. Portunidae. In J. S. GARDINER, Fauna and Geogr. Maldive and Laccadive Archipelagoes, i, pp. 191–208, text-figg. 35–38. (May.) [II, D, viii, b.]

28. BOTTAZZI, F. Contribution à la connaissance de la coagulation du sang de quelques animaux marins et des moyens pour l'empêcher. Arch. ital. Biol. xxxvii, pp. 49–63. (31 March.) [II, C, ii.]

BOVERI, T. (41 & 43) Zool. Rec. 1901. Abstract: in LUDWIG (178).

29. [BOVERI, T.] Ueber mehrpolige Mitosen als Mittel zur Analyse des Zellkerns. Verh. Ges. Würzburg (n. f.), xxxv, pp. 67–90. [II, F, iv, viii.]
Abstract: by P. MAYER, Zool. Jahresber. 1902 (July, 1903).

30. ——. Das Problem der Befruchtung. 8vo, 48 pp., 19 text-figg. Jena: Fischer. M 1. 80. [II, F, iv, viii.]
Also in Abstract, Verh. Ges. deutsch. Naturf. lxxiii, Theil i, pp. 44–64.
Abstracts: J. R. Micr. Soc. 1902, p. 418, 419 (Aug.); by E. KALLIUS, Zeitschr. allg. Physiol. i, pp. 264–266 (1902); by P. MAYER, Zool. Jahresber. 1902 (July, 1903). Review: by J. B. F[ARMER], Nature, lxvi, p. 74 (May, 1902).

31. BRANNER, J. C. Geology of the North-east coast of Brazil. Bull. Geol. Soc. Amer. xiii, pp. 41–98, pls. iv–xv. (3 Feb.) [II, D, x.]

32. BRITISH MUSEUM (NATURAL HISTORY). Handbook of instructions for collectors. 8vo, 138 pp. London: Brit. Mus. 2*s*. (Nov.) [II, E, i, a.]
Includes a reprint of (47) Zool. Rec. 1900, on pp. 96–111.

33. BROILI, F. Ueber die Fauna der Orbitolinen führenden Schichten der untersten Kreide in der Krim. Abh. Bayer. Ak. xxi, pp. 601–610, i pl. (Sept.) [III, B, iii, b, *2*. IV, C.]
Abstracts: by V. UHLIG, N. Jahrb. Min. 1903, i, p. –323– (Mar. 1903); by STILLE, Geol. Centrbl. iii, p. 434 (15 April, 1903).

34. BRYCE, T. H. The heterotypical division in the maturation phases of the sexual cells. Rep. Brit. Ass. 1901, pp. 685–687. (April.) [II, F, iii.]

35. ——. Maturation of the Ovum in *Echinus esculentus*. Quart. J. Micr. Sci. (n. s.) xlvi, pp. 177–224, pls. x–xii. (Sept.) [II, E, i, b; iii: F, iii.]
Abstracts: in LUDWIG (178); by P. MAYER, Zool. Jahresber. 1902 (July, 1903); in J. R. Micr. Soc. 1902, p. 654 (Dec.).

36. ——. Artificial parthenogenesis and fertilisation: A review. Quart. J. Micr. Sci. (n. s.) xlvi, pp. 479–507. (Dec.) [II, E, iii: F, viii.]

37. BULLER, A. H. R. The fertilisation process in *Echinoidea*. Report on the occupation of a Table at the Zoological Station, Naples. Rep. Brit. Ass. 1901, pp. 356–358. (April.) [II, F, iv.]

38. ——. Is Chemotaxis a factor in the fertilisation of the eggs of animals? Quart. J. Micr. Sci. (n. s.) xlvi, pp. 145–176, 4 text-figg. (July.) [II, F, iv.]
Abstract: in LUDWIG (178).

BURCKHARDT, R. (51) Zool. Rec. 1901. Abstract: by A. TORNQUIST, N. Jahrb. Min. 1902, i, p. –318– (Feb.).

39. CHECCHIA, G. Intorno al lavoro del Dott. C. Airaghi sull' echinofauna terziaria del Piemonte e della Liguria. Riv. ital. Pal. viii, pp. 16–19. (17 April.) [IV, C. *Mariania*, *Rovasendia*.]
Abstract: by J. LAMBERT, Rev. paleozool. vii, p. 49 (Jan. 1903).

40. ——. Gli Echinidi Eocenici del Monte Gargano. Boll. Soc. geol. Ital. xxi, pp. 50–77, pls. ii, iii. (31 May.) [II B, i, c, *5*; ii, d, *1*. III, B, ii, f. IV, C.]
Abstracts: in LUDWIG (178); by C. CREMA, Riv. ital. Pal. viii, p. 34 (July, 1902). Review: by J. LAMBERT, Rev. paleozool. vii, pp. 48, 49 (Jan. 1903).

41. ——. Osservazioni sull' apparecchio apicale di alcuni echinidi appartenenti alla famiglia degli "*Spatangidae*." Boll. Soc. zool. Ital. xi, pp. 79–82. (July.) [II, B, i, c, *5*; ii, d, *1*. IV, C.]

Abstract: by C. CREMA, Riv. ital. Pal. viii, p. 35 (July, 1902). Review: by J. LAMBERT, Rev. paleozool. vii, p. 50 (Jan. 1903).

[CHECCHIA, G.] See AIRAGHI.

42. *CHUN, C. Aus den Tiefen des Weltmeeres. Schilderungen von der deutschen Tiefsee-Expedition. Second edition [of CHUN (63) Zool. Rec. 1900]. Jena: Fischer.

43. CHURCHILL, J. M. Fragment of the Geology of Pontypool. Rep. Cardiff Soc. xxviii, pp. 98–103, i pl. (1897.) [III, B, iv, e.]

CLARK, H. L. (63 & 64) Zool. Rec. 1901. Abstract: in LUDWIG (178).

44. ——. The breeding habits of Holothurians. Rep. Michigan Ac. Sci. iii, pp. 83–85. (31 March.) [III, B, iii, c.]

45. ——. An extraordinary animal. Zool. Anz. xxv, pp. 509–511, 1 text-fig. (30 June.) [II, B, ii, e. IV, K.]
Abstract: in LUDWIG (178); in J. R. Micr. Soc. 1902, p. 560 (Oct.).

46. ——. Notes on some North Pacific Holothurians. Zool. Anz. xxv, pp. 562–564. (21 July.) [III, A, iv.]

47. ——. A new host for Myzostomes. Zool. Anz. xxv, pp. 670, 671. (29 Sept.) [II, D, viii, e.]

48. ——. Papers from the Hopkins Stanford Galapagos Expedition, 1898–1899. XII. Echinodermata. P. Washington Ac. iv, pp. 521–531. (30 Sept.) [II, B, ii, c. III, A, iv. IV, B, D, E.]

CLARKE, J. M. (69) Zool. Rec. 1901. Abstract: by F. DREVERMANN, N. Jahrb. Min. 1903, i, p. –172– (Dec. 1902).

——. See LUTHER, D. D. (179).

COHNHEIM, O. (70) Zool. Rec. 1901. Abstract: in LUDWIG (178).

49. COLE, G. A. J. Aids in Practical Geology. 3 Edit. 8vo, xvi + 432 pp., frontisp. and 136 text-figg. London: Griffin. (1898.) 4 Edit. revised, same pp. 10*s.* 6*d.* (May, 1902.) [II, B, i, a, *1*: E, i, d.]

CORI, C. J. & STEUER, A. (72) Zool. Rec. 1901. Abstract: in LUDWIG (178).

50. CORNET, J. Note sur la présence du calcaire de Mons, du Tufeau de Saint-Symphorien et de la Craie phosphatée de Ciply au sondage des Herbières (commune de Tertre). Bull. Soc. Belge Geol. xvi, Pr.-verb., pp. 39–42. (March.) [III, B, iii, b, *1*.]

51. CRAMPTON, C. B. A suggestion on extinction. P. Phys. Soc. Edinb. xiv, pp. 461–480. (June.) [II, A, i. III, B, i.]

CREMA, C. See CHECCHIA, G. (40 & 41).

CROCKER, G. R. See RITTER, W. E. (241).

CUÉNOT, L. (78) Zool. Rec. 1901. Abstract: in LUDWIG (178).

52. ——. Organes agglutinants et organes cilio-phagocytaires. Arch. Zool. exp. (3) x, pp. 79–97, 5 text-figg. [II, B, i, b, *7*: C, v.]
Abstract: in LUDWIG (178).

53. ——. La valeur respiratoire du liquide cavitaire chez quelques Invertébrés. Trav. Stat. Zool. Arcachon, 1900–1901, pp. 107–118. (S. A., recd. Nov. 1902.) [II, C, iii.]

54. CUMINGS, E. R. Lower Silurian System of Eastern Montgomery County, New York. Bull. N. York State Mus. vii, pp. 419–468, iv pls., 1 map. (May, 1900.) [III, B, iv, h.]

55. ——. On the Waldron Fauna at Tarr Hole, Indiana. P. Indiana Ac. 1899, pp. 174–176. (1900.) [III, B, iv, g.]

56. *DAINELLI, G. A proposito di un recente lavoro dell dott. Paul Oppenheim sopra alcune faune eoceniche della Dalmazia. Boll. Soc. geol. Ital. xxi, p. 176. [III, B, ii, f.]
Abstract: by G. ROVERETO, Riv. ital. Pal. viii, p. 99 (Dec. 1902).

DAVENPORT, G. C. (83) Zool. Rec. 1901. Abstract: in LUDWIG (178).

DAWYDOFF, C. (84) Zool Rec. 1901. Abstract: in LUDWIG (178); by PÜTTER, Zeitschr. allg. Physiol. i, p. 61 (1902).

DE ANGELIS D'OSSAT. See ANGELIS D'OSSAT.

57. DEECKE, W. Neue Materialien zur Geologie von Pommern. Erster Theil: Trias, Jura, Kreide, Soolquellen, Tertiär. Mt. Ver. Vorpomm. xxxiii, pp. 65–132. (May.) [III, B, iii, b, *1*.]

58. DEFLANDRE, C. [Mlle.] Rôle de la fonction adipogénique du foie chez les Invertébrés. C.R. Ac. Sci. cxxxv, pp. 807–809. (Nov.) [II, C, vii.]

59. DELAGE, Y. Sur les fonctions des sphéridies des oursins. C.R. Ac. Sci. cxxxiv, pp. 1030–1033. (May.) [III, C, vi.]
Abstract: J. R. Micr. Soc. 1902, p. 437 (Aug. 1902).

60. ——. Les théories de la fécondation. Verh. Int. Zool. Congr. Berlin, v, 1901, pp. 121–140. (Aug.) [II, F, iv, viii.]

61. ——. L'acide carbonique comme agent de choix de la parthénogenèse expérimentale chez les Astéries. C.R. Ac. Sci. cxxxv, pp. 570–573. (Oct.) [II, F, viii.]
Abstract: in LUDWIG (178); in J. R. Micr. Soc. 1903, p. 21 (Feb.).

62. ——. Sur le mode d'action de l'acide carbonique dans la parthénogénèse expérimentale. C.R. Ac. Sci. cxxxv, pp. 605–608. (Oct.) [II, F, viii.]
Preliminary abstract: Nature, lxvi, pp. 671, 672 (30 Oct. 1902).
Abstract: in LUDWIG (178); in J. R. Micr. Soc. 1903, p. 21 (Feb.).

63. ——. Effets de l'excision du madréporite chez les Astéries. C.R. Ac. Sci. cxxxv, pp. 841, 842. (Nov.) [II, D, vii.]
Abstract: in LUDWIG (178).

64. ——. Nouvelles recherches sur la parthénogénèse expérimentale chez *Asterias glacialis*. Arch. Zool. exp. (3), x, pp. 213–235. [II, C, vi: F, v, d; viii.]
Abstract: in LUDWIG (178).

65. ——. Quelques expériences et observations sur les Astéries. 1. Régénération de l'hydropore. 2. Quelques anomalies rares. 3. Manuel opératoire de la mérogonie. Arch. Zool. exp. (3), x, pp. 237–240. [II, B, ii, d, *1*; e: C, vii: D, vii: E, i, b.]
Abstract: in LUDWIG (178).

66. DENINGER, K. Beitrag zur Kenntnis der Molluskenfauna der Tertiärbildungen von Reit im Winkel und Reichenhall. Geognost. Jahresh. 1901, pp. 221–245, pls. vii, viii. (Dated 1901, but received in June, 1902.) [III, B, ii, e.]

67. DE STEFANI, C. Molluschi pliocenici di Viterbo. Atti Soc. Toscana, Mem. xviii, pp. 22–34. [III, B, ii, c.]

68. DEYDIER, —. Notice géologique et agronomique de la région de Cucuron. Mem. Ac. Vaucluse (2), ii, pp. 297–303, ii pls. [III, B, ii, d; iii, b, *2*.]

DOEDERLEIN, L. (93) Zool. Rec. 1900. Abstract: in LUDWIG (178).

69. ——. Japanische Euryaliden. Zool. Anz. xxv, pp. 320–326. (21 April.) [III, A, iv. IV, E.]

70. [DOEDERLEIN, L.] Japanische Seesterne. Zool. Anz. xxv, pp. 326–335. (21 April.) [II, B, ii, c. III, A, iv. IV, D.]
Abstract: in LUDWIG (178).

71. DOUVILLÉ, H. Sur le terrain nummulitique de l'Aquitaine. Bull. Soc. geol. France (4), ii, pp. 15–36. (April.) [III, B, ii, e, f.]
Review: by J. LAMBERT, Rev. paleozool. vi, p. 212. (March, 1902.) [IV, C.]

DREVERMANN, F. See CLARKE, J. M.

72. DRIESCH, H. Neue Ergänzungen zur Entwickelungsphysiologie des Echinidenkeimes. Arch. Entwickmech. xiv, pp. 500–531, 16 text-figg. (1 Aug.) [II, F, iv, viii.]
Abstract: in LUDWIG (178).

73. DUBOIS, R. Sur le pigment rouge de l'*Asterias rubens.* Ann. Soc. Linn. Lyon, xlvii, pp. 139–141. (1901.) [II, C, v.]
Abstract in J. R. Micr. Soc. 1902, p. 654 (Dec.).

74. *DUCCESCHI, V. Untersuchungen ueber die Blutgerinnung bei wirbellosen Thieren. Vorläufige Mittheilung. Beitr. Chem. Physiol. iii, pp. 378–384. [II, C, ii.]

75. DUNGERN, E. v. Neue Versuche zur Physiologie der Befruchtung. Zeitschr. allg. Physiol. i, pp. 34–55. (Jan.) [II, F, iv, a; viii.]
Abstract: in LUDWIG (178).

76. ELBERT, J. (102) Zool. Rec. 1901 [apparently published 1902]. Review: by J. LAMBERT, Rev. paleozool. vii, pp. 169, 170 (July, 1903). [IV, C.]

F[ARMER], J. B. See BOVERI, T.

77. FARQUHAR, H. Description of a new Ophiurid. Tr. N. Zealand Inst. xxxiii, p. 250. (July, 1901.) [Vol. recd. in London 23 March, 1903.] [III, A, iv. IV, E.]

FICHEUR, E. (109) Zool. Rec. 1900. Abstract: by A. TORNQUIST, N. Jahrb. Min. 1902, i, p. –318–(Feb. 1902).

78. FLAMAND, G. B. M. Sur la présence du terrain carboniférien dans le Tidikelt (Archipel touatien), Sahara. C.R. Ac. Sci. cxxxiv, pp. 1533–1536. (June.) [III, B, iv, e.]

79. FORTIN, R. "présente trois *Micraster.*" Bull. Soc. Rouen, xxxvi, p. 67. (1901.) [III, B, iii, b, *1.*]

80. ——. Procès-verbaux du Comité de Géologie (Année 1900) recueillis par R. Fortin. [Includes exhibition of various Echinoids and other fossils.] Bull. Soc. Rouen, xxxvi, 1900, pp. 291–296. (1901.) [III, B, iii, b, *1.*]

81. —— "présente plusieurs exemplaires d'*Asterias rubens* dont un...n'a que quatre bras apparents." Bull. Soc. Rouen, xxxvii, pp. 121, 122. [II, B, ii, d, *1.*]

82. ——. Procès-verbaux du Comité de Géologie (Année 1901) recueillis par R. Fortin. Séance du 18 Septembre 1901. Deux notes [sans titre]. Bull. Soc. Rouen, xxxvii, 1901, pp. 194–197. (1902.) [III, B, iii, b, *1.*]

FOURTAU, R. (119) Zool. Rec. 1901. Review by M. BLANCKENHORN, N. Jahrb. Min. 1903, i, pp. –531–533– (June, 1903). [IV, C, *Hemiaster, Sarsella.*] Abstract by M. BLANCKENHORN, Geol. Centrbl. iii, p. 124 (1 Feb. 1903).

83. ——. Notes pour servir à l'étude des Echinides fossiles d'Égypte. Bull. Soc. geol. France (4), i, pp. 623–626. (March.) [III, B, ii, f. IV, C.]

Prelim. Abstract: Centrbl. Mineral. 1902, p. 213 (Apr. 1902). Review: by J. LAMBERT, Rev. paleozool. vi, p. 211 (Oct. 1902). Abstract: by M. LERICHE, Geol. Centrbl. iii, p. 124 (1 Feb. 1903).

[FOURTAU, R.] See GAUTHIER, V. (95).

84. FOX, H. On the distribution of Fossils on the north coast of Cornwall south of the Camel. Tr. geol. Soc. Cornwall, xii, pp. 535–545, map. [III, B, iv, f.]

85. FREDERICQ, L. Sur la concentration moléculaire du sang et des tissus chez les Animaux aquatiques. Bull. Ac. Belgique, 1901, pp. 428–454. (1902.) [II, C, iii.]
Abstract by P. MAYER, Zool. Jahresber. 1901 (Aug. 1902).

86. FRITEL, P. H. Échinodermes fossiles. Crinoïdes articulés. Naturaliste, xxiv, pp. 41–44, text-figg. (15 Feb.) [II, B, i, f, *1*. III, B, iii, c. IV, F.]

87. ——. Échinodermes fossiles. Les Astérides. Naturaliste, xxiv, pp. 77–79, text-figg. (1 April.) [II, B, i, d & e, *1*. III, B, i.]

88. ——. Échinodermes fossiles. Les Oursins. Naturaliste, xxiv, pp. 126, 127, text-figg. (1 June.) [II, B, i, c, *1*, *5*.]

89. FUCHS, T. Ueber der Charakter der Tiefseefauna des Rothen Meeres auf Grund der von den österreichischen Tiefsee-Expeditionen gewonnenen Ausbeute. SB. Ak. Wien, cx, Abth. i, pp. 249–258. (1901.) [III, A, iii.]

90. FUERTH, O. v. Ueber die Eiweisskörper der Kaltblütermuskeln und ihre Beziehung zur Wärmestarre. Zeitschr. physiol. Chem. xxxi, pp. 338–352. (1900.) [II, C, vii.]

91. GADEAU DE KERVILLE, H. Recherches sur les faunes marine et maritime de la Normandie. 3e Voyage: Région d'Omonville-la-Rogue (Manche) et fosse de la Hague. Juin–Juillet 1899. Suivies de quatre mémoires d'E. Canu et E. Chevreux, de P. Mayer et du E. Trouessart,...et d'un supplément, &c. Bull. Soc. Rouen (4), xxxvi, pp. 143–283, pls. ii–v, 6 text-figg. (1901.) Also issued in separate form. Paris: Baillière (1901). [III, A, ii.]
Échinodermes...déterminés par R. KOEHLER, pp. 177, 178.

92. GALEOTTI, G. Sulle proprietà osmotiche delle cellule. Riv. Sci. biol. ii, pp. 875–903, pls. iv, v. (1901.) [II, F, iv.]
Abstract by P. MAYER, Zool. Jahresber. 1901 (Aug. 1902).

93. GARBINI, A. Manuale per la tecnica moderna del Microscopio nelle osservazioni istologiche-embriologiche-anatomiche zoologiche. 4 ediz. 8vo, xx+304 pp., 85 text-figg. Milano: Vallardi, 8 sh. (1899.) [II, E, i, b.]

94. GARDINER, C. I. & REYNOLDS, S. H. The Fossiliferous Silurian Beds and Associated Igneous Rocks of the Clogher Head District (Co. Kerry). Quart. J. Geol. Soc. lviii, pp. 226–266, pl. vi, 17 text-figg. (15 May.) [III, B, iv, g.]

GARDINER, J. S. See BELL, F. J. (19); BORRADAILE, L. A. (27).

GAUTHIER, V. (102) Zool. Rec. 1899. Abstract: by A. TORNQUIST, N. Jahrb. Min. 1902, i, p. -319- (Feb. 1902). (127) Zool. Rec. 1901. Abstract by M. LERICHE, Geol. Centrbl. ii, p. 471 (1 Aug. 1902).

95. ——. Derniers échinides fossiles recueillis en Perse et en Egypte. C.R. Ass. Franc. xxx, ii, pp. 374–381.
A preliminary abstract of GAUTHIER (96) and abstract of FOURTAU (119) Zool. Rec. 1901.
Abstract by L. PERVINQUIÈRE, Geol. Centrbl. iii, p. 317 (15 March, 1903).

96. [GAUTHIER, V.] Mission scientifique en Perse par J. de Morgan. Tome troisième. Études géologiques, Partie III, Paléontologie. Première partie.—Echinides fossiles (Supplément). 4to, pp. 109–190, pls. xvii–xxiv. Paris: Leroux, 12 fr. (Nov.)
[III, B, ii, f; iii, b, *1*, *2*. IV, C.]
Abstracts: by Author, No. 95, and Bull. Soc. geol. France (4), ii, pp. 398–400 (Feb. 1903); by J. LAMBERT, Rev. paleozool. vii, pp. 167–169 (July, 1903).

97. †GEGENBAUR, C. Vergleichende Anatomie der Wirbelthiere mit Berücksichtigung der Wirbellosen. Bd. I, xiv+978 pp., 619 text-figg. Leipzig: Engelmann. (1898.) [II, A, ii: B, i, a, *4*, *9*.]
No reference to Echinoderms in Bd. II (1901).

98. GEMMILL, J. F. On *Echinonema grayi*, a large Nematode from the perivisceral cavity of the Sea-urchin. Rep. Brit. Ass. 1901, pp. 691, 692. (April, 1902.) [II, D, viii, c.)
Prelim. Abstract: Nature, lxiv, p. 588 (10 Oct. 1901).

99. GENTIL, L. Résumé stratigraphique sur le bassin de la Tafna. Terrains primaires et secondaires. C.R. Ass. Franc. xxix, Part 2, pp. 594–608. (1901.) [III, B, ii, b, *2*; iii, c, *1*.]

100. ——. Esquisse stratigraphique et pétrographique du Bassin de la Tafna (Algérie). 8vo, iv+536 pp., v pls., 121 text-figg. Alger: Jourdan. [III, B, ii, b, *2*; iii, c, *1*.]

101. GEOLOGICAL SOCIETY OF LONDON. List of the Types and Figured specimens recognised by C. D. SHERBORN, in the collection of the Geological Society of London. Verified and arranged, with additions, by J. F. BLAKE. (With an appendix.) 8vo, vi+100+xxxii pp. London. [II, E, i, c. IV, C, E, F.]

102. GIARDINA, A. Note sul meccanismo della fecondazione e della divisione cellulare, studiato principalmente in uova di echini. I. Sulla divisione cellulare. xxi, pp. 561–581, 4 text-figg. II. Sulla fecondazione. xxii, pp. 40–58, 6 text-figg.: Anat. Anz. [II, F, iv.]
Abstract: in LUDWIG (178).

GIBSON, W. See STRAHAN, A. (272).

GIES, W. J. (133) Zool. Rec. 1901. Abstract: in LUDWIG (178).

GORDON, C. H. (1) Zool. Rec. 1891. Abstract: P. Iowa Ac. i, pp. 100, 101 (Jan. 1899).

——. (2) Zool. Rec. 1891. Abstract: P. Iowa Ac. i, pp. 98–100 (Jan. 1899).

103. GORKA, S. Az állatok öncsonkitása és fájdalomérzése [Autotomy and the sense of pain in animals.] Potfuz. Termes. Kozl. lxv, pp. 2–22, 10 text-figg. (Feb.) [II, D, vii.]

104. GOURRET, P. Documents zoologiques sur l'Etang de Thau. Trav. Inst. Montpellier (n. s.) Mem. v, 55 pp. (1896.)
[II, E, iv. III, A, ii.]

GRABAU, A. W. See SHIMER, H. W. (262).

105. GRAVE, C. Some points in the structure and development of *Mellita testudinata*. Johns Hopkins Univ. Circ. xxi, pp. 57–59, 6 text-figg. (April.) [II, F, v, c; vi, c, *8*.]
Abstract: in LUDWIG (178).

106. ——. Feeding habits of a Spatangoid, *Moera atropos*; a Brittle-Star Fish, *Ophiophragma Wurdmannii* and a Holothurian, *Thyone briareus*. Prelim. Abstr.: (in Rep. of Meeting of Amer. Morphol. Soc.) Science (n. s.), xv, p. 579. (11 April.) [II, D, iv, b, c, e.]
Abstract: in LUDWIG (178).

107. [GRAVE, C.] A method of rearing marine larvae. Prelim. Abstr.: (in Rep. of Meeting of Amer. Morphol. Soc.) Science (n. s.), xv, pp. 579, 580. (11 April.) [II, E, i, b.]

108. ——. The artificial propagation of Sea-eggs. Agricult. News, Barbados, i, p. 24. (10 May.) [II, E, i, b; ii.]

109. GREELEY, A. W. Artificial parthenogenesis in Starfish produced by a lowering of temperature. Amer. J. Physiol. vi, pp. 296–304. (Jan.) [II, F, viii.]
Abstract: in LUDWIG (178).

110. GREENE, G. K. Contribution to Indiana Palaeontology, Part ix, pp. 75–84, pls. xxv–xxvii. New Albany, Indiana. (14 May.) [II, B, ii, d, *1*, *2*. III, B, iv, f. IV, H.]
Descriptions of spp. of *Nucleocrinus*, all by R. R. ROWLEY.

111. ——. Contribution to Indiana Palaeontology. Part x, pp. 85–97, pls. xxviii–xxx. (4 Sept.) [II, B, i, h, *5*; ii, d, *1*, e: D, vii. III, B, iv, e, f. IV, F, H.]
Descriptions of spp. of *Echinoderma* by R. R. ROWLEY.

112. GREPPIN, E. Ueber Originalien der geologischen Sammlungen des Basler Naturhistorischen Museums. Verh. Ges. Basel, xv, pp. 25–134. (Oct.?) [II, E, i, c. III, B, iii, c. IV, E.]
Short note: Museums Journ. ii, p. 160 (Nov. 1902).

113. GRIEG, J. A. Oversigt over det nordlige Norges echinodermer. Bergens Mus. Aarbog 1902, No. 1, 38 pp., i pl., 1 text-fig. (July.) [II, B, ii, b, c. III, A, ii. IV, C, D, E.]
Abstract: in LUDWIG (178).

114. ——. *Solaster affinis* (Brandt) Danielssen & Koren. Nyt Mag. Naturv. xl, pp. 369–378. (Dec.) [II, B, ii, b, d, *1*. III, B, ii. IV, D.]

115. GRÖNWALL, K. A. Bornholms Paradoxideslag og deres Fauna. Danmarks geol. Unders. II R. No. 13, xii+232 pp., v pls. 6 Kr. [III, B, iv, k. IV, K.]

116. GROSSOUVRE, A. de. Recherches sur la Craie supérieure. I. Stratigraphie générale, avec une Monographie du Genre *Micraster*, par J. LAMBERT. In 2 Vols. 4to, viii+1014 pp., 39 tables, 33 text-figg., iii pls. Mem. Carte geol. France. 30 fr. (1901 [i.e. April, 1902].) [II, A, iii. III, B, i; iii, b, *1*. IV, C, F.]
The Monograph by J. LAMBERT, constituting Chapter IV (pp. 149–267), was recorded and indexed as (83) Zool. Rec., 1895. To it are now added pp. 957–971 errata et addenda.

Reviews: by J. LAMBERT, Rev. paleozool. vi, pp. 207–210 (Oct. 1902); by A. J. JUKES-BROWNE, Geol. Mag. (n.s.), dec. iv, Vol. x, pp. 38–42 (Jan. 1903). Abstract: by E. HAUG, Geol. Centrbl. ii, pp. 822–828 (15 Dec. 1902).

117. HAAG [Rektor]. Vorlage einer *Encrinus* Krone aus dem Dolomit des oberen Muschelkalks. Jahresh. Ver. Wurttemb. lviii, p. lix. [III, B, iii, e.]

118. HALL, T. S. New or little known Fossils from the Tertiaries of Victoria. P. Soc. Victoria (n.s.), xv, pp. 80–85, pl. xi. (Aug.) [III, B, ii, d, f.]

119. HAMANN, O. Echinodermen (Stachelhäuter). IV. Klasse. *Echinoidea*, Seeigel (Fortsetzung). Bronn's Klassen und Ordnungen des Thierreichs, ii, Abth. 3, Lief. 44–48, pp. 1031–1094, pls. i–iv (Feb.); Lief. 49–53, pp. 1095–1174, pls. v–viii (Sept.); Lief. 54–57,

pp. 1175–1238, pls. ix–xii (Dec.); Lief. 58–61, pp. 1239–1302, pls. xiii–xvi (Dec.). [II, B, i, c, *5–12*; iii, a, c: C, vii: D, i: F, ii, viii.]

Kapitel D. Experimentelle Biologie der Seeigel. Von H. PRZIBRAM, pp. 1169–1295.

120. HANSEN, H. J. *Echinocheres globosus*, n. gen., n. sp., a Copepod parasitic in spines of an Echinothurid. Vid. Medd. 1902, pp. 437–449, pl. xv. (5 Dec.) [II, D, viii, c.]

121. HARPER, G. W. & BASSLER, R. S. Catalogue of the fossils of the Trenton and Cincinnati Periods occurring in the vicinity of Cincinnati, O. 8vo, iv+34 pp. Cincinnati, 1896. [III, B, iv, h.]

122. HARTMANN, M. Studien am thierischen Ei. I. Ovarialei und Eireifung von *Asterias glacialis*. Zool. Jahrb. Anat. xv, pp. 793–812, pls. xlii, xliii. (28 Jan.) [II, F, iii, d, e.]

Abstract: in LUDWIG (178); in J. R. Micr. Soc. 1902, p. 437 (Aug. 1902); and for technique, by E. SCHOEBEL, Zeitschr. wiss. Mikr. xix, p. 72 (Aug).

HAUG, E. See GROSSOUVRE, A. DE.

HEIDER, K. See KORSCHELT, E. (158).

HERBST, C. (147) Zool. Rec. 1901. Abstract: in LUDWIG (178).

123. ——. Vorläufige Uebersicht ueber die Rolle der zur Entwickelung der Seeigellarven notwendigen anorganischen Stoffe. Verh. Ver. Heidelb. (n.f.) vii, pp. 367–394. (28 Oct.) [II, F, viii.]

HÉROUARD, R. (150) Zool. Rec. 1901. Abstract: in LUDWIG (178).

124. ——. Sur les genres *Bathyplotes* et *Herpysidia*. Bull. Soc. zool. France, xxvii, pp. 22, 23. [IV, B.]

125. ——. Sur une loi de formation des corpuscles calcaires et sur l'homologie qui existe entre ces corpuscles chez *Ankyroderma* et *Synapta*. Bull. Soc. zool. France xxvii, pp. 46–51, 8 text-figg. [II, B, i, a, *4*; b, *4*: F, vi, a, *4*.]

Abstract: J. R. Micr. Soc. 1902, p. 436 (Aug. 1902).

126. ——. Sur l'anatomie comparée des Échinodermes. Bull. Soc. zool. France, xxvii, pp. 131–138, 1 text-fig. [II, B, i, a, *3*, *5*, *10*; b, *10*.]

Abstract: in LUDWIG (178); in J. R. Micr. Soc. 1902, p. 560 (Oct.).

127. ——. Holothuries provenant des campagnes de la Princesse-Alice (1892–1897). Résultats des Campagnes...Prince Monaco, Fasc. xxi, 62 pp., viii pls.

[II, B, i, b, *1*, *4*, *9*; ii, c: D (iii, vii, viii), b. III, A, ii. IV, B.]

Abstract: in LUDWIG (178).

128. HICKSON, S. J. Fertilisation. Tr. Manchester Micr. Soc. 1902 (err. pro. 1901), pp. 25–34. (7 June.) [II, F, viii.]

129. HILL, R. T. Geography and geology of the Black and Grand Prairies, Texas, with detailed descriptions of the Cretaceous formations and special reference to artesian waters. Part 3. Geology of the Black and Grand Prairies. Rep. U. S. Geol. Surv. xxi, pp. 86–386, pls. xiv–liv, 56 text-figg. (1901, [probably 1902].) [III, B, iii, b, *2*.]

130. HILL, W. Note on the Upper Chalk of Lincolnshire. Geol. Mag. (n. s.), dec. iv, vol. ix, pp. 404–406. (Sept.) [III, B, iii, b, *1*.]

131. HIND, W. On the characters of the Carboniferous rocks of the Pennine system. P. Yorksh. geol. Soc. xiv, pp. 422–464. [III, B, iv, e.]

132. HOYER, —. Der untere Lias von Empelde bei Hannover. Centrbl. Min. 1902, pp. 33–44. (Jan.) [III, B, iii, d.]

133. [HOYER, —.] Die geologischen Verhältnisse der Umgegend von Sehnde. Zeitschr. Deutsch. geol. Ges. liv, pp. 84–143, pls. v, vi, 6 text-figg. (July.) [III, B, iii, c, *3*; d.]

HUNTER, S. J. (159) Zool. Rec. 1901. Abstract, Rev. Sci. (4), xvii, p. 310 (8 March, 1902).

IANISCHEWSKY, M. See YANĪSHEVSKIĬ, M. E. (304).

JAEKEL, O. (162) Zool. Rec. 1901. Abstracts: by A. TORNQUIST, N. Jahrb. Min. 1903, i, pp. –533–534– (June); in LUDWIG (178).

134. ——. Ueber verschiedene Wege phylogenetischer Entwickelung. Verh. Int. Zool. Congr. Berlin, v, 1901, pp. 1058–1117, 28 text-figg. (Aug.) [II, A, i, iii. B, i, f, *5*; g, *3*. IV, F, *Atelecr.*, *Metabolocr.*, *Perittocr.*, *Prodromocr.*, *Promelocr.*]
Abstract: by P. MAYER, Zool. Jahresber. 1902 (July, 1903).
Review: by J. P. McM[URRICH], Science (n. s.), xvii, p. 380 (6 March, 1903).

135. JANENSCH, W. Die Jurensisschichten des Elsass. Abh. geol. Karte Elsass (n. s.), v, iv+152 pp., xii pls., 13 text-figg. [III, B, iii, d.]

136. JANET, C. Note sur les conditions dans lesquelles s'est effectué le dépot de la craie dans le bassin angloparisien. Bull. Soc. geol. France (3), xix, pp. 903–913. (Feb. & Apr. 1892.) [II, D, ix, x. III, B, iii, b, *1*.]

137. JAPAN, IMPERIAL GEOLOGICAL SURVEY. Outlines of the Geology of Japan &c. 8vo, Tokyo, viii+252 pp. [III, B, ii; iii, b, *1*, *2*; iv, e.]

138. JESUP, M. K. Thirty-third Annual Report. Rep. Amer. Mus. for 1901, pp. 9–40. (1902.) [II, E, i, c.]
With a plate of *Uintacrinus*.

139. JOHNSON, J. P. The Eocene Flora and Fauna of Walton-Naze, Essex. Essex Natural. xi, pp. 284–287. (May, 1901.) [III, B, ii, f.]

140. JOLEAUD, A. Sur l'existence probable d'un lambeau Bartonien dans le Golfe d'Ajaccio. C.R. Ass. Franc. 1901, ii, pp. 357, 358. [III, B, ii, f.]
Abstract by L. PERVINQUIÈRE, Geol. Centrbl. iii, p. 285 (15 March, 1903).

141. JUKES-BROWNE, A. J. The students' Handbook of Stratigraphical Geology. 8vo, xii+590 pp., 184 text-figg. London: Stanford. 12*s*. (March.) [II, E, i, d. III, B, i.]

142. ——. The occurrence of *Marsupites* in Flints on the Haldon Hills. Geol. Mag. (n. s.), dec. iv, vol. ix, pp. 449, 450. (Oct.) [II, B, iii, b, *1*.]

——. See GROSSOUVRE, A. DE.

KALLIUS, E. See BOVERI, T.

143. KARAKASCH, J. Note sur le Crétacé inférieur de Biassala (Crimée). Trav. Lab. geol. Grenoble, vi, pp. 93–107, pl. i. Reprinted from Ann. Univ. Grenoble, xiv. [III, B, iii, b, *2*.]

144. KATZER, F. Geologie von Böhmen.....Zweite Auflage. 8vo, xxii+1606 pp., 1068 text-figg., 1 map. Prag: Taussig. M 24. [II, E, i, d. III, B, iii, b; iv, a.]

145. *KEILHACK, K. Thiere und Pflanzen als Gesteinsbildner in Gegenwart und Vorzeit. Prometheus, vii, pp. 577–583, 595–598, 611–615, 7 text-figg. (1896.) [II, D, x.]

146. KERFORNE, F. Faune des Schistes et Calcaires coblentziens de l'Ille-et-Vilaine. Bull. Soc. sci. med. Ouest France, v, pp. 209–240. (1896.) [III, B, iv, f.]

147. [KERFORNE, F.] Sur les principaux niveaux du Dévonien de l'Ille-et-Vilaine. Bull. Soc. sci. med. Ouest France, viii, pp. 12, 13. (1899.) [III, B, iv, f.]

148. ——. Note sur l'Ordovicien du Sud de Rennes. Bull. Soc. sci. med. Ouest France, viii, pp. 168–178. (1899.) [III, B, iv, h.]

149. ——. Étude sur la région silurique occidentale de la presqu'île de Crozon (Finistère). Bull. Soc. sci. med. Ouest France, x, Appendix, 234 pp., 1 map, 29 text-figg., 1 cart. (1901.) [III, B, iv, g, h.]

150. KEYES, C. R. Preliminary note on the sedentary habits of *Platyceras*. P. Iowa Ac. i, part ii, p. 24. (1892.) [II, D, viii, f.]

151. ——. Synopsis of American Paleozoic Echinoids. P. Iowa Ac. ii, pp. 178–194, pls. xviii–xx. (1895.) [III, B, iv, e. IV, C.]
This was entered, as unseen, in Zool. Rec. 1895, under KEYES (72). Details have been corrected and completed in the Records for 1897, 1898, & 1899. But not till Nov. 1902 could the paper be seen in England.

152. ——. Memorial of Charles Wachsmuth. P. Iowa Ac. iv, pp. 13–16, 1 pl. (portrait). (1897.) [II, E, iii, iv.]

153. ——. Devonian interval in Missouri. Bull. Geol. Soc. Amer. xiii, pp. 267–292, pl. xliv. (6 Aug.) [III, B, iv, e.]

154. KINDLE, E. M. The Niagara Limestones of Hamilton County, Indiana. Amer. J. Sci. (4) xiv, pp. 221–224, 2 text-figg. (Sept.) [III, B, iv, g.]

KLAUTSCH, A. See TOULA, F.

155. KOEHLER, R. Note préliminaire sur quelques Ophiures nouvelles provenant des campagnes de la "Princesse Alice." Bull. Soc. zool. France, xxvi, pp. 222–231, 8 text-figg. (Dated Dec., 1901, but the livraison not received in London till April, 1902.) [III, A, ii. IV, E.]
Abstract: in LUDWIG (178).

156. —— & BATHER, F. A. *Gephyrocrinus grimaldii*, Crinoïde nouveau provenant des campagnes de la "Princesse Alice." Mem. Soc. zool. France, xv, pp. 68–79, 4 text-figg. (July.)
Abstracts: in J. R. Micr. Soc. 1903, p. 43 (Feb.); Ann. Nat. Hist. (7) x, p. 420 (Nov. 1902).

——. See GADEAU DE KERVILLE.

157. KOKEN, E. Die Deutsche geologische Gesellschaft in den Jahren 1848–1898 mit einem Lebensabriss von Ernst Beyrich. 8vo, 70 pp., with portrait frontisp. Berlin. (1901.) [II, E, iv.]

158. KORSCHELT, E. & HEIDER, K. Lehrbuch der vergleichenden Entwicklungsgeschichte der wirbellosen Tiere. Allgemeiner Theil. Erste Lieferung. 8vo, x+538 pp., 318 text-figg. Jena: Gustav Fischer, M. 14. [II, F, iii, a; viii.]

159. KOSSMAT, F. Geologie der Inseln Sokótra, Sémḥa und 'Abd el Kûri. Denk. Ak. Wien, lxxi, pp. 1–64, pls. i–v, 13 text-figg. [III, B, iii, b, *1*. IV, C.]

160. KUEKENTHAL, W. Parasitische Schnecken. Abh. Senckenb. Ges. xxiv, pp. 1–16, pls. i–iii. (1897.) [II, D, viii, c, d.]

161. LAMBERT, J. Description des Echinides fossiles de la province de Barcelone [première partie]. Mem. Soc. geol. France, Pal., ix, fasc. iii, Mem. 24, 58 pp., iv pls. (ix–xii), 5 text-figg. (Feb.) [II, B, ii, d, *2*. III, B, ii, f; iii, b, *1*, *2*. IV, C.]
Abstracts: by J. LAMBERT, Rev. paleozool. vi, pp. 204–206 (Oct. 1902); by A. TORNQUIST, N. Jahrb. Min. 1903, i, p. –529– (June, 1903).

162. [LAMBERT. J.] [Review of] The zones of the White Chalk of the English coast. I. Kent and Sussex, by A. W. ROWE [(288) Zool. Rec. 1900]. Rev. paleozool. vi, pp. 88, 89. (April.) [IV, C: F.]

163. ——. Sur un Micraster nouveau de la craie de Maestricht. Bull. Soc. Belge Geol. xvi, Mém., pp. 121–128, pl. vi, 1 text-fig. (Text, July, 1902; plate, Feb. 1903.)
[II, B, c, *5*, *12*. III, B, iii, b, *1*. IV, C.]
Abstracts: in Proc. Verb., pp. 165, 166 (1902); by J. LAMBERT, Rev. paleozool. vii, p. 48 (Jan. 1903).

——. See AIRAGHI, C., ARNAUD, H., CHECCHIA, G, DOUVILLÉ, H., ELBERT, J., FOURTAU, R., GAUTHIER, V., GROSSOUVRE, A. DE, LISSAJOUS, M., LORIOL, P. DE, LOVISATO, D., MAIRE, V., OPPENHEIM, P., ORTMANN, A. E., PAYEBIEN, B. F., PERON, P. A., REMEŠ, M., SAVIN, L., SCHLUETER, C., TOULA, F., VALETTE, A., WANNER, J.

LAPPARENT, A. DE. (180) Zool. Rec. 1901. Abstract of Author's Abstract, by M. LERICHE, Geol. Centrbl. ii, p. 471 (1 Aug. 1902).

LEBEDEV, N., See ABICH, H. (1).

164. LEBESCONTE, P. Étude géologique sur l'Ouest de la France (suite). Bull. Soc. Sci. Med. Ouest. France i, pp. 167–181, 1 text-fig. and pp. 266–282. (1892.) [III, B, ii, d; iv, e, f.]

——. See BEZIER, T. (22).

165. LEBRUN, —. La Craie de Lille et des environs. Ann. Soc. geol. Nord., xxxi, pp. 4–10. (May.) [III, B, iii, b, *1*.]

166. LEIPER, R. T. On an acoelous turbellarian inhabiting the common heart urchin. [Preliminary Abstract: in article "Zoology at the British Association,"] Nature, lxvi, p. 641. (23 Oct.) [II, D, viii, c.]

167. LENEY, F. A List of the 'Type,' Figured, and Described Fossils in the Norwich Castle Museum (conclusion). Geol. Mag. (n. s.), dec. iv, vol. ix, pp. 220–231. (May.)
The whole list is also reissued by Castle Museum, Norwich, with Preface by H. WOODWARD, 8vo, 20 pp. [II, E, i, c.]

LERICHE, M. See FOURTAU, R., GAUTHIER, V., LAPPARENT, A. DE.

168. LEVI, G. Fauna del Lias inferiore di Cima alla Foce nell' Alpe di Corfino. Boll. Soc. geol. Ital. xxi, pp. 398–410. (Oct.)
[III, B, iii, d.]

LEWIS, W. H. See LOEB, J. (173).

169. LEYDIG, F. Horae Zoologicae. Zur vaterländischen Naturkunde ergänzende sachliche und geschichtliche Bemerkungen. 8vo, iv + 280 pp. Jena: Fischer, M. 6. [II, E, iii, iv. III, B, iii, e.]

LISSAJOUS, M. (195) Zool. Rec. 1900. Abstract by J. LAMBERT, Rev. paleozool. vii, p. 162 (July, 1903).

170. LOEB, J. Ueber Methoden und Fehlerquellen der Versuche ueber Künstliche Parthenogenese. Arch. Entwickmech. xiii, pp. 481–486. (2 May.) [II, F, viii.]

171. ——. Ueber die Einwände des Herrn Ariola gegen meine Versuche ueber Künstliche Parthenogenese. Arch. Entwickmech. xiv, pp. 288, 289. (13 June.) [II, F, viii.]
Abstract: in LUDWIG (178).

172. ——. Ueber Eireifung, natürlichen Tod und Verlängerung des Lebens beim unbefruchteten Seesternei (*Asterias forbesii*) und deren Bedeutung für die Theorie der Befruchtung. Arch. Ges. Physiol. xciii, pp. 59–76. [II, F, viii.]
Translated as "Maturation, natural death and the prolongation of the life of unfertilized star-fish eggs (*Asterias forbesii*) and their

significance for the theory of fertilization." Biol. Bull. iii, pp. 295–311.
Abstract: in LUDWIG (178).

173. [LOEB, J. & LEWIS, W. H.] On the prolongation of the life of unfertilised eggs of the Sea-urchin by potassium cyanide. Amer. J. Physiol. vi, pp. 305–317. (Jan.) [II, F, viii.]
Prelim. Abstr.: Science, xv, p. 342 (28 Feb. 1902). Abstract: in LUDWIG (178).

174. ŁOMNICKI, J. Słowo o pewnych szczątkach wężowideł (Ophiuridae) w miocenie. (Notes sur quelques fragments d'Ophiurides miocéniques). Kosmos polski, xxvii, pp. 155–157. (May.) [II, E, i, c. IV, F.]

175. LORENZ, T. Geologische Studien im Grenzgebiete zwischen helvetischer und ostalpiner Facies. II. Der Südliche Rhaetikon. Ber. Ges. Freiburg, xii, pp. 34–62, pls. i–ix. (25 April.) [III, B, iii, b. IV, C.]

LORIOL, P. DE. (192) Zool. Rec. 1901. Abstract: by C. SARASIN, Geol. Centrbl. ii, pp. 732, 733 (1 Nov. 1902).

176. ——. Notes pour servir a l'étude des Échinodermes, Fascicule x, 4to, viii+32 pp., iv pls. (xxxii–xxxv of series). Bale et Genève: Georg, 8 fr. (April.) [II, E, iii. III, B, ii, d; iii, b, *1*, *2*; c, *1*. IV, C.]
Abstract: by H. LUDWIG, Zool. Centrlbl. ix, p. 351 (17 June 1902).
Review: by J. LAMBERT, Rev. paleozool. vi, pp. 206, 207 (Oct. 1902).

177. LOVISATO, D. Le specie fossili finora trovate nel calcare compatto di Bonaria e di San Bartolomeo. 8vo, 22 pp. Cagliari: Auctor, fr. 0.50. (Sept.) [III, B, ii, d. IV, C.]
Review: by J. LAMBERT, Rev. paleozool. vii, pp. 52, 53 (Jan. 1903).
Abstract: by P. VINASSA DE REGNY, Riv. ital. Pal. ix, p. 4 (May, 1902).

LOZANO, R. S. See OEHLERT, D. P. (208).

178. LUDWIG, H. Echinoderma. Zool. Jahresber. for 1902. (July, 1903.) Gives Literature for 1901 & 1902 and Abstracts of: DOEDERLEIN (93) in Zool. Rec. 1900; BATHER (18), BOVERI (41 & 43), CLARK (63 & 64), COHNHEIM (70), CORI & STEUER (72), CUENOT (78), DAVENPORT (83), DAWYDOFF (84), GIES (133), HERBST (147), HEROUARD (150), JAEKEL (162), MASTERMAN (202), MATHEWS (205 & 206), MORTENSEN (214), ÖSTERGREN (231), PFEFFER (242), PRZIBRAM (250), REIFFEN (258), RIGGENBACH (261), RUSSO (269), SLUITER (284), SPRINGER (290), THEEL (298), VIGUIER (313), ZUR STRASSEN (338), in Zool. Rec. 1901; ACKERMANN (1), ARIOLA (11), BARTHELS (14), BIEDERMANN (23), BRYCE (35), BULLER (38), CHECCHIA (40), CLARK (45), CUENOT (52), DELAGE (61, 62, 63, 64, 65), DOEDERLEIN (70), DRIESCH (72), DUNGERN (75), GIARDINA (102), GRAVE (105 & 106), GREELEY (109), GRIEG (113), HARTMANN (122), HEROUARD (126 & 127), KOEHLER (155), LOEB (171 & 172), LOEB & LEWIS (173), LYON (180), MACBRIDE (181), MARSHALL (191), MÖRNER (206), RITTER (241), RUSSO (245), SCHMIERER (255), STEINBRÜCK (267), STEVENS (270), TEICHMANN (276), THEEL (277), VIGUIER (286 & 287), WASSILIEFF (293), WILSON (297) in this Record.

179. LUTHER, D. D. Stratigraphic value of the Portage sandstones. Bull. N. York Mus. lii, pp. 616–631. [pp. 630, 631 Postscript note by J. M. CLARKE.] (July.) [III, B, iv, f.]

180. LYON, E. P. Effects of potassium cyanide and lack of oxygen upon the fertilized eggs and the embryos of the Sea-urchin (*Arbacia punctulata*). Amer. J. Physiol. vii, pp. 56–75. (April.) [II, F, viii.]
Abstract: in LUDWIG (178).

181. MACBRIDE, E. W. The development of *Echinus esculentus.* P. R Soc. London, lxix, pp. 268–276, 8 text-figg. (31 Jan.)
[II, F, v, c: vi, c, *6*, *7*, *8*, *10*, *11*.]
Abstract: in LUDWIG (178).

182. ——. The development of *Echinus esculentus.* Verh. Int. Zool. Congr. Berlin, v, 1901, pp. 693–697. (Aug.)
[II, E, i, b: F. vi, c, *6*, *7*, *10*, *12*.]
This is not quite the same as (181) though bearing same title.

183. ——. The development of *Echinus esculentus.* [Preliminary Abstract: in article "Zoology at the British Association,"] Nature, lxvi, p. 640. (23 Oct.)

184. McHENRY, A. & WATTS, W. W. Guide to the collections of rocks and fossils belonging to the Geological Survey of Ireland, arranged in room III E of the Museum of Science and Art, Dublin. 8vo, 156 pp., frontisp. Dublin (1895). Also 2nd Edition with same pagination. (1898.) [II, B, i, a, *1*: E, i, c. III, B, iii, b, *1*; d: iv, d, e, g.]

185. MACMUNN, C. A. On the pigments of certain corals, with a note on the pigment of an Asteroid. In J. S. GARDINER, Fauna and Geogr. Maldive and Laccadive Archipelagoes, i, pp. 184–190, text-fig. 34. (May.) [II, C, v.]

MACMURRICH, J. P. See JAEKEL, O. (134).

186. MACPHERSON, W. The zones of the Chalk near Brighton, with an introductory sketch of the existing zones of life in Britain. With an "Appendix" and a list of "The McPherson Zonal Collection of Chalk fossils in the Brighton Museum." 8vo, 24 pp., London: Dulau. (2 Sept.) [II, E, i, c. III, B, iii, b, *1*.]
The first portion of this consists of McPHERSON (187) printed in advance. All references in the Index are made to this copy.

187. ——. The zones of the Chalk near Brighton, with an introductory sketch of the existing zones of life in Britain. Rep. Brighton Soc. 1902, pp. 19–38, 3 text-figg. (? Nov.) [See No. 186.]

MAIRE, V. (199) Zool. Rec. 1901. Notice by J. LAMBERT, Rev. paleozool. vii, p. 46. (Jan. 1903.) [III, B, iii, c. *2*.]

188. MAKOWSKY, A. "Fossilien aus der oberen Kreide." Verh. Ver. Brunn, xxxix, Sitzber. p. 37. (1901.) [III, B, iii, b, *1*.]

189. MALAISE, C. État actuel de nos connaissances sur le Silurien de Belgique. (fin). Ann. Soc. geol. Belgique, xxv bis, pp. 217–221. (20 Aug. 1901.) [III, B, iv, h.]
Completes MALAISE (219) Zool. Rec. 1900.

190. MARIANI, M. Osservazioni geologiche sui dintorni di Camerino. Boll. Soc. geol. Ital. xxi, pp. 305–328, pl. xii. (Oct.) [III, B, ii, d.]

191. MARSHALL, W. S. The genital-pores of the male *Antedon rosacea.* Zool. Anz. xxv, pp. 209–211, 2 text-figg. (10 March.) [II, B, i, f, *12*.]
Abstracts: J. R. Micr. Soc. 1902, p. 437 (Aug. 1902); in LUDWIG (178).

192. MARTELLI, A. I terreni nummulitici di Spalato in Dalmazia. Rend. Acc. Lincei (5), vol. xi, pp. 334–337. (May.) [III, B, ii, f.]

193. ——. I fossili dei terreni Eocenici di Spalato in Dalmazia. Palaeontogr. ital. viii, pp. 43–97, pls. vi, vii. [III, B, ii, f. IV, C.]

MASTERMAN, A. T. (202) Zool. Rec. 1901. Abstract: in LUDWIG (178).

194. ——. Elementary text-book of Zoology. Second Ed. 8vo, xxiv + 628 pp., xiii pls., 398 text-figg. Edinburgh: Livingstone. 12 sh. (May.)

As regards Echinoderma, no change of importance from MASTERMAN (203) Zool. Rec. 1901.

195. [MASTERMAN, A. T.] The early development of *Cribrella oculata* (Forbes) with remarks on Echinoderm development. Tr. R. Soc. Edinb. vol. xl, pp. 373–418, pls. i–v, 6 text-figg. (27 May.)
[II, A, ii, iii: B, i, a, *3*, d, *12*; iii: E, i, b: F, iv, d; v, d.]
Preliminary Abstract: Nature, lxv, p. 551 (10 April, 1902). Abstract in Amer. Natural. xxxvii, p. 121 (Feb. 1903).

196. ——. The relationship of the larva to the adult in the starfish. (Illustrated by wax models.) [Preliminary Abstract: in article "Zoology at the British Association,"] Nature, lxvi, p. 640. (23 Oct.)
Illustrates MASTERMAN (195).

MATHEWS, A. P. (205) Zool. Rec. 1901. Abstract: in LUDWIG (178).—(206) Zool. Rec. 1901. Abstracts: Rev. Sci. (4) xvii, p. 310. (8 March, 1902); in LUDWIG (178).

197. MATTE, H. Documents pour servir à la description géologique des Alpes Delphino-Savoisiennes. Compte rendu d'une excursion géologique &c. Trav. Lab. geol. Grenoble, vi, pp. 109–202, pls. ii–iv, 30 text-figg. Reprinted from Ann. Univ. Grenoble, xiv.
[III, B, iii, b, *2*; C, *1*.]

198. MATTINGLEY, A. G. Echinoderma [noticed during] the Shoreham camp-out. Victorian Natural. xix, pp. 111, 112. (Dec.) [III, A, iv.]

MAYER. P. See BOVERI, T., BRYCE, T. H., FREDERICQ, L., GALEOTTI, G., JAEKEL, O.

199. MEEK, A. The Trawling Excursions. Rep. Northumberland Sea Fish Comm. 1902, pp. 7–32, 7 charts. (Printed 16 Oct.)
[II, F, V, a. III, A, ii.]

200. MEIGEN, W. Die Unterscheidung von Kalkspat und Aragonit auf chemischem Wege. Ber. Oberrhein. geol. Ver. xxxv, pp. 31–33. (Sept.) [II, B, i, a, *4*.]
A repetition of MEIGEN (208) Zool. Rec. 1901.

201. MICHAEL, R. Ueber einen neuen *Encrinus* aus dem oberschlesischen Muschelkalk. Zeitschr. Deutsch. geol. Ges. liii. Title only, but an abstract is said to have appeared in Glückauf 1901, p. 293; fide Geol. Centrbl. 1902, paragraph 1250. [III, B, iii, e.]

202. MICHALET, A. Sur l'étage cénomanien des environs de Toulon et ses échinides. C.R. Ass. Franc. xxx, 1e part., p. 120. (1901.)
A preliminary notice of MICHALET (203).

203. ——. Le Cénomanien des environs de Toulon et ses Échinides. Bull. Soc. geol. France (4), i, pp. 574–589. (March [? July].)

204. MICHEL, A. L'expérimentation sur les préembryons et son importance pour la Morphologie générale. Rev. Sci. (4) xvii, pp. 156–462. (12 April.) [II, F, viii.]

205. MIGUEL É IRIZAR, M. DE. Nota sobre un equinodermo fósil del cretáceo de Morella. Bol. Soc. espan. ii, pp. 356–358. (Dec.)
[III, B, iii. b, *2*.]

206. MOERNER, C. T. Kleinere Mittheilungen...III. Die sogenannten weinrothen Körper der Holothurien. Zeitschr. Physiol. Chem. Strassburg, xxxvii, pp. 89–93. (Nov.) [II, B, i, b, *4*.]
Contains a note by Hj. ÖSTERGREN.
Abstract: in LUDWIG (178).

MONACO, PRINCE OF. See ALBERT HONORÉ CHARLES (4).

MONKS, S. P. See RITTER, W. E. (241).

MORGAN, T. H. (212). Zool. Rec. 1901. Abstract: Rev. Sci. (4), xviii, p. 114 (6 Sept. 1902).

MORTENSEN, T. (214). Zool. Rec. 1901. Abstract: in LUDWIG (178).

207. NICKLES, J. M. The Geology of Cincinnati. J. Cincinnati Soc. xx, pp. 49–100, pl. i, 1 text-fig. (10 Jan.). [III, B, iv, h.]

208. OEHLERT, D. P. Fósiles Devonianos de Santa Lucía. Bol. Com. geol. espan. xxvi, Article 2, 71 pp. Translation of OEHLERT, D. P. (250) Zool. Rec. 1897, by R. S. LOZANO.

209. OPPENHEIM, P. Ueber die Fauna des Mt. Promina in Dalmatien und das Auftreten von Oligocän in Macedonien. Centrbl. Mineral. 1902, pp. 266–281. (May.) [III, B, ii, e.]

210. ——. Revision der tertiären Echiniden Venetiens und des Trentino, unter Mittheilung neuer Formen. Zeitschr. Deutsch. geol. Ges. liv, pp. 159–283, pls. vii–ix, 23 text-figg. (Dec.)
[II, B, iii, c: D, iii, c. III, B, i; ii, e & f. IV, C, F.]
Review: by J. LAMBERT, Rev. paleozool. vii, pp. 50–52 (Jan. 1903).
Abstract: by R. J. SCHUBERT, Verh. geol. Reichsanst. 1902, p. 335 (Nov. 1902).

211. ——. Nachtrag zu meinem Aufsatz "Revision der tertiären Echiniden Venetiens und des Trentino, unter Mitteilung neuer Formen." Zeitschr. Deutsch. geol. Ges. liv, Briefl. Mitt., pp. 66–71. (Dec.).
[III, B, ii, e & f. IV, C.]
Abstracts: by R. J. SCHUBERT, Verh. geol. Reichsanst. 1902, p. 336 (Nov. 1902); by J. LAMBERT, Rev. paleozool. vii, pp. 172, 173 (July, 1903.)

212. ORTMANN, A. E. Reports of the Princeton University Expeditions to Patagonia, 1896–1899, vol. iv. Part II, pp. 45–332, pls. xi–xxxix, being Tertiary invertebrates. (April.)
[II, B, iii, a: F, vii, c. III, B, ii, d. IV. C.]
Review: by J. LAMBERT, Rev. paleozool. vii, pp. 53, 54 (Jan. 1903).

ÖSTERGREN, H. (231) Zool. Rec. 1901. Abstract: in LUDWIG (178).

——. See MOERNER, C. T. (206).

213. PATRINI, P. Studio geologico delle colline di Chiuppano nel Vicentino. Rend. Ist. Lombardo (2), xxxv, pp. 659–676. (Sept.)
[III, B, ii, e.]

214. PAYEBIEN, B. F. Étude élémentaire et descriptive des Oursins fossiles, notamment de ceux qu'on peut rencontrer dans le Mâconnais. Première Partie, clefs dichotomiques et descriptives pour déterminer promptement et sûrement 54 genres d'après les caractères fournis par le test. Bull. Soc. hist. nat. Mâcon, 1901, 47 pp. (1901.)
[II, B, i, c, *5*: E, i, d.]
Review: by J. LAMBERT, Rev. paleozool. vi, p. 87. (April, 1902.)

215. PEACH, B. N. President's address, entitled "Scottish palaeontology during the last twenty years." P. Phys. Soc. Edinb. xiv, pp. 361–394. (June.) [II, E, iv.]

216. ——. Appendix. Part I. Palaeontological, in A. GEIKIE, Geology of Eastern Fife, pp. 353–385. Mem. Geol. Surv. Scotland. (Nov.)
[III, B, iv, e.]

217. PEARCEY, F. G. Notes on the marine deposits of the Firth of Forth, and their relation to its animal life. Tr. Soc. Glasgow (n. s.), vi, pp. 217–251, i pl. (June.) [III, A, ii.]

218. [PEARCEY, F. G.] The echinoderms of the Moray and Cromarty Firths. Rep. Fish. Board Scotland, xx, pp. 303–325. (Oct.) [II, B, ii, d, *1* : D, iii, b, c, d ; viii, c ; ix. III, A, ii.]

PERON, P. A. (189) Zool. Rec. 1899. Abstract: by J. BÖHM, N. Jahrb. Min. 1902, i, p. –453– (May, 1902).

219. ——. Les étages crétaciques supérieurs des Alpes-Maritimes. Bull. Soc. geol. France (4), i, p. 505–536. (March.) [III, B, iii, b, *1*. IV, C.]
Prelim. Abstract. C.R. Ass. franc. xxx, part i, p. 114 (1901). Review: by J. LAMBERT, Rev. paleozool. vi, pp. 210, 211 (March, 1902).

220. PERRIER [J. O.] E. La fixation hereditaire des attitudes avantageuses. Verh. Int. Zool. Congr. Berlin, v, 1901, pp. 336–338. (Aug.) [II, A. i.]

221. PERRIER, R. Examen critique de quelques espèces d'Holothurides abyssales. Bull. Mus. Paris, 1902, pp. 342–345. [IV, B.]

PERVINQUIÈRE, L. See GAUTHIER, V., JOLEAUD, A.

222. PETITCLERC, P. Note géologique. Faunule du Vésulien (Bathonien inférieur) de la cote d'Andelarre (Hte. Saône). Feuille Natural. xxxii, pp. 89–98. (1 March.) 113–125, 2 text-figg. (1 April.) [III, B, iii, c. *3*.]

PFEFFER, W. (242) Zool. Rec. 1901. Abstract: in LUDWIG (178).

223. PHILIPPI, R. A. Descripcion de algunos fósiles Terciarios de la República Arjentina. An. Mus. Chile, Seccion 3 Mineralogía &c. No. 10, 14 pp., iv. pls. (1893.) [III, B, ii, a. IV, C.]

224. PICQUENARD, C. Les argiles fossilifères d'Apigné (Ille-et-Vilaine) et le falun de la Dixmerie (Loire-Inférieure). Bull. Soc. sci. med. Ouest France, iv, pp. 204–209. (1895.) [III, B, ii, d.]

225. POMPECKJ, J. F. Die Jura-Ablagerungen zwischen Regensburg und Regenstauf. (Ein Beitrage zur Kenntnis der Ostgrenze des Fränkischen Jura.) Geognost. Jahresh. xiv, pp. 139–220 (dated 1901 but both volume and author's extracts were received in June, 1902.) [II, D, iii, f. III, B, iii, d.]

226. PORTER, C. E. Don Claudio Gay. Notas biográficas i bibliográficas. Revist. chilena, vi, pp. 110–132. (June.) [II, E, iii.]

PRZIBRAM, H. (250) Zool. Rec. 1901. Abstract: in LUDWIG (178).

227. ——. Regeneration. Ergeb. Physiol. i, pp. 43–119. [II, D, vii : E, iii.]

228. ——. Versuch zur chemischen Charakterisierung einiger Tierklassen des natürlichen Systems auf Grund ihres Muskelplasmas. Beitr. chem. Physiol. Braunschweig, ii, pp. 143–147, and table. [II, C, vii.]

——. See HAMANN, O.

PUETTER. See DAWYDOFF, C., WINKLER, H.

229. QUINTON, R. L'Invertébré marin fermé anatomiquement au milieu extérieur lui est ouvert osmotiquement. Trav. Stat. Zool. Arcachon, 1899, pp. 27–35. (S. A., received Nov. 1902.) [II, C, iii.]
[Essentially the same as QUINTON (275) Zool. Rec. 1900.]

230. RADKEVICH, GH. (RADKEWITSCH, G.). O nizhnetretichnikh otlozheniyakh okrestnostei Kaneva. (Sur les dépots tertiaires et inférieurs aux environs de Kanew.) Zapiski Kiev. Obshch. xvi, pp. 319–363. (1900, received Oct. 1902.) [III B, ii, f.]

231. RAGUSA, E. Studi geologici sui calcari Iblei (Prov. di Siracusa). Parte I^a—Stratigrafia. Atti Acc. Gioen. lxxix, Mem. II, 26 pp., i pl. [III, B, ii, d.]

RAWITZ, B. (255) Zool. Rec. 1901. Abstract by H. WINKLER, Zeitschr. allg. Physiol. i, pp. 58–60 (1902).

232. REID, C. The geology of the country around Southampton. Mem. geol. Surv. U. K. (Explanation of sheet 315) iv+70 pp. [III, B, iii, b, *1*.]

233. ——. The geology of the country around Ringwood. Mem. geol. Surv. U. K. (Explanation of sheet 314) iv+62 pp. [III, B, ii, f; iii, b, *1*.]

REIFFEN, A. (258) Zool. Rec. 1901. Abstract: in LUDWIG (178).

234. REMEŠ, M. Nachträge zur Fauna von Stramberg. I. Die Fauna des rothen Kalksteins (Nesselsdorfer Schichten). Beitr. Pal. Oesterr.-Ung. xiv, pp. 195–217, pls. xviii–xx, 2 text-figg. (Oct.) [II, B, ii, e: D, viii, f. III, B, iii, c, *1*. IV, F.]
Abstract: by J. LAMBERT, Rev. paleozool. vii, p. 162 (July, 1903).

235. REPOSSI, E. Osservazioni stratigrafiche sulla Val d' Intelvi, la Val Solda e la Val Menaggio. Atti Mus. Milano, xli, pp. 129–175, i map, 4 text-figg. [III, B, iii, d.]

REYNOLDS, S. H. See GARDINER, C. I. (94).

236. —— & VAUGHAN, A. On the Jurassic Strata cut through by the South Wales Direct Line between Filton and Wootton Bassett. Quart. J. Geol. Soc. lviii, pp. 719–752, 5 text-figg. (Nov.) [III, B, iii, c, *3*; d.]

237. RHUMBLER, L. Zur Mechanik des Gastrulationsvorganges insbesondere der Invagination. Eine entwickelungsmechanische Studie. Arch. Entwickmech. xiv, pp. 401–476, pl. xxvi, 30 text-figg. (1 Aug.) [II, F, iv, c; viii.]

RIGGENBACH, E. (261) Zool. Rec. 1901. Abstract: in LUDWIG (178).

238. RICHARD, J. Campagne scientifique de la "Princesse Alice" en 1901. Bull. Soc. zool. France, xxvii, pp. 81–104. (June.) [II, B, ii, c: C, v: D, viii, c. III, A, ii.]

239. RITTENER, T. Étude géologique de la Côte-aux-Fées et des environs de Ste Croix et Baulmes. Beitr. geol. Karte Schweiz, xliii, iv+116 pp., v maps. [III, B, iii, b, *2*; c, *1*, *2*, *3*.]

240. RITTER, E. Le Djebel Amour et les monts des Oulad-Nayl. Bull. Carte geol. Algerie (2) No. 3, 100 pp., iv pls., 10 text-figg. [III, B, iii, b, *1*, *2*.]

241. RITTER, W. E. A summer's dredging on the coast of Southern California. Science (n. s.), xv, pp. 55–65. (10 Jan.) [II, B, ii, b: D, vii, d. III, A, iv.]
The notes on Echinoderms are based on the work of Miss G. R. CROCKER and Miss S. P. MONKS (see p. 58).
Abstract: in LUDWIG (178).

ROGERS, A. F. See BEEDE, J. W. (16).

242. ROTH v. TELEGD, L. Der NO-Rand des siebenbürgischen Erzgebirges in der Umgebung von Vidaly, Nagy-Oklos, Oláh-Rákos und Örményes. Jahresber. Ungarn. geol. Anstalt, 1898, pp. 81–108. (1901.) [III, B, ii, d.]

243. ROTHPLETZ, A. Geologische Alpenforschungen. I. Das Grenzgebiet zwischen den Ost- und West-Alpen und die Rhaetische Ueberschiebung. 8vo, viii+176 pp., v pls., 69 text-figg. Muenchen: Lindau (1900). [II, D, x. III, B, iii, e.]

ROVERETO, G. See DAINELLI, G.

ROWE, A. W. See LAMBERT, J. (162).

ROWLEY, R. R. See GREENE, G. K. (110, 111).

244. ——. New species of fossils from the Subcarboniferous Rocks of North-eastern Missouri. Amer. Geol. xxix, pp. 303–310, pl. xviii. (May.) [III, B, iv, e. IV, F.]

RUSSO, A. (269) Zool. Rec. 1901. Abstract: in LUDWIG (178).

245. ——. Studii su gli Echinodermi. Atti Acc. Gioen. (4) xv, Mem. VII, 94 pp., iii pls., 5 text-figg. (Author's copy received July, 1902; vol. recd. April, 1903.) [II, A, iii: B, i, a, *3*, *7*, *11*, *12*; g, *3*; h, *3*: E, i, a; iii; iv: F, vi, a, *1*. IV, A.]

Abstract in LUDWIG (178).

SARASIN, C. See LORIOL, P. DE.

246. SAVILLE-KENT, W. Star-fishes, sea-urchins, etc. Chapter III of Book VI of "The Living Animals of the World," ii, pp. 746–753, 11 text-figg. London: Hutchinson. [II, D, i.]

247. SAVIN, L. Note sur quelques échinides du Dauphiné et autres régions. Bull. Soc. Isere (4) vi, pp. 1–23, pls. i–iv. [III, B, iii, b, *1*, *2*. IV, C.]

Contains descriptions of several n. spp. and other notes by J. LAMBERT.

Abstract: by J. LAMBERT, Rev. paleozool. vii, p. 46 (Jan. 1903).

248. SAYCE, O. A. Dredging in Port Phillip. Victorian Natural. xviii, pp. 149–155. (Feb.) [III, A, iv.]

249. SCALIA, S. Sul Pliocene e il Post-Pliocene di Cannizzaro. Boll. Acc. Gioen., fasc. lxxii, pp. 2–6. (Feb.) [III, B, ii, c.]

250. SCHAFFER, F. Beiträge zur Kenntnis des Miocänbeckens von Cilicien. II Theil. Nach Studien, ausgeführt auf einer Reise im Sommer 1901. Jahrb. Geol. Reichsanst. lii, pp. 1–38, pl. i, 2 text-figg. (April.) [III, B, ii, d.]

251. SCHLOSSER, M. Die Fauna des Lias und Dogger in Franken und der Oberpfalz. Zeitschr. Deutsch. geol. Ges. liii, pp. 513–569, pl. xvi, 4 text-figg. (May.) [III, B, iii, c, *3*; d.]

SCHLÜTER, C. (299) Zool. Rec. 1900. Abstract: by A. TORNQUIST, N. Jahrb. Min. 1902, i, p. -319- (Feb. 1902).

252. ——. Zur Gattung *Caratomus* (nebst einigen litterarischen Bemerkungen und Anhang) [ueber *Hemicara*]. Zeitschr. Deutsch. geol. Ges. liv, pp. 302–335, pls. xi, xii. (Dec.) [III, B, iii, b, *1*. IV, C.]

Abstracts: by A. TORNQUIST, N. Jahrb. Min. 1903, i, p. -530- (June, 1903); by J. LAMBERT, Rev. paleozool. vii, p. 171 (July, 1903).

253. *SCHMEIL, O. Lehrbuch der Zoologie für höhere Lehranstalten und die Hand des Lehrers. Von biologischen Gesichtspunkten aus betrachtet. 3 Aufl. 8vo, xiv+440 pp., numerous text-figg. Stuttgart and Leipzig: Nägele. (1900.)

This is the original of SCHMEIL (300) Zool. Rec. 1900.

254. SCHMIERER, T. Das Altersverhältnis der Stufen "Epsilon" und "Zeta" des weissen Jura. Zeitschr. Deutsch. geol. Ges. liv, pp. 525–607. [II, D, x. III, B, iii, c, *1*.]

255. SCHNEIDER, K. C. Lehrbuch der vergleichenden Histologie der Tiere. xiv+988 pp., 691 text-figg. Jena: Fischer, M. 24. [II, A, ii: B, i (b, d, f), *1*.]

Abstract: in LUDWIG (178).

SCHOEBEL, E. See HARTMANN, M.

SCHUBERT, R. J. See OPPENHEIM, P.

256. SCOTT, F. H. Food of the sea-urchin (*Strongylocentrotus dröbachiensis*). Contrib. Canad. Biol., issued as Supplement Ann. Rep. Dept. Fisheries Ottawa, xxxii, pp. 49–54. [II, c, iv: D, iii, c; iv, c; vi: E, ii.]

257. SÉGUIN, [C.]. Note sur un cas de monstruosité chez le *Pyrina ovulum*. Feuille Natural. xxxii, pp. 81–83, 4 text-figg. (1 Feb.) [II, B, i, c, *3*; ii, d, *1*.]

258. SEMENOV, V. P. (SÉMENOW, B.). Fauna myelov'ikh obrazovaniĭ Mangh'ishlaka ī nyekotor'ikh bru'ikh punktov Zakaspiĭskagho kraya. Faune des dépôts crétacés de Manghychlak et de quelques autres localités de la province Transcaspienne. Trudui St. Peterb. Obshch. xxviii, Geol. pp. 1–178, v pls., 1 folding table. (1899.) [Received in London, Oct. 1902.] [III, B, iii, b, *1*.]

259. S[HEPPARD], T. & S[TATHER], J. W. Field Meeting...Willerby and Little Weighton. Tr. Hull. geol. Soc. v, pp. 32, 33. (April.) [III, B, iii, b, *1*.]

260. SHERBORN, C. D. The Geological Survey of England and Wales and the White Chalk. Geol. Mag. (n. s.), dec. iv, vol. ix, pp. 478, 479. (Oct.) [III, B, iii, b, *1*.]

261. ——. Index Animalium: sive index nominum quae ab A.D. MDCCLVIII generibus et speciebus animalium imposita sunt. Sectio Prima: a Kalendis januariis, MDCCLVIII usque ad finem Decembris, MDCCC. 8vo, lx + 1196 pp. Cambridge: Clay. 25*s*. (Nov.) [II, E, iii.]

——. See Geological Society of London.

262. SHIMER, H. W. & GRABAU, A. W. Hamilton group of Thedford, Ontario. Bull. Geol. Soc. Amer. xiii, pp. 149–186. (13 June.) [III, B, iv, f.]

SLUITER, C. P. (284) Zool. Rec. 1901. Abstract: in LUDWIG (178).

263. SOLLAS, W. J. The investigation of fossil remains by serial sections. Rep. Brit. Ass. 1901, p. 643. (April.) [II, E, i, b.]

264. SORBY, H. C. On the variations in numbers and habitat of marine animals on the coast of Essex during the last ten or twelve years. Essex Natural. xii, pp. 17–23. (Sept. 1901.) [III, A, ii.]

SPRINGER, F. (290) Zool. Rec. 1901. Abstract: in LUDWIG (178).

265. ——. Notice of a new Comatula from the Florida reefs. Amer. Geol. xxx, p. 98. (Aug.) [II, B, i, f, *5*. III, A, ii. IV, F.]

266. ——. On the crinoid genera *Sagenocrinus*, *Forbesiocrinus*, and allied forms. Amer. Geol. xxx, pp. 88–97. (Aug.) [II, B, ii, d, *1*: D, vii. IV, F. *Ichthyocrinidae* and *Taxocrinidae*.]

STATHER, J. W. See SHEPPARD, T. (259).

STEFANI, C. DE. See DE STEFANI, C.

267. STEINBRUECK, H. Ueber die Bastardbildung bei *Strongylocentrotus lividus* (♂) und *Sphaerechinus granularis* (♀). Arch. Entwickmech. xiv, pp. 1–48, pls. i–iii. (13 June.) [II, F, v, c; viii.] Abstract: in LUDWIG (178).

268. STEUER, A. Mittheilungen aus der k. k. zoologischen Station in Triest. No. 4. Beobachtungen über das Plankton des Triester Golfes im Jahre 1901. Zool. Anz. xxv, pp. 369–372, pl. i. (19 May.) [II, F, v, a. III, A, ii.]

——. See CORI, C. J.

269. †STEVENS, J. Geological notices of North Hampshire. Tr. Newbury Distr. Field Club, i, pp. 71–94. (1871) [i.e. ? 1872]. [III, B, iii, b, *1.*]

270. STEVENS, N. M. Experimental studies on eggs of *Echinus microtuberculatus.* Arch. Entwickmech. xv, pp. 421–428, pl. xiii. (28 Nov.) [II, F, viii.]
Abstract: in LUDWIG (178).

STILLE, —. See BROILI, F.

271. STRAHAN, A. The geology of the South Wales Coal-field. Part I. The country around Newport, Monmouthshire. Mem. geol. Surv. U. K. (Explanation of sheet 249), vi+98 pp., i pl. (1899.) [II, D, x. III, B, iv, g.]

272. —— & GIBSON, W. The geology of the South Wales Coal-field. Part II. The country around Abergavenny. Mem. geol. Surv. U. K. (Explanation of sheet 232), vi+104 pp., ii pls., 10 text-figg. [III, B, iv, d.]

273. STRUEBIN, K. Beiträge zur Kenntnis der Stratigraphie des Basler Tafeljura, speziell des Gebietes von Kartenblatt 28, Kaiseraugst (Siegfriedatlas). Doctoral thesis. 8vo, 96 pp., v pls., Basel. (1901.) Subsequently published Verh. Ges. Basel, xiii, pp. 391–484, pls. ii–vi, 4 text-figg. (March.) [II, D, x. III, B, iii, c, *2*, *3*; d.]

274. ——. Neue Untersuchungen über Keuper und Lias bei Niederschönthal (Basler Tafeljura). Verh. Ges. Basel, xiii, pp. 586–602, 2 text-figg. (March.) [III, B, iii, d.]

275. ——. Geologische Beobachtungen im Eisenbahneinschnitt (Burgeinschnitt) bei Liestal. Verh. Ges. Basel, 1900/1901, pp. 68–72. (? May.) [III, B, iii, c, *3.*]

276. TEICHMANN, E. Ueber Furchung befruchteter Seeigeleier ohne Beteiligung des Spermakerns. Jena. Zeitschr. xxxvii, pp. 105–132, pls. vii–x. (24 June.) [II, F, iv, c.]
Abstract: in LUDWIG (178).

THEEL, [J.] H. (298) Zool. Rec. 1901. Abstract: in LUDWIG (178).

277. ——. Preliminary account of the development of *Echinus miliaris* L. Bih. Svenska Ak. xxviii, Afd. iv, No. 7, 12 pp., iii pls. (Aug.) [II, F, vi, c, *1.*]
Abstract: in LUDWIG (178).

278. THOMPSON, B. The junction beds of the Upper Lias and Inferior Oolite in Northamptonshire. Part II. J. Northampt. Soc. xi, pp. 197–216 & 235–244. (June & Sept.) [III, B, iii, c, *3*; d.]

TODD, R. A. See ALLEN, E. J. (6).

TORNQUIST, A. See ARNAUD, H., BURCKHARDT, R., FICHEUR, E., GAUTHIER, V., LAMBERT, J., SCHLUETER, C.

279. TOULA, F. Eine marine Neogenfauna aus Cilicien. Jahrb. geol. Reichsanst. li, pp. 247–264, pl. viii. (20 Jan.) [III, B, ii, f. IV, c.]
Abstracts: by A. KLAUTZSCH, Geol. Centrbl. ii, p. 602 (1 Oct. 1902); by J. LAMBERT, Rev. paleozool. vii, p. 174 (July, 1903).

280. UDDEN, J. A. Geology of Louisa County. Rep. geol. surv. Iowa, xi, pp. 56–126, pl. iv, ii maps, 8 text-figg. (1901.) [III, B, iv, e.]

281. ——. Geology of Pottawattamie County. Rep. geol. Surv. Iowa, xi, pp. 199–277, 2 maps, 3 text-figg. (1901.) [III, B, iv, d.]

UHLIG, V. See BROILI, F.

282. VALETTE, A. Notes sur quelques stellérides de la craie sénonienne des environs de Sens (Yonne). C.R. Ass. Franc. xxx, 1e part., p. 117. (1901.)
A preliminary notice of VALETTE (283).

283. [VALETTE, A.] Note sur quelques stellérides de la craie sénonienne du Département de l'Yonne. Bull. Soc. Yonne, lvi, pp. 3–26, 6 text-figg. [III, B, iii, b, *1*. IV, C, D.]
Abstract: by J. LAMBERT, Rev. paleozool. vii, p. 167 (July, 1903).

284. VAN BENEDEN, E. La reproduction des animaux et la continuité de la vie. Bull. Ac. Belgique, 1902, pp. 1047–1089. (Dec. [probably Feb. 1903].) [II, F, viii.]

VAUGHAN, A. See REYNOLDS, S. H.

285. VERRILL, A. E. Additions to the fauna of the Bermudas from the Yale Expedition of 1901, with notes on other species. Tr. Connect. Ac. xi, pp. 15–62, pls. i–ix, 6 text-figg. (Dec. 1901.) [II, B, ii, C: D, iii, b, c, d, e. III, A, ii.]

VIGUIER, C. (313) Zool. Rec. 1901. Abstract: in LUDWIG (178).

286. ——. Influence de la température sur le développement parthénogénétique. C.R. Ac. Sci. cxxxv, pp. 60–62. (July.) [II, F, v; viii.]
Abstracts: in LUDWIG (178); in J. R. Micr. Soc. 1902, p. 654 (Dec.).

287. ——. Sur la parthénogenèse artificielle. C.R. Ac. Sci. cxxxv, pp. 197–199. (July.) [II, F, viii.]
Abstracts: in LUDWIG (178); in J. R. Micr. Soc. 1903, p. 22 (Feb.).

288. VINASSA DE REGNY, P. Paleontologia. 8vo, xii+510 pp., 356 text-figg. Milano: Hoepli. [II, B, i, a, *3*: E, i, d.]

——. See AIRAGHI, C., LOVISATO, D.

289. VOELTZKOW, A. Die vom Aldabra bis jetzt bekannte Flora und Fauna. Abh. Senckenb. Ges. xxvi, pp. 539–565. (May.) [III, A, iii.]

290. VOIGT, W. *Entocolax schiemenzii* n. sp. Zool. Anz. xxiv, pp. 285–292. (13 May, 1901.) [II, D, viii, b.]

291. WALFORD, E. A. On some gaps in the Lias. Quart. J. Geol. Soc. lviii, pp. 267–277. (15 May.) [II, D, x. III, B, iii, d.]
Discussion by J. F. BLAKE et al. p. 278.
Prelim. Abstracts: P. Geol. Soc. No. 756, pp. 69–71 (March, 1902); Geol. Mag. (n. s.), dec. iv, vol. ix, p. 189 (April, 1902).

292. WANNER, J. Die Fauna der obersten weissen Kreide der libyschen Wüste. Palæontogr. xxx, Abth. ii, pp. 91–152, pls. xiii–xix. [III, B, iii, b, *1*. IV, C, F.]
Abstract: by J. LAMBERT, Rev. paleozool. vii, p. 166 (July, 1903).

293. WASSILIEFF, A. Ueber künstliche Parthenogenesis des Seeigeleies. Biol. Centrbl. xxii, pp. 758–772, 19 text-figg. (15 Dec.) [II, F, viii.]
Abstract: in LUDWIG (178).

WATTS, W. W. See MACHENRY, A. (184).

294. WELLER, S. The composition, origin, and relationships of the Corniferous fauna in the Appalachian province of North America. J. Geol. x, pp. 423–432. (June.) [III, B, iv, f.]

295. ——. *Crotalocrinus cora* (Hall). J. Geol. x, pp. 532–534, pl. iii. (Aug.) [IV, F.]

296. WILSON, E. [B.] The history of the Centrosomes in artificial parthenogenesis, and its relation to the phenomena of normal fertilization. (Abstract Report.) Ann. N. York Ac. xiv, pp. 122–124. (March.) [II, F, viii.]

297. ——. Experimental studies on Echinoderm eggs (Parthenogenesis). Verh. Int. Zool. Congr. v, p. 506. (Sept.) [II, F, viii.]
Abstract: in LUDWIG (178).

WINKLER, H. (328) Zool. Rec. 1901. Abstract by PÜTTER, Zeitschr. allg. Physiol. i, p. 22 (Jan. 1902).

——. See RAWITZ, B.

298. WOLLEMANN, A. Das Alter des Turons von Nettlingen bei Hildesheim. Centrbl. Mineral. 1902, pp. 179–181. (May.) [III, B, iii, b, *1*.]

299. ——. Noch einmal Nettlingen. Centrbl. Mineral. 1902, pp. 398–402. (July.) [III, B, iii, b, *1*.]

300. ——. Einige Bemerkungen ueber die Versteinerungen aus der Kreide von Misburg bei Hannover. Zeitschr. Deutsch. geol. Ges. liv, Briefl. Mitt., pp. 30–33. (July.) [III, B, iii, b, *1*.]

301. ——. Das Senon von Biewende. Jahresber. Ver. Braunschweig, xii, pp. 56–59. [III, B, iii, b, *1*.]

302. ——. Aufschlüsse und Versteinerungen im Turon des Kreises Braunschweig und Wolfenbüttel einschliesslich des Oderwaldes. Jahresber. Ver. Braunschweig, xii, pp. 87–94. [III, B, iii, b, *1*.]

303. WOODS, H. Palaeontology: Invertebrate. 3rd ed. [of "Elementary Palaeontology for Geological Students," 1893] 8vo, xiv+360 pp., 139 text-figg. Cambridge: Univ. Press, 6*s*. (Nov.) [II, E, i, d.]

WOODWARD, H. See LENEY, F. (167).

304. YANĪSHEVSKIĬ, M. E. (IANISCHEWSKY, M.). Fauna kamennoughol'nagho īzvestnyaka v'istupayushchagho na R. Shchart'imk, na vostochnom sklonye Urala. (Die Fauna des Carbonkalks im Gebiete des Flusses Schartymka am östlichen Abfalle des Urals.) Trudui Kazan. Univ. xxxiv, article 5, 398 pp.+index &c. xiv pp.+resumé iv pp., vii pls., i map. (1900, recd. June, 1903.) [III, B, iv, e.]

305. ŽELÍZKO, J. V. Weitere neue Beiträge zur Kenntnis der Fauna des böhmischen Untersilurs. Verh. geol. Reichsanst. 1902, pp. 61–66. (March.) [III, B, iv, h.]

306. ZIEGLER, H. E. Nochmals ueber die Zelltheilung. Verh. Deutsch. zool. Ges. xii, p. 126. (Sept.) [II, F, iv.]
A preliminary Abstract.

ZUR STRASSEN, O. (338) Zool. Rec. 1901. Abstract: in LUDWIG (178).

II. BIOLOGY.

(A.) EVOLUTION.

i. **General Principles**:—Modes of evolution: Orthogenesis (Eimer em. Jkl.) illustrated by *Melocrinidae*, *Taxocrinidae*, *Caryocrinidae*, *Cadeidocr.* and *Platycrinidae*; Epistasis [=retardation of development, Cope] illustrated by orals of recent *Crin.*, anals of *Thaumatocr.* and *Hexacrinidae*, basals of *Uintacr.*, *Marsupites*, and *Ateleocr.*, the *Hybocrinidae*, and *Saleniidae*; Metakinesis (a sudden fundamental change, originating in early youth [caenogenetic]) illustrated by origin of *Porocrinus* from *Perittocr.*, the *Heterocrinidae*, origin of *Blastoidea*, and *Tiarechinus*; JAEKEL (134).—Sessile attitude of Echinoderm ancestor advantageous, fixed by heredity, cause of the metamorphosis and torsion of organs; PERRIER (220).—Palaeontological history of *Cyst.*, *Blast.*, *Crin.*, and *Ech.*, illustrating causes of extinction; CRAMPTON (51) p. 468.

ii. **Relations of Echinoderma**:—GEGENBAUR (97) p. 64.—Derivation of *Dipleurula* ancestor from *Coelentera*, and its transformation into the primitive *Pelmatozoon*; BATHER (14A) p. 621.—The bilateral ancestor as indicated by larva of *Cribrella*; MASTERMAN (195) p. 402.—*Crin.* are oldest Echinoderms (diagram of "Urcrinoid,") and are descended from *Cnidaria*, apparently by direct evolution from *Alcyonaria*: other Echinoderms derived from them by loss of stem and the consequent locomobility, diagram of a Holothurian; SCHNEIDER (255) pp. 212–217.

iii. **Phylogenies of smaller groups**:—Evolution of the various classes from a fixed ancestor; BATHER (14A) p. 622.—Origin of *Asteroidea* from a *Dipleurula* through a fixed form, and relations to other classes; MASTERMAN (195) p. 408.—Origin of classes, *Cystidea* gave rise to *Hol.* and *Crin.*, and *Crin.* to *Blast*: origin of the remaining classes uncertain, but *Ech.* derived from *Oph.*; RUSSO (245) p. 67 et sqq.

Phylogeny of *Melocrinidae*, *Taxocrinidae*, "*Comatulidae*," *Hybocrinidae*, *Heterocrinidae*, and other forms enumerated under A, i; JAEKEL (134).—Evolution of Chalk *Ech.*, esp. *Micraster*, *Echinocorys*, *Rhynchopygus*; GROSSOUVRE (116) pp. 16–22.

(B.) MORPHOLOGY.

i. **Anatomy**:—

a. *ECHINODERMA.*

1. General accounts:—popular; MCHENRY & WATTS (184) p. 99.—Of fossils; COLE (49) pp. 375–389.—Analysis of Echinoderm characters; BATHER (14A) p. 623.—See also II, E, i, d.
2. Symmetries:—Vacant.
3. Homologies of Classes:—with special reference to fossils; VINASSA DE REGNY (288) pp. 247–252.—Theories of Echinoderm morphology discussed, especially the calycinal, the pentactaea, and the pelmatozoic, the last being advocated: relations of the classes; BATHER (14A) p. 618.—Homologies of coeloms in the classes, as inferred from larval development; MASTERMAN (195) p. 408.—Homologies of genital cords and associated sinuses and lacunae, of radial intestinal absorbents, ovoid gland, &c. in the classes of living Echinoderms; RUSSO (245) p. 59.—Homologies of body-wall: *Hol.* compared with *Ech.*, *Ast.*, & *Oph.*: in all it consists of 3 layers, outer and inner forming stereom, middle one containing lacunae derived from schizocoel; HEROUARD (126).
4. Skeletal tissue or Stereom:—relations to perisome; GEGENBAUR (97) pp. 80, 182.—Spicules and plates of Echinoderms considered as crystal individuals, resumé of literature; BIEDERMANN (23) pp. 160–170.—Law of formation of plates: size of mesh decreases with order of formation: shapes due to laws of crystallisation acting in a living medium; HEROUARD (125).

   Recent and fossil *Ech.* stereom proved calcite not aragonite by chemical tests; MEIGEN (200).
5. Skeletal Anatomy:—The skeleton is morphologically external in part, and internal in part (see a, *3*), ambulacrals of *Ast.* are internal, of *Ech.* external; HEROUARD (126).
6. Hydrocoel and associated cavities:—Vacant.
7. Coelom and other Body-cavities, and their Contents:—Various lacunae and sinuses, their origin, relations in adult, and homologies; RUSSO (245).

8. Digestive System, Cuvierian organs:—Vacant.
9. Nerve Systems:—General relations: GEGENBAUR (97) p. 710.
10. Mesodermal tissues (exc. skeletal):—Haemal system derived from schizocoel (see a, *3*); HEROUARD (126).
11. Axial organ or Ovoid gland:—Axial organ of *Crin.* not homologous with ovoid gland; both discussed; RUSSO (245).
12. Genital System:—Origins and homologies of sexual cells, and genital cords in all living Classes; RUSSO (245).

b. *HOLOTHURIOIDEA.*

1. General Anatomy:—Of *Cucumaria laevigata*; ACKERMANN (2).—Minute anatomy of *Synapta*, with original figures; SCHNEIDER (255) pp. 665–672.—Various notes on anatomy of spp. dredged by 'Princesse Alice,' see list of genera under III, A, ii; HEROUARD (127).
2. Symmetries:—Vacant.
3. Homologies:—Vacant.—See i, a, *3*.
4. Stereom:—Spicules of analogous form imply similarity of environment, variation according to depth (p. 22), not trustworthy guides to affinity (p. 36); HEROUARD (127).—Normal spicules of *Ankyroderma* homologous with abnormal anchor-plates of *Synapta*; HEROUARD (125).—Wine-red bodies of *Trochostoma* have little to do with normal spicules, but contain phosphoric acid and iron, the latter giving colour; MOERNER (206).
5. Skeletal Anatomy:—Distribution of spicules in body-wall of *Cucumaria laevigata*; ACKERMANN (2) p. 721.
6. Hydrocoel &c.:—Vacant.
7. Coelom and other body-cavities:—Urns of *Synapta*; CUENOT (52) p. 86.
8. Digestive System:—Cuvierian organs, histology, criticism of RUSSO (203) Zool. Rec. 1899, previous observations of BARTHELS confirmed; BARTHELS (14).
9. Nervous System and Sense-organs:—Dorsal appendage of *Psychropotes*, structure, origin, function; HEROUARD (127) p. 29.
10. Mesodermal tissues (exc. skeletal):—Structure of body-wall (see a, *3*); HEROUARD (126).
11. Axial organ:—Vacant.
12. Genital System:—of *Cucumaria laevigata*, which is ⚥, tubules contain ♂ and ♀ elements, the latter at first removed by phagocytes, so that all gonads are ♂, later on all are ♀, comparison with *Mesothuria*; ACKERMANN (2).

c. *ECHINOIDEA.*

1. General Account:—With special reference to fossils; WOODS (303) pp. 109–129.—Popular, of fossils, esp. Palaeozoic; FRITEL (88).
2. Symmetries:—Vacant.
3. Homologies with other Classes:—Diagram of pentamerism of test, showing interambulacrals and ambulacrals joined to the ocular plates near which they arise, thus producing a scheme more comparable with *Ast.* and *Blast.* than does a diagram in which interambulacrals are joined to the genital plates; SEGUIN (257) figg. 3, 4.
4. Stereom:—Vacant.
5. Skeletal Anatomy:—General account with diagrams; FRITEL (88).—Distinctive characters of test in extinct genera; PAYEBIEN (214).—Pedicellariae, account continued (p. 1031),

sphaeridia (p. 1041), spicules in podia (p. 1043), main skeleton (p. 1043), endoskeleton of *Clypeastroidea* (p. 1066), masticatory apparatus (p. 1067); HAMANN (119).—Systematic value of variation in number of genitals in apical system of *Spatangidae*; CHECCHIA (40 & 41), see also i, c, *12*; LAMBERT.—Anterior ambulacral groove in *Micraster*, its gradual modifications, peripetalous fasciole not fixed, therefore neither are of systematic value; LAMBERT (163) p. 126.

6. Hydrocoel and associated cavities:—General account; HAMANN (119) pp. 1086–1108.

7. Coelom and other Body-cavities:—General account (pp. (1108–1114), contents (pp. 1131–1133), hyponeural canals (p. 1133); HAMANN (119).

8. Digestive System:—General account; HAMANN (119) pp. 1114—1121.

9. Nervous System:—General account (pp. 1077—1086), sense-organs (p. 1083), pedicellariae and sphaeridia (v. sub c, *5*); HAMANN (119).

10. Mesodermal Tissues (exc. skeletal):—Muscles and ligaments of jaws (p. 1070), muscles of body-wall (p. 1072), lacunar blood-system (pp. 1121–1126), its contents (pp. 1131–1133); HAMANN (119).

11. Axial organ or Ovoid gland:—General account, structure and functions; HAMANN (119) pp. 1126–1131.

12. Generative System:—General account; HAMANN (119) pp. 1133–1138.—Atrophy of a genital pore in *Micraster* is "un caractère de valeur relative," i.e. individual not generic; LAMBERT (163) p. 124: see also i, c. *5*; CHECCHIA.

d. *ASTEROIDEA.*

1. General Account:—with special reference to fossils; WOODS (303) pp. 101–106.—Popular, of fossils; FRITEL (87).—Minute anatomy of *Astropecten*, with some details from *Echinaster*, original figures; SCHNEIDER (255) pp. 643–661.

2–11. Vacant.

12. Generative System:—Ovaries of *Cribrella*; MASTERMAN (195) p. 373.

e. *OPHIUROIDEA.*

1. General Account:—with special reference to fossils; WOODS (303) pp. 106–109.—Popular, of fossils; FRITEL (87).

f. *CRINOIDEA.*

1. General Account:—with special reference to fossils; WOODS (303) pp. 130–140.—Popular, of "Crinoïdes articulés"; FRITEL (86).—Minute anatomy of *Antedon*, original figures; pp. 661–665; SCHNEIDER (255).

2, 3, 4. Vacant.

5. Skeleton:—pore-rhombs in *Porocr.* (p. 1093), Basalia of "Comatulidae," *Uintacr.*, *Marsupites*, *Atelecr.* &c. (p. 1083), Analia, reason of their elimination from the cup, their atavistic occurrence in *Thaumatocr.* and *Hexacr.* (p. 1082), Madreporite in *Cupressocr.* (p. 1102), Oralia, their preservation in certain genera (p. 1081); JAEKEL (134).—Tegmen, subvective groove carried on a membrane from 4th brachial to orals, above level of tegmen, in *Gephyrocr.*; KOEHLER & BATHER (156) p. 74.

Arms in *Melocrinidae*, *Taxocrinidae*, *Heterocrinidae*, *Cupressocr.*, *Hybocr.*; JAEKEL (134).—Covering-plates of arms in an *Actinometra*; SPRINGER (265).

6–11. Vacant.
12. Generative System:—'pores' opening by rupture for extrusion of ripe spermatozoa in *Antedon* pinnule; MARSHALL (191).

g. *CYSTIDEA.*
1. General Account:—WOODS (303) pp. 140–143 & 148–150.
2. Vacant.
3. Homologies:—*Cystidea* possibly originated from a series of abnormal Cladocrinoid larvae; JAEKEL (134) p. 1109.—Homologies of various openings with those of recent forms; RUSSO (245) p. 69.
4–12. Vacant.

h. *BLASTOIDEA.*
1. General Account:—WOODS (303) pp. 143–148.
2. Vacant.
3. Homologies:—of spiracles and hydrospires, supposed connection with aquiferous and genital systems; RUSSO (245) p. 72.
4. Vacant.
5. Skeletal Anatomy:—Relations of hydrospires to thecal wall in *Pentremites conoideus* (p. 88, pl. xxix), apparently 8 spiracles in *Eleutherocr.* (p. 92, pl. xxx), oral pyramid in *Pentremites godoni* (p. 89, pl. xxix), oral pyramid in *P. koninckanus* (p. 90, pl. xxix), triangular column in *Tricoelocrinus woodmani* (p. 90, pl. xxix); GREENE (111).
6–12. Vacant.

ii. **Variation**:—

a. In form:—Vacant.

b. In form and surface characters:—With depth in *Toxopneustes*, but general variability in an *Astropecten*; RITTER (241).—Plates of disc in *Ophiosteira*, and generally in *Cycethra simplex*; BELL (17).—In proportion $r : R$, and local varr. and other details in spp. of *Psilaster*, *Hippasteria*, *Poraniomorpha*, *Lasiaster*; GRIEG (113).—Relation of r to R, number of paxillae, groove-papillae, and meshwork of test in *Solaster papposus* et varr.; GRIEG (114).

c. In colour:—Colour of various spp. from Maldive and Laccadive Is., see list under III, A, iii; BELL (19).—In spirit and dry specimens from Galapagos, see list under III, A, iv; CLARK (48).—Colour in life,—of spp. of *Holothuria*, *Pseudostichopus*, *Paroriza*, *Psychropotes*, *Deima*, *Kolga*, *Scotoanassa*; HEROUARD (127): of deep-sea *Ast.*; ALCOCK (5) p. 286: of spp. of *Asterina*, *Nardoa*, *Asterias*; DOEDERLEIN (70): of spp. of *Brisinga*, *Lasiaster*, *Poraniomorpha*, *Ophioscolex*, *Ophiacantha*; GRIEG (113): some spp. of *Astroporpa*, *Luidia*, *Linckia*, *Echinoneus*, and *Holothuria*; VERRILL (285) p. 36: of *Pentacr. wyvillethomsoni*; RICHARD (238) p. 84.

d. Meristic variation:—
1. Variation from pentamerous symmetry:—in number of genitals in *Spatangidae*; CHECCHIA (40 & 41).—Number of rays in *Solaster papposus*, 8–13; GRIEG (114).—Eight rays in *Asterias glacialis*; DELAGE (65) p. 239.—Seven-rayed *Asterias* with some rays fused laterally making an apparent total of 4; FORTIN (81).—Six-rayed *Pyrina ovulum*, with corresponding genital and ocular plates; SEGUIN (257).—Six radials in *Pentremites godoni* (p. 89, pl. xxix), additional but imperfect radial in *P. piriformis* (p. 89, pl. xxix); GREENE (111).—Sixth ray in regenerate *Taxocr.*; SPRINGER (266) p. 97.—Four rays,—in *Hippasterias*; PEARCEY

(218) p. 309: in *Nucleocr. verneuili*; GREENE (110) p. 81: in *Pentremites koninckanus*, two cases, in one of which a ray bears a double subvective groove; GREENE (111) p. 90, pl. xxix.

2. Reduplication or absence of parts:—two extra anal plates in *Nucleocr. verneuili*; GREENE (110) p. 81.—*Schizaster* with one genital pore; LAMBERT (161) p. 46, see also i, c, *5*, *12*.

e. Abnormalities:—Monstrous *Hol.*? see IV, K; CLARK (45).—Monstrous ambulacrum in *Echinocorys*; ARNAUD (12) p. 6, pl. iv.—Deformities in *Cyrtocr.*, *Sclerocr.* and *Eugeniacr.*; REMEŠ (234) pp. 198, 201, 205.—*Talarocr.*, *simplex* with an inferradial, also one with an inferradial and a radianal (p. 91, pl. xxix), a subvective groove transferred from one radial to the adjoining one, which thus has two abutting grooves, in *Pentremites godoni* (p. 90, pl. xxix); GREENE (111).—⚥ *Asterias glacialis*; DELAGE (65) p. 239.

iii. **Secondary Sexual Characters**:—

a. Differences of Form or Structure:—in *Ech*; HAMANN (119) p. 1140.—Possible differences of form in *Scutella patagonensis* and *S. circularis*; ORTMANN (212) pp. 58, 59.

b. Differences of Colour:—Vacant.

c. Protection of Young:—Resumé of methods in *Hol.*, three lines of development, confined to 13 shallow-water spp. of *Synaptidae* and *Dendrochirotae*, five being *Cucumaria*; CLARK (44).—In *Ech.*; HAMANN (119) p. 1139.—Brood pouch, in *Hemiaster avesanus*; OPPENHEIM (210) p. 223.—Brooding of *Cribrella* and *Asterias*; MASTERMAN (195) p. 374.

(C.) PHYSIOLOGY.

i. **General**:—Vacant.

ii. **Circulation**:—Coagulation of blood in various invertebrates, *Hol.* studied, but nothing said about them specially; BOTTAZZI (28).—Ditto in *Strongylocentrotus*; DUCCESCHI (74).

iii. **Respiration**:—Coelomic fluid of *Strongylocentrotus* contains no substance that fixes oxygen; CUENOT (53) p. 115.—Osmosis,—internal fluid agrees in molecular concentration and salinity with external sea-water in *Asterias glacialis* and *Holothuria tubulosa* (p. 432), but in ovaries of *Sphaerechinus granularis* the salinity is less (p. 448); FREDERICQ (85): between interior and exterior fluid media in *Ast.*; QUINTON (229).

iv. **Alimentation and Digestion**:—Digestive fluids of *Strongylocentrotus*; SCOTT (256).

v. **Excretion and its Products**:—Urns of *Synapta* collect waste particles floating in the coelomic fluid and agglutinate them into the brown bodies, there is no true excretion through the urns; CUENOT (52).

Pigments,—ferruginous, but not respiratory, obtained by macerating *Asterias rubens* in fresh water; DUBOIS (73).—Red, in combination with lime, in integument of an *Ophidiaster*; MACMUNN (185) p. 189.—Blue-green, of *Pentacr. wyvillethomsoni*; RICHARD (238) p. 84.

vi. **Sensation**:—Phototropism of parthenogenetic larvae of *Asterias*; DELAGE (64) p. 234.—Spheridia are automobile, and when removed the urchin rights itself but not so quickly, therefore spheridia are not the sole organs of orientation, in *Strongylocentrotus* and *Echinus*; DELAGE (59).

vii. **Miscellanea and Experimental Physiology** :— General account of experiments on *Ech.*, and physiological chemistry; PRZIBRAM in HAMANN (119) pp. 1174–1212.

Adipogenic allied to genital function, thus hepatic glands of *Asterias* diminish as genital glands increase in volume; DEFLANDRE (58).

Protoplasm of muscles chemically examined in *Stichopus*; FUERTH (90) p. 344.—Chemical reactions and coagulation-point of muscle substance in *Astropecten*, *Strongylocentrotus*, and *Holothuria*; PRZIBRAM (228).

Attempt to discover functions of madreporite in *Ech.* and *Ast.*; DELAGE (65) p. 237.

Arsenic in *Stichopus*, *Strongylocentrotus*, and *Pedicellaster*; BERTRAND (21).

(D.) BIONOMICS.

i. **General Accounts** :—In *Ech.* (completed in 1903); HAMANN (119) pp. 1296–1307.—Popular account of living Echinoderms illustrated from photographs; SAVILLE-KENT (246).

ii. **Special habits** :—Vacant.

iii. **Habitat** :—

(a) Bottom and habitat of Echinoderms from Maldive and Laccadive Is., see list under III, A, iii; BELL (19).

(b) Bottom on which spp. were dredged by "Princesse Alice," see list of genera under III, A, ii; HEROUARD (127).—Of *Cucumaria*; PEARCEY (218) p. 306.—*Holothuria rathbuni* burrows in sand; VERRILL (285) p. 37.

(c) Of *Strongylocentrotus*, W. Atlantic coast; SCOTT (256).—Of *Spatangus*; PEARCEY (218) p. 317.—*Echinoneus semilunaris* in gravel; VERRILL (285) p. 37.—Occurrence in Lower Miocene litoral deposits of genera, esp. *Ananchytinae*, whose nearest allies now live in deep sea: *Palaeopneustes*, *Asterostoma*, *Heterobrissus*, *Toxopatagus*, *Cleistechinus*; OPPENHEIM (210) pp. 222, 279.

(d) *Luidia clathrata* on and under sand, *Linckia guildingii* under stones; VERRILL (285) p. 36.

(e) Of *Ophiopholis*; PEARCEY (218) p. 312.—*Astroporpa affinis* on *Verrucella*; VERRILL (285) p. 36.

(f) *Pentacrinidæ*, evidence for benthos character vitiated by occasional alleged pseudoplanktonic habitat; POMPECKJ (225) p. 42.

iv. **Feeding** :—

(b) *Thyone*, mops up sand and diatoms with its tentacles, which are then poked down the throat; GRAVE (106).

(c) *Moera*, ambulacral brushes grasp sand and diatoms and pass them to the mouth; GRAVE (106).—Food of *Strongylocentrotus*, seaweed, diatomaceous sand, carrion, compared with food of *Echinus*; SCOTT (256).

(e) *Ophiophragma*, pellets of sand and diatoms are passed by podia to the mouth; GRAVE (106).

v. **Defence and Protection** :—Vacant.

vi. **Locomotion** :—of *Strongylocentrotus*; SCOTT (256).—Under sand, of *Luidia clathrata*; VERRILL (285) p. 36.

vii. **Autotomy and Regeneration** :—

(a) Essay on regeneration, with bibliography, examples from Echinoderms, spicules in *Hol.* (p. 76), regen. after autotomy in *Oph.*, *Ast.*, *Hol.* (p. 80), autotomy for dispersal of gonads, *Ast.*, *Oph.* (p. 82),

autot. for protection, *Oph.*, *Ast.*, *Crin.* (p. 82), autot. at definite points, *Oph.*, *Hol.* (p. 83), autot. in ova (p. 88), transplantation, *Ast.*, *Crin.* (p. 89), potentiality of regen. in *Ast.*, *Oph.*, *Crin.*, *Ech.*, *Hol.* (p. 92), constancy of germ-layers in regenerate tissues, *Oph.* (p. 107), influence of nerves, *Ast.*, *Crin.* (p. 107), regen. of a different organ, *Ast.* (p. 113), axis of regenerate parts, *Ast.* (p. 118); PRZIBRAM (227).—Short popular account of autotomy, with figg. of *Asterias* and *Antedon*; GORKA (103).

(b) Expulsion of respiratory trees in *Allantis*; HEROUARD (127) p. 20.

(d) Autotomy, perhaps for reproduction, in *Phataria*; RITTER (241) p. 62.—Regeneration of excised madreporite in *Asterias*, replaced by a single pore, but this not a parallelism with ontogeny; DELAGE (63 & 65) p. 238.—*Luidia* sp., two injured arms regenerated with "striking, though not exact, resemblance" to *Astropecten*; BELL (18).

(e) Autotomy of upper surface of disc in *Oph.* and perhaps all gonads, do latter regenerate?; BELL (19) p. 223.

(f) Of entire calyx from IBB and one basal, a 6th ray added; SPRINGER (266) p. 97.

(h) Repair of injured theca in *Pentremites piriformis*; GREENE (111) p. 89, pl. xxix.

viii. **Parasites and Commensals**:—

(b) *Enteroxenos ostergreni* a gastropod in body-cavity of *Stichopus tremulus*; BONNEVIE (26).—Gastropod, *Entocolax* in body-cavity of *Chiridota*; VOIGT (290).—Cysts of a Sporozoon (?) in *Scotoplanes*; HEROUARD (127) p. 40.—*Lissocarcinus orbicularis*, a crab "lives symbiotically" with *Holothuria nigra*, under its tentacles, is protectively coloured [author objects to call this "commensalism," but does not justify his use of "symbiosis"]; BORRADAILE (27) p. 200.

(c) *Mucronalia*, Prosobranch Gastropod on *Acrocladia*, fixed on ambulacrum, sends proboscis into body-cavity (p. 1), *Hipponyx*, Prosobranch Gastropod, commensal on radioles of *Cidaris* (p. 10); KÜKENTHAL (160).—*Avagina incola*, acoelous Turbellarian in accessory canal of *Echinocardium*; LEIPER (166).—*Echinonema*, nematode in perivisceral cavity of "the sea-urchin"; GEMMILL (98).—*Echinocheres*, Copepod parasitic in radioles of *Calveria*; HANSEN (120).—*Montacuta*, mollusc on *Spatangus* radioles; PEARCEY (218) p. 317.—*Verruca* and *Scalpellum*, cirripedes, on radioles of *Dorocidaris*; RICHARD (238) p. 90.

(d) Prosobranch Gastropods, *Mucronalia* on *Linckia*, fixed on ambulacrum, sends proboscis into skin (p. 5), *Stilifer* on *Choriaster* (p. 6), *Thyca*, 2 spp., on *Linckia miliaris* (pp. 7, 9); KÜKENTHAL (160).

(e) Myzostomes on *Ophiocreas* and *Astroceras*; CLARK (47).

(f) *Platyceras* on *Crin.*; KEYES (150).—Deformities produced by parasites, ?*Myzostoma*, in *Cyrtocr.* and *Eugeniacr.*; REMES (234) pp. 198, 204.—Crustaceans and worms living on *Actinometra* and protectively coloured; ALCOCK (5) pp. 99, 113.

ix. **Echinoderms as Food**:—of fish,—*Cucumaria*, *Thyone*, *Astropecten*, *Asterias*, *Ophiopholis*, *Ophiothrix*, *Astronyx*, *Ophiura*, *Amphiura*, *Echinus*, *Echinocyamus*, *Spatangus*, *Echinocardium*, *Brissopsis*; PEARCEY (218): Echinoderms of Chalk; JANET (136) p. 909.

x. **Echinoderms as Geological Agents**:—as rock-formers; KEILHACK (145).—*Ophiothrix* &c. augmenting coral reefs; ALCOCK (5) p. 139.—*Ech.* forming beds in Weisser Jura ϵ (p. 601), *Millerier.* columnals (p. 559); SCHMIERER (254).—Echinoderm breccia of Great Oolite near Basel, chiefly *Cainocr. andreae*: STRUEBIN (273) p. 70.—Crinoideenschiefer of Liassic age; ROTHPLETZ (243) p. 23.—Pentacrinite limest. (p. 272), "ferrocrinoid" bed (pp. 267, 277); WALFORD

(291): "ferrocrinoids" not crinoidal; BLAKE in discussion.—Crinoidal limestone, Carboniferous, altered into haematite, in Monmouthshire; STRAHAN (271) p. 26 and pl.

Evidence of fossil *Cidaris* as to conditions of deposition of the Chalk (p. 905), radioles or columnals preserved owing to their outer crust, but not tests or thecae (p. 908); JANET (136).

Sea-urchin burrows in trachyte at Pedras Pretas, Pernambuco; BRANNER (31) p. 60, pl. ix.

(E.) MISCELLANEOUS.

i. **Research and Instruction**:—

a. Preservation:—Collection and preservation of recent *Echinoderma*; BRITISH MUSEUM (32).—The collection of early stages of various Classes in B. of Naples (p. 82) and methods of fixing and staining (p. 78); RUSSO (245).

b. Methods of research:—Breeding and preserving larvae of *Echinus* for study; MACBRIDE (182).—Method of rearing *Ech.* and *Oph.* from ovum to adult, discovery alleged, but not described; GRAVE (108); larvae reared on diatoms; GRAVE (107).—Preservation and fixation of ova and larvae of *Cribrella*; MASTERMAN (195) p. 375.—Methods and stains used in study of ovum; BRYCE (35) p. 180.—Method of dissecting ova; DELAGE (65) p. 240.—Microscopic preparation of recent Echinoderms; GARBINI (93) pp. 261, 262.—Machine for grinding fossils at regular intervals, and photography of serial sections, applied to *Ophiura* and *Lapworthura*; SOLLAS (263).—Test for Aragonite and Calcite; MEIGEN (208).

c. Museum Exhibits and Collections:—American Museum of Natural History, exhibit of *Uintacr.*, slab 5 ft. 4 in. × 3 ft. 2 in.; JESUP (138) p. 16 and plate.—Specimens of *Ephippiellum* sent to British Museum; ŁOMNICKI (174).—List of types & figd. specimens, *Ech.*, *Oph.*, *Crin.*; GEOL. SOC. LONDON (101).—List of historical specimens of Palaeozoic *Echinoderma* in Museum of Practical Geology, London; ALLEN (7).—List of type-specimens fossil Echinoderms in Museum Geol. Survey, Ireland; MCHENRY & WATTS (184), pp. 121–126.—Norwich Museum, historical specimens of *Ananchytes*, *Spatangus*, *Asterias*, *Ophiura*; LENEY (167) p. 227.—Brighton Museum, Chalk Echinoderms; MCPHERSON (186).—List of historical and type-specimens in Basle Museum, echinoderms figd. by Bourguet (*Ophiura gagnebini*), Bruckner, Hofer, Andreae, Knorr, Agassiz, Desor, de Loriol, Gilliéron; GREPPIN (112).

d. Instruction:—Text-book; MASTERMAN (194): fossil Echinoderms; COLE (49) pp. 375–389: JUKES-BROWNE (141): WOODS (303) pp. 99–150, with many original text-figg.: with several figg. of *Ech.* & *Ast.* new to the text-books; VINASSA DE REGNY (288) pp. 202–252.—Brief account of Bohemian *Cystidea* with figg. after Barrande (pp. 897, 898, 1025), and of Cretaceous *Ech.*, *Ast.* with figg. after Novak and Fritsch (p. 1321); KATZER (144).—Keys to structure of test in families and genera of *Ech.*, with glossary; PAYEBIEN (214).—See also SCHMEIL (253).

ii. **Economics**:—Possibility of rearing *Ech.* for economic purposes at Barbados; GRAVE (108).—Sea-urchins will not strip a coast of seaweed because an equilibrium must have been established ages ago, the idea is not confirmed by historic observations, and urchins live at a lower zone; SCOTT (256).

iii. **Bibliography**:—Index to all generic and all specific names from

1758 to 1800 A.D., with condensed bibliography; SHERBORN (261).—List of 71 works on development, phylogeny, and classification of *Echinoderma*; RUSSO (245) p. 85.—Bibliography,—of Regeneration; PRZIBRAM (227).—Of maturation of ovum; BRYCE (35).—Of artificial parthenogenesis, etc.; BRYCE (36).—Of Echinoderma dredged by 'Investigator' in Indian seas; ALCOCK (5) p. 311.—List of writings on *Crin.* by WACHSMUTH & SPRINGER; KEYES (152).—Summary of Leydig's work on *Hol.* & *Ech.*; LEYDIG (169) p. 67.—Dates of publication of 'Notes pour servir a l'Étude des Echinodermes' with index to spp. in first ten fascicules; LORIOL (176) pp. iii–vii.—Numerical estimate of Echinoderms figured in GAY, Historia física i política de Chile, vol viii, 1854; PORTER (226) p. 126.

iv. **Historical, Popular notions, &c.**:—Summary of work on Echinoderms since 1877; BATHER (14A) p. 617.—History of recent morphology and classification; RUSSO (245) p. 60.—Work on fossil Echinoderms in Scotland, 1880–1900; PEACH (215) p. 364.

Life of Wachsmuth; KEYES (152).—Appreciation of Beyrich's work on fossil Echinoderma; KOKEN (157) p. 40.

A *Conoclypeus conoideus*, found in prehistoric wall of the Engelsburg, erroneously supposed a corn-grinder; LEYDIG (169) p. 67.—*Echinus microtuberculatus* called "la Castagnole" at Cette; GOURRET (104).

(F.) AUXOLOGY.

i. **General Principles**:—Vacant.

ii. **General Accounts**:—Embryology of *Ech.*; HAMANN (119) pp. 1139–1168.

iii. **Formation of Gonads**:—

a. Oogenesis, formation of follicle; KORSCHELT & HEIDER (158) p. 315.

b. Oogenesis and spermatogenesis in ♂ ♀ *Cucumaria* (see II, B, i, b, 12); ACKERMANN (2).

c. Maturation of ovum, history of previous work, and minute account of mitosis in *Echinus esculentus*, comparison with results obtained by others, and general interpretation; BRYCE (35) and in abstract (34).—Maturation of ovum, radial striae in zona pellucida, in *Strongylocentrotus*; GIARDINA (102).

d. Structure and maturation of ovum in *Asterias glacialis*; HARTMANN (122).

e Changes in nucleus of forming ova of *Ophiura laevis* and *Ophioglypha lacertosa*; HARTMANN (122) p. 801.

iv. **Oviposition, Fertilisation, and Segmentation**:—*Cribrella oculata*, breeding period (p. 373) size of ova, segmentation irregular producing a morula, which by egression of inner cells tends to form a blastula, but gastrulation intervenes (p. 377); MASTERMAN (195).

Fertilisation,—Theoretical discussion, meaning of chromosomes (p. 127), physico-chemical phenomena (p. 134); DELAGE (60).—Protoplasm of *Ast.* ova poisonous to *Ech.* spermatozoa, but *Ech.* secrete in glands of pedicellariae a poison for *Ast.* spermatozoa, experiments on *Echinus*, *Sphaerechinus*, *Strongylocentrotus*, *Arbacia*, *Asterias*, *Astropecten*; DUNGERN (75).—Phenomena of fertilisation, mitosis and segmentation, in *Strongylocentrotus*, chemotactic action of centrosome throughout; GIARDINA (102).—No chemotactic attraction of spermatozoa to ovum in *Ech.*, mode of penetration of zona pellucida; BULLER (38).—Attachment and rotation of Echinoderm spermatozoa, penetration of zona pellucida in *Ech.*; BULLER (37), & (38) p. 159.

Resistance and response of spermatozoa of *Strongylocentrotus* to variations of osmotic pressure; GALEOTTI (92) pp. 881, 898.—Structure of *Ech.* ovum inferred from development of isolated blastomeres; DRIESCH (72) p. 509.—Number of chromosomes in *Strongylocentrotus* (p. 72), and general constitution of *Ech.* ovum nucleus; BOVERI (29).

Segmentation,—started by spermatozoon, not *qua* organised structure of centrosome, but *qua* chemical substance combining with ooplasm to produce centrosome; BOVERI (30).—Of *Ech.* ovum; ZIEGLER (306).—Of fertilised *Ech.* ova without participation of sperm-nucleus; TEICHMANN (276).—Blastula of *Echinus microtuberculatus*, beginning to invaginate; RHUMBLER (237) p. 431, fig. 16.

v. **Larval Stages**:—

(a) In North Sea; MEEK (199) pp. 30, 31.—In plankton of G. of Triest, 1901; STEUER (268) pl. i.

(c) Of *Strongylocentrotus lividus* and *Sphaerechinus granularis* fully descr.; STEINBRÜCK (267) pp. 2–22, pls. i, ii.—Pluteus of *Mellita*, sphincter muscles compressing gut, two pore-canals; GRAVE (105).—Development of larva of *Echinus*; MACBRIDE (181).—Natural Parthenogenesis in *Sphaerechinus*, *Toxopneustes*, and *Arbacia*, growth of larvae checked by lowering of temperature; VIGUIER (286).—See also end of II, F, viii; ARIOLA.

(d) Of *Cribrella*, detailed description, novel disposition of coeloms, discussion of MacBride and Goto; MASTERMAN (195) p. 382.—Of *Asterias glacialis* of *Auricularia* type, not *Bipinnaria*; DELAGE (64) p. 215.

vi. **Organogeny**:—

a. *Echinoderma*:—

(*1*) Origins and ulterior development of sexual cells, genital cords and pores, perihaemal aboral sinus, haemal aboral lacuna, intestinal absorbent strands, parietal sinus, ampulla, axial sinus, ovoid gland, and chambered organ; RUSSO (245).

(*4*) Laws of crystallisation determine only the physical structure of the stereom, but its arrangement is determined by that of the mesoderm cells; BIEDERMANN (23) pp. 160–170; and HEROUARD (125).

c. *Echinoidea*:—(*1*) Brief account of organogeny in *Echinus miliaris*: amniotic cavity not closed; hydrocoel; origin of radial canals and primary podia, buccal cavity or epineural space, epineural canals, buccal membrane; from left posterior coelom originate peripharyngeal sinus, perihaemal system, peribuccal sinus; elements of lantern formed independently at early stage by calcigenous cells of mesenchyme, but teeth formed in pouches of ectoderm (cf. enamel); nerves arise from ectodermic disc: THEEL (277).

(*6*) Rudimentary right hydrocoel, left hydrocoel, radial canals, epineural & perihaemal spaces in *Echinus*; MACBRIDE (181 & 182).

(*7*) Development and segmentation of coelom in *Echinus*; MACBRIDE (181 & 182).

(*8*) Development of masticatory apparatus from outer perihaemal ring, which is formed by 5 diverticula from the hypogastric coelom (l. post. coelom); GRAVE (105).—Masticatory apparatus, mouth, and oesophagus in *Echinus*; MACBRIDE (181).

(*10*) Blood-system in *Echinus*; MACBRIDE (181).

(*11*) "Ovoid gland," which "is in reality a genital stolon," in *Echinus*; MACBRIDE (181).

vii. **Post-larval Growth-stages** :—

c. Neanic *Scutella patagonensis*, movement of anus with growth; ORTMANN (212) p. 59.

viii. **Developmental mechanics and Experimental Embryology** :—General accounts,—of recent researches; HICKSON (128).—Of Experimental Embryology; VAN BENEDEN (284): ditto (pp. 8–249) including special account of researches on Echinoderms (pp. 109–121) with reff. to papers by Driesch, Fiedler, Loeb, Morgan, Ziegler, and Zoja (p. 121); KORSCHELT & HEIDER (158).—Of Experimental Embryology of *Ech.*; PRZIBRAM in HAMANN (119) pp. 1213–1295.—Of researches, chiefly on fragmentation; MICHEL (204).—Of experiments on fertilisation and parthenogenesis in *Ech.*, esp. *Echinus esculentus*, and *Ast.*; BRYCE (36).

Hybrid larvae, *Strongylocentrotus lividus* ♂ × *Sphaerechinus granularis* ♀, series of variations between the parent forms, no characters obviously due to either father or mother; STEINBRÜCK (267).

Inorganic substances necessary for development of *Ech.*, chlorine, hydroxyl, natrium, potassium, calcium from earliest stages, and sulphate, carbonate, magnesium, for later stages, their various effects; HERBST (123).

Ovum of *Asterias* dies from natural causes in a few hours, but is saved by fertilisation; LOEB (172).—Death of *Arbacia* ovum retarded by fertilisation or by brief treatment with certain salts, e.g. potassium cyanide, after which sexual or parthenogenetic development is possible, but lowering temperature or lack of oxygen does not greatly prolong life, confirmation from *Asterias*; LOEB & LEWIS (173).—Production of an immune serum and its action on ova of *Ech.* and *Ast.*; DUNGERN (75) p. 50.

Composition of nucleus of *Ech.* ovum, especially in the light of double fertilisation, criticism of Delage, Driesch, Wilson and others; BOVERI (29).—Segmentation in ova of *Echinus* after some chromosomes or the centrosome have been excised; centrosomes appear de novo, but original number of chromosomes is not restored; STEVENS (270).—Studies in gastrulation, determination of parts, development of *Ech.* gastrulae from fragments of blastomeres; DRIESCH (72).—Exogastrulae, results of Driesch and Herbst discussed; RHUMBLER (237) p. 452, f. 23.

Artificial parthenogenesis,—theoretical discussion; DELAGE (60) p. 135.—Loeb's work critically discussed; BOVERI (30).—Methods and sources of failure, strength of solution, temperature, agitation, differences in these respects between *Ech.* and *Ast.* ova; LOEB (170).—Causes, viz., raising or lowering of temperature, shaking, saline solutions, so-called hybridisation, results obtained with Mediterranean species of *Sphaerechinus*, *Toxopneustes*, and *Arbacia*; VIGUIER (287).—Lowering of temperature results in irregular segmentation of *Arbacia* ova, but swimming larvae from *Asterias* ova, no segmentation results from raising temperature; GREELEY (109).—Shaking induces a slight and incomplete parthenogenesis in *Ast.* ova; DELAGE (64) p. 231.—Effect of potassium cyanide on fertilized ovum of *Arbacia*, weak solution slightly hastens development, prolonged exposure produces disintegration, similar effects due to lack of oxygen; LYON (180).—Mitosis of unfertilised *Toxopneustes* ova treated with MgCl., fresh formation of centrosomes; WILSON (296), & (297) p. 506.—Segmentation induced in unfertilised ovum of *Strongylocentrotus lividus* by solutions of magnesium chloride, strychnine, nicotine, and hyoscyamin, while ergotine had no effect; detailed examination of the mitosis; WASSILIEFF (293).—Carbon dioxide, most effective agent;

DELAGE (61): its action on *Ast.* ova, full discussion; DELAGE (64): acts as a temporary poison; DELAGE (62).—Slight normal parthenogenetic segmentation in *Arbacia pustulosa*, and segmentation after treatment with various solutions, reaching gastrula; ARIOLA (11): these larvae probably not *Ech.* at all, natural parthenogenesis of *Arbacia* not proved; LOEB (171).—See also under II, F, v, c; VIGUIER (286).

III. DISTRIBUTION*.

A. GEOGRAPHICAL.

i. **General**:—Vacant. See however III, B, i.

ii. **Atlantic Ocean and adjacent Seas**:—General,—North Atlantic, distrib. of *Solaster papposus* et varr.; GRIEG (114).

Scandinavia:—Northern Norway, revised list of *Ech.*, *Ast.*, *Oph.*, *Crin.*, with notes on distrib., and analysis of fauna; GRIEG (113).

British coasts:—Moray and Cromarty firths, with notes on bathymetric and general distrib., *Cucumaria*, *Thyone*, *Psolus*, *Astropecten*, *Luidia*, *Hippasterias*, *Porania*, *Palmipes*, *Stichaster*, *Solaster*, *Henricia*, *Asterias*, *Amphiura*, *Ophiactis*, *Ophiopholis*, *Ophiocoma*, *Ophiothrix*, *Astronyx*, *Ophiura*, *Echinus*, *Strongylocentrotus*, *Echinocyamus*, *Spatangus*, *Echinocardium*, *Brissopsis*; PEARCEY (218).—Firth of Forth, Echinoderms dredged at various stations; PEARCEY (217) p. 228.—Cambois B., Alnmouth B., Druridge B., *Echinocardium* (pp. 8, 9), Cambois and Alnmouth Bays, larvae (pp. 30, 31); MEEK (199).—Essex coast, variation of fauna does not affect the common Echinoderms, abundance of *Synapta* in R. Orwell; SORBY (264).—Exe estuary, *Ophiothrix*, *Amphiura*, *Echinus*; ALLEN & TODD (6) p. 317.

French coasts:—Normandy, *Psammechinus*, *Cribrella*, *Solaster*, *Asterina*, *Ophioglypha*, *Amphiura*, *Ophiothrix*, *Antedon*; GADEAU DE KERVILLE (91) pp. 177, 178.

Mediterranean:—Etang de Thau near Cette and neighbouring channels, *Asterina*, *Asterias*, *Amphiura*, *Ophiothrix*, *Strongylocentrotus*, *Echinus*, *Cucumaria*; GOURRET (104).—Gulf of Triest, Echinoderm plankton 1901; STEUER (268) pl. i.

E. Atlantic and Mediterranean:—*Hol.* collected by 'Princesse Alice' 1892–7, *Pannychia*, *Laetmophasma*, and *Scotoanassa* new to Atlantic, also spp. of *Holothuria*, *Stichopus*, *Pseudostichopus*, *Paelopatides*, *Allantis* (n. g.), *Mesothuria*, *Paroriza* (n. g.), *Psychropotes*, *Benthodytes*, *Euphronides*, *Laetmogone*, *Deima*, *Kolga*, *Scotoplanes*, *Peniagone*, *Thyone*, *Ankyroderma*, and *Labidoplax*; HEROUARD (127).—Dredged by 'Princesse Alice,' off Morocco, *Dorocidaris*, *Asthenosoma*, *Phormosoma*, *Porocidaris*, *Echinus*, *Sperosoma*, *Holothuria*; near Hierro, Canaries, *Ophioglypha*, *Pentacr.*, *Hyocr.* [i.e. *Gephyrocr.* n. g.]; C. Verde, 7000 metres, *Ophioglypha*, *Hyphalaster*; Mais Id., *Dorocidaris*, *Sperosoma*, *Bathyplotes*; Sal Id., *Dorocidaris*, *Phormosoma*, *Sperosoma*, *Ophiomusium*, *Mesothuria*, *Bathyplotes*; Antao Id., *Ptychogaster*; Madeira, *Pentacr*; RICHARD (238).—Near Canary Is. *Phormosoma*, *Asthenosoma*, *Sperosoma*, *Ophiocreas*, *Pentacr.* [i.e. *Isocr.*], *Hyocr.* [i.e. *Gephyrocr.*]: C. Verde Is. *Hyphalaster*, *Ophioglypha*, *Sperosoma*, *Bathyplotes*: C. Verde Basin, *Ophioglypha*, *Hyphalaster*; ALBERT (4).—Azores, *Gephyrocr.* n. g.; KOEHLER & BATHER (156): really from Hierro in Canaries, 1786 metres, correction in Ann. Nat. Hist. (7) x, p. 420.—Azores, *Ophiophycis* n. g. et sp. (p. 222): Cape Verde basin, *Ophioglypha* n. spp. (p. 225); KOEHLER (155).

* For the species found, refer to generic names under IV.

American Coast:—Florida, Dry Tortugas, n. sp. of *Actinometra*; SPRINGER (265).—Bermuda, *Astroporpa*, *Luidia*, *Linckia*, *Echinoneus*, *Holothuria*, *Ophiolepis*; VERRILL (285) p. 36.

iii. **Indian Ocean and adjacent Seas**:—Deep-sea Echinoderms (p. 284), with notes on other spp. fr. shallower water (passim), mainly taken from previous writings; ALCOCK (5).—Aldabra Id., list of *Hol.*, *Ech.*, *Ast.*, *Oph.*; VOELTZKOW (289) p. 565.—Maldive and Laccadive Is., list with notes on bottom, colour &c. *Antedon*, *Actinometra*, *Acanthaster*, *Linckia*, *Scytaster*, *Ophidiaster*, *Retaster*, *Mithrodia*, *Fromia*, *Asterina*, *Pentagonaster*, *Stellaster*, *Astropecten*, *Luidia*, *Ophiocoma*, *Ophiomastix*, *Ophionereis*, *Ophiothrix*, *Ophiopteron*, *Ophioaethiops*, *Astrophyton*, *Cidaris*, *Diadema*, *Echinothrix*, *Asthenosoma*, *Astropyga*, *Temnopleurus*, *Salmacis*, *Tripneustes*, *Echinometra*, *Fibularia*, *Echinoneus*, *Clypeaster*, *Laganum*, *Lovenia*, *Brissopsis*, *Brissus*, *Maretia*; BELL (19).

Red Sea, general character of Echinoderms; FUCHS (89) p. 253.

iv. **Pacific Ocean and adjacent Seas**:—Copper Id., Sitka in Alaska, and Yokohama B., *Chiridota*, *Cucumaria*, *Stichopus*; CLARK (46).—S. California, *Antedon* first recorded, *Toxopneustes*, *Astropecten*; RITTER (241).—Clipperton Id. *Holothuria*, 1 n.sp. (p. 530), Galapagos Is. *Luidia*, *Pentaceros*, *Nidorellia*, *Paulia*, *Pharia*, *Phataria*, *Heliaster*, *Ophiura*, *Ophionereis*, *Ophiocoma*, *Ophiothrix*, *Cidaris*, *Diadema*, *Strongylocentrotus*, *Toxopneustes*, *Hipponoe*, *Clypeaster*, *Encope*, *Rhynchopygus*, *Holothuria*, with measurements and notes on colour, comparison with Bermuda fauna, most are S. American, but *Hol.* are oriental; CLARK (48).—Japan, *Astrogonium*, *Astropecten*, *Luidia*, *Asterina*, *Nardoa*, *Cribrella*, *Asterias*, with n. spp. et varr.; DOEDERLEIN (70); n.spp. of *Gorgonocephalus* and *Astrophyton*; DOEDERLEIN (69).

New Zealand, Timaru, low water, *Amphiura* n. sp.; FARQUHAR (77).—Victoria, Western Port, common *Hol.*, *Ech.*, *Ast.*, *Oph.*; MATTINGLEY (198): Port Phillip, *Echinocardium*, *Strongylocentrotus*, *Pentagonaster*, *Antedon*; SAYCE (248).

v. **Arctic Ocean and adjacent Seas**:—Vacant.

vi. **Antarctic Ocean and adjacent Seas**:—Collection of 'Southern Cross,' mostly C. Adare and Franklin Id., *Cucumaria*, *Thyone*, *Holothuria*, *Asterias*, *Cycethra*, *Odontaster*, *Ophiozona*, *Ophiomusium*?, *Ophiactis*, *Ophiosteira* n. g., *Ophionotus* n. g., *Echinus*, *Hemiaster*; BELL (17).

B. GEOLOGICAL.

(i) GENERAL.

Palaeontological history of *Cyst.*, *Blast.*, *Crin.*, and *Ech.*, illustrating causes of extinction; CRAMPTON (51) p. 468.—"Les Échinides ne peuvent être d'aucun secours pour l'établissement des parallélismes, surtout à grandes distances"; GROSSOUVRE (116) p. 20.—Evidence of *Crin.* and *Ech.* as to depth at which Chalk was formed; GROSSOUVRE (116) p. 69.—Value of *Ech.* for determining depth at which rock was formed (pp. 222, 279), ditto for *Crin.* (p. 282), inferences as regards Lower Tertiaries of N. Italy, and change in habits of the genera between them and present day; OPPENHEIM (210).

British strata, lists of fossil Echinoderms; JUKES-BROWNE (141).—Distrib. *Ast.* esp. in France; FRITEL (87).—Table of distribution of *Cyst.* and *Blast.*; FRITEL (121) of Zool. Rec. 1901 [omitted in error].

(ii) Cainozoic.

a. **General** :—Japan, *Crin.*, *Ast.*, and list of *Ech.*; Japan (137) p. 86.—Patagonia, *Scutella* n. sp.; Philippi (223) p. 15.

b. **Pleistocene** :—Plates of *Echinus* with fresh-water (?) shells in tuff; Angelis d'Ossat (10).
San Pedro series, S. California, *Strongylocentrotus*, *Echinarachnius*; Arnold (13) pp. 126, 130, 134, 136.

c. **Pleiocene** :—Near Viterbo, *Galeodea*, *Hemiaster*, *Schizaster*; de Stefani (67) p. 26.
Upper :—Cannizzaro, *Dorocidaris*; Scalia (249) p. 2.

d. **Meiocene** :—Of Muro, Id. of Mallorca, *Clypeaster*; Bofill y Poch (24) p. 412.—Of Lebanon and Beyrout, *Clypeaster* n. sp.; Loriol (176) p. 28.—?, of Victoria, *Sigsbeia* ?; Hall (118).
Upper :—Argiles d'Apigné, *Echinolampas*, *Spatangus*, *Arbacina*, *Echinocyamus*; Picquenard (224).—Tortonian,—Molasse de Cucuron (Vaucluse), *Schizaster*, *Echinolampas*, *Scutella*, *Psammechinus*, *Ellipsechinus*; Deydier (68) p. 326: of Hérault, *Echinometra* first fossil sp. known, *Amphiope*, of Gard, *Echinolampas*; Loriol (176) pp. 12, 13, 23: of Malta, *Scutella*; Airaghi (3) p. 377.—Faluns de l'Anjou, *Scutella*, *Echinolampas*, *Spatangus*, *Cassidulus*, *Arbacia*, *Cidaris*; Lebesconte (164) p. 279.—Tafna, Algeria, list of *Ech.*, with references; Gentil (100) p. 349.
Middle :—Helvetian,—near Cucuron (Vaucluse) *Echinolampas*, *Scutella*, *Amphiope*, *Psammechinus*; Deydier (68) p. 321: of Herault, *Scutella* n. sp., *Amphiope*, *Brissopsis* n. sp., *Schizaster*; Loriol (176) pp. 17, 21, 24, 26: limestones of Bonaria, S. Bartolomeo, and Cagliari, in Sardinia, *Cidaris*, *Leiocidaris*, *Psammechinus*, *Diadema*, *Acropeltis*, *Fibularia*, *Scutella*, *Clypeaster* with n. spp.; Lovisato (177): Syracuse Limestone, spp. of *Clypeaster* (p. 24), also lists of *Ech.* in limestones of Iblei, province of Syracuse (passim); Ragusa (231).—Schlier near Camerino, *Hemiaster*, *Brissopsis*, *Echinolampas*, *Echinanthus*, *Cidaris*, *Linthia*, *Spatangus*, *Cleistechinus*; Mariani (190) pp. 320–322.—Younger Mediterranean beds,—Cilicia, various spp. of *Clypeaster*, *Heteroclypeus*, *Brissopsis*, *Schizaster*, *Sarsella*; Schaffer (250): Toula (279) [see also ii, f]: Oláh-Rákos, Siebenburgen, *Scutella*; Roth v. Telegd (242) p. 99.—Of Tafna, Algeria, compiled list of *Ech.* with references; Gentil (100) p. 315.
Lower :—Burdigalian,—near Cucuron (Vaucluse), *Echinolampas*, *Clypeaster*, *Scutella*, *Spatangus*; Deydier (68) p. 314: of Gard, *Phaleropygus* n. g. (p. 16), *Rhabdocidaris*, *Arbacina* n. sp. (pp. 10, 11); Loriol (176).—Aquitanian of Lot-et-Garonne, *Scutella* n. sp.; Loriol (176) p. 20.—Patagonian beds, Patagonia, *Cidaris*, *Hypechinus*, *Toxopneustes*, *Scutella*, *Cyrtoma*, *Schizaster*; Ortmann (212).

d, e. **Oligo-meiocene**: —Garda basin, *Echinocyamus*, *Scutella*, *Clypeaster*, *Echinolampas*, *Pericosmus*, *Euspatangus*, *Spatangus*; Airaghi (3).

e. **Oligocene** :—Chiuppano in Vicentin, *Scutella*; Patrini (213).—Reiter Schichten, Hallthurm, Bavaria, *Leiocidaris*, *Echinolampas* !; Deninger (66) p. 224.
Middle :—N. Macedonia, *Trachypatagus*, *Echinolampas*, *Euspatangus*; Oppenheim (209) p. 276.
Lower :—Upper Nummulitic of Aquitaine, *Euspatangus*, *Scutella*, *Clypeaster*; Douvillé (71) p. 31.

e, f. **Oligocene and Eocene** :—Catalogue raisonnée of *Ech.* and *Crin.* Venetia and the Trentino, for spp. see under *Cidaris*, *Rhabdocidaris*

Porocidaris, *Coelopleurus*, *Cyphosoma*, *Micropsis*, *Coptechinus*, *Echinus*, *Psammechinus*, *Leiopedina*, *Conoclypeus*, *Oviclypeus*, *Echinocyamus*, *Sismondia*, *Laganum*, *Clypeaster*, *Scutella*, *Pyrina*, *Curatomus*, *Echinoneus*, *Nucleolites* (?), *Cassidulus*, *Amblypygus*, *Pygorhynchus*, *Echinanthus*, *Ilarionia*, *Echinolampas*, *Enichaster*, *Palaeopneustes* (?), *Hemiaster*, *Ditremaster*, *Cyclaster*, *Linthia*, *Schizaster*, *Pericosmus*, *Gualtieria*, *Parabrissus*, *Echinocardium* (?), *Prenaster*, *Brissopsis*, *Toxobrissus*, *Macropneustes*, *Trachypatagus*, *Brissus*, *Hypsospatangus*, *Breynia*, *Lovenia*, *Oppenheimia*, *Euspatangus*, *Brissopatagus*, *Spatangus*, *Conocrinus*, *Tormocrinus*, *Holopus*, *Antedon*, *Pentacrinus*, discussion of horizons and comparison of faunas (pp. 273–279, 282), see also III, B, i; OPPENHEIM (210) with additions in OPPENHEIM (211).

f. **Eocene** :—Catalonia, mostly province of Barcelona, especially Montserrat, *Leiocidaris*, *Phalacrocidaris*, *Echinopedina*, *Leiopedina*, *Coelopleurus*, *Coptosoma*, *Phymosoma*, *Psammechinus*, *Leiopleurus*, *Circopeltis*, *Echinolampas*, *Ditremaster*, *Schizaster*, *Brissopsis*, *Macropneustes*, *Brissoides*, *Hypsopatagus*, *Maretia*, *Spatangus*, *Sarsella*; types mostly in coll. Almera; LAMBERT (161) pp. 23–57.—Mid. and Upper Eocene, Louristan n. spp. of *Euspatangus*, *Brissopsis*, *Cionobrissus*, *Pericosmus*, *Schizaster*, *Echinolampas*, *Conoclypeus*, and *Rhabdocidaris*, also *Ditremaster*; GAUTHIER (96).—?, near Kanew, *Maretia*; RADKEWITSCH (230).—?, Cilicia [but see under III, B, ii, d], *Clypeaster*, *Brissopsis* n. sp.; TOULA (279).—?, Victoria, *Pentagonaster*, *Chirodota*; HALL (118).

Upper :—At the top, Nummulitic of Aquitaine, *Pentacr.*, *Bourgueticr.*; DOÚVILLE (71) p. 31.—Tongrian, fossils descr. by OPPENHEIM (209) from Promina [see III, B, ii, e], are of this age; DAINELLI (56).—Bartonian at la Garoupe near Antibes, also inferred in G. of Ajaccio, *Echinocyamus* sp.; JOLEAUD (140).—Bracklesham beds, N.W. Hampshire, *Hemiaster*; REID (233) p. 25.—Lutetian of Mte Gargano, *Amblypygus*, *Echinocyamus*, *Macropneustes*, *Schizaster*, *Brissopsis*, *Ditremaster*, *Distefanaster* (n. g.); CHECCHIA (40).

Middle :—London Clay, Walton-Naze, Essex, *Balanocr.* commonest fossil; JOHNSON (139).—Nummulitic of Spalato, Dalmatia, *Echinolampas*, *Conoclypus*, *Cyphosoma*; MARTELLI (192): also *Echinanthus*, *Schizaster*, *Pericosmus*; MARTELLI (193).—Egypt, *Echinolampas*, *Sismondia*; FOURTAU (83).

Lower :—Montian, see iii, b, *1*.

(iii) MESOZOIC.

a. **General** :—vacant.

b. **Cretaceous** :—Bohemian *Ech.* and *Ast.*, see II, E, i, d; KATZER (144).

1. Upper :—Geol. distrib. of *Micraster*, *Echinocorys*, *Rhynchopygus* (pp. 16–22), of Touraine, lists of *Ech.* and *Crin.* at various locc. (pp. 335, 336, 337, 339, 340, 342, 345); GROSSOUVRE (116).—List of Echinoderms in flint in drift, N. Hampshire (p. 73), in Lower Chalk at Stoke Hill (p. 81), Upper Chalk, railway Basingstoke to Salisbury (pp. 83, 84); STEVENS (269).—Of Hokkaidō, *Pentacr.*, *Ech.*; JAPAN (137) p. 70.

Uppermost Cretaceous, Ballycastle, Ireland; MCHENRY & WATTS (184) p. 118.

Montian (Paleocene of Belgian Survey), calcaire de Mons, list of *Ech.*; GROSSOUVRE (116) p. 307.

Garumnian of Tercis (Landes), *Echinocorys*; ARNAUD (12) pp. 35–38. —Calcaire pisolithique, list of *Ech.*; GROSSOUVRE (116) p. 139.

Maestrichtian or Danian :—Craie grise de Ciply, and Poudingue

de la Malogne, list of *Ech.*; LAMBERT in GROSSOUVRE (116) p. 972. —Tuffeau infr. de Ciply, *Bourguetier.* and list of *Ech.* (p. 305), Brown Chalk of Ciply, list of *Ech.* (p. 304); GROSSOUVRE (116).—Tufeau de St. Symphorien, at Herbières, Belgium, *Bourguetier.*; CORNET (50) p. 40.—Maestrichtian of Limbourg, *Micraster* n. sp.; LAMBERT (163).—Near Aachen, *Caratomus* n. spp.; SCHLUETER (252) p. 324.—Dordonian or Maestrichtian of Tercis (Landes), *Echinocorys*; ARNAUD (12) pp. 32–35.—Baculite limest. of Veauville, Cotentin, list of *Ech.* by LAMBERT; GROSSOUVRE (116) p. 287.—Danian, Manghychlak in Transcaspian, *Ananchytes*, *Echinoconus*, *Pyrina*, *Echinobrissus*, *Catopygus*, *Cassidulus*, *Micraster*, *Epiaster*; SEMENOW (258).—Libyan desert, *Pentacr.*, *Balanocr.*, *Echinocorys*, and n. spp. of *Cidaris* and *Hemiaster*; WANNER (292) pp. 106–109.

Senonian to Cenomanian:—table showing horizons of all *Ech.* spp. in S.W. of Paris basin (p. 350), in Aquitaine (p. 384); GROSSOUVRE (116).

Senonian:—N.W. Hampshire, Echinocorys; REID (233) pp. 6, 7.—Little Weighton, Yorkshire, *Ananchites*, *Micraster*; SHEPPARD & STATHER (259).—Germany, *Caratomus*, n. spp. (p. 322), *Hemicaro* (p. 332); SCHLUETER (252).—Pomerania,—Grimme bei Löcknitz, *Ananchytes*, *Cardiaster*, *Caratomus*, *Conoclypeus*, *Echinoconus* (pp. 113, 114), Peselin, *Ananchytes* (p. 109), Swinemünde, *Ananchytes* (p. 111), Quitzin, *Echinoconus* (p. 89), Finkenwalde and Stettin, *Holaster*, *Cyphosoma*, *Cidaris* (p. 119), Leckow, *Ananchytes* (p. 121); DEECKE (57).—Misburg near Hannover, *Marsupites*, *Ananchytes*, *Micraster*, *Cidaris*, *Salenia*, *Echinoconus*, *Epiaster*; WOLLEMANN (300).—Biewende near Wolfenbüttel, Brunswick, *Echinoconus*, *Ananchytes*; WOLLEMANN (301).—Lille, *Micraster*, *Echinocorys*; LEBRUN (165).—Aude, *Cidaris* n. sp.; SAVIN (247).—Barcelona, *Pyrina*, *Micraster*; LAMBERT (161) p. 22.—Senonian?, Louristan, n. spp. of *Iraniaster*, *Stenonia*, *Epiaster*, *Hemiaster*, *Opissaster*, *Rhabdocidaris*, *Cidaris*, *Salenia*, *Actinophyma*, *Orthechinus*, also general list (p. 187); GAUTHIER (96).—Daghestan, *Ananchites*, *Holaster*, *Offaster*, *Inaster*, *Austinocr.* [determinations most doubtful]; ABICH (1) pp. 13–16.—Manghychlak in Transcaspian, *Ananchytes*, *Cidaris*, *Cyphosoma*, *Echinoconus*, *Cassidulus*, *Bourguetier.*, *Pentacr.*, *Stellaster*; SEMENOW (258). Upper Chico beds of Eagle Ranch, San Luis Obispo Co., California, *Pentacrinus*; ANDERSON (8).

Upper Senonian, *Coeloptychium* chalk, Westphalia, list of *Ech.* (pp. 684, 685), calcaire de Kunraed, list of *Ech.* (p. 322), Craie d'Obourg, Hainaut, list of *Ech.* (p. 301), distrib. of *Ech.* near Reims and Épernay (p. 128), of Meudon, list of *Ech.* (p. 133); GROSSOUVRE (116).

Campanian,—of Tercis (Landes), *Echinocorys* spp., 1 nov.; ARNAUD (12) pp. 30–32.—Upper Campanian of Villagrains, list of *Ech.*, *Ast.*, *Crin.*; GROSSOUVRE (116) p. 392.—Aturian, Alpes-maritimes, *Micraster*, *Echinocorys*; PERON (219) pp. 532–535.

Marsupites zone,—Otterbourne, Hants., *Offaster pilula* is characteristic; REID (232) p. 2: cannot be called characteristic of this zone; SHERBORN (260).—*Marsupites* remaniée in flint gravel of Haldon Hills; JUKES-BROWNE (142).—Near Pourville, *Marsupites*; JANET (136) p. 911.—Westphalia, list of *Ech.* and *Crin.*; GROSSOUVRE (116) p. 682.

Zone of *Micraster coranguinum*, Dieppe, *Micraster*; FORTIN (80) pp. 291, 294.

Lower Senonian,—Santonian, near Sens, *Goniodiscus*, *Pentagonaster*, *Mitraster*, *Pentaceros* n. sp., *Arthraster* n. sp., *Pygaster* Slad., and at St. Martin-de-Bossenay, *Echinocorys* n. var.; VALETTE (283).—

Bouches-du-Rhone *Hemiaster* n. sp.; SAVIN (247).—Emscherian, Alpes-maritimes, *Micraster*, *Echinocorys*, *Holaster*, *Echinoconus*; PERON (219) pp. 516–521.—Lowest Senonian at Croisy-sur-Andelle (Seine-Inf.) *Micraster*; FORTIN (79).—Seewenkalk, list of *Ech.*; LORIOL in GROSSOUVRE (116) p. 584.

Senonian, Turonian:—Zones of Chalk near Brighton, with references to *Ech.*, *Ast.*, *Crin.*, esp. *Marsupites*, *Uintacr.*, *Oreaster*, *Micraster*; MCPHERSON (186).—Distribution of *Ech.* in l'Yonne; LAMBERT in GROSSOUVRE (116) Tab. ii: in Seine-inférieure, after Bucaille, with notes by LAMBERT; GROSSOUVRE (116) Tab. iii and p. 125.

Turonian:—of Westphalia, lists of *Ech.*; GROSSOUVRE (116) pp. 677–679: *Caratomus* n. sp., *Galerites*; SCHLUETER (252) p. 319.—Of Brunswick, lists of *Ech.*; WOLLEMANN (302).—"Skaphitenpläner" of Nettlingen near Hildesheim, *Echinoconus*, *Ananchytes*, *Holaster*, *Micraster*; WOLLEMANN (298): Ditto, also "Brongniartipläner" of Wolfenbüttel and Braunschweig, *Stereocidaris*, *Echinoconus*, *Holaster*, *Infulaster*; WOLLEMANN (299).—Near Zwittau in Mähren, *Micraster*; MAKOWSKY (188).—Original locality of *Micraster leskei*, perhaps Wollin, perhaps England; LAMBERT (163) pp. 127, 128.—Zone of *M. coranguinum*, Dieppe, *Micraster*; FORTIN (80) pp. 291, 294.—Alpes-maritimes, *Micraster*, *Hemiaster*, *Cidaris*, *Tylocidaris*, *Holaster*; PERON (219) pp. 508, 509.—Aude, *Oolopygus* n. sp.; SAVIN (247).—Djebel Amour, Algeria, list of *Ech.*; RITTER (240) p. 40.—Manghychlak in Transcaspian, *Holaster*, *Cyphosoma*, *Ananchytes*; SEMENOW (258).—Terebratula limest. of Sémha, G. of Aden, *Orthopsis*, *Goniopygus*, *Epiaster*, *Hemiaster*; KOSSMAT (159) p. 56.—Zone of *Holaster planus*, Lincolnshire, *Echinocorys*, *Micraster*, *Holaster*, *Infulaster*, *Echinoconus*; HILL (130).—Upper Turonian, Dieulefit, *Micraster* and other *Ech.* (p. 490), near Nice (p. 542); GROSSOUVRE (116).—Côte Ste. Catherine, near Rouen, *Phymosoma*, and Fontaine-sous-Preaux vers Isneauville, *Micraster*; FORTIN (80) pp. 294, 295.—Chloritic Chalk, Squire's Hill, Belfast, *Holaster*; BELL (20).

Cenomanian:—France, Germany, England, *Caratomus*; SCHLUETER (252) p. 319.—Westphalia, zone of *Pecten asper*, list of *Ech.* (p. 674), zone of *Ammonites varians* (p. 675), zone of *Amm. rhotomagensis* (p. 676); GROSSOUVRE (116).—*Varians*-Pläner of Misburg near Hannover, *Discoidea*, *Holaster*; WOLLEMANN (300).—Tourtia de Montignies-sur-Roc et Tournai, Hainaut, list of *Ech.*; GROSSOUVRE (116) p. 299.—Near Lisieux, *Cidaris*, *Discoides*, *Holaster*, *Catopygus*; FORTIN (82) p. 197.—Toulon, lists of *Ech.* from various locc., esp. *Hemiaster*, *Peltastes*, *Holaster*, *Archiacia*, *Echinobrissus*, *Cottaldia*, *Heterodiadema*, *Diplopodia*, *Pseudodiadema*; MICHALET (203).—Couches à *Hippurites*, St. Sirac, Pyrenees, *Hemiaster*, *Pyrina*, and other *Ech.*; GROSSOUVRE (116) p. 429.—Djebel Amour, Algeria, list of *Ech.*; RITTER (240) p. 39.—Lebanon, *Pygurus* n. sp.; LORIOL (176) p. 31.—?, Louristan, n. spp. of *Hypsaster* and *Hemiaster*; GAUTHIER (96).—Manghychlak in Transcaspian, *Cyphosoma*, *Discoidea*, *Ananchytes*?, *Holaster*; SEMENOW (258).—Orbitolina marl of Sémha, G. of Aden, *Orthopsis*, *Pseudodiadema*, *Cidaris*, *Epiaster*; KOSSMAT (159) p. 52.

Albian? Louristan, n. spp. of *Holaster*, *Hypsaster*, *Discoides*; GAUTHIER (96).

2. Lower:—

Aptian:—near Barcelona, remarkable assemblage, *Tylocidaris*, *Diplopodia*, *Orthopsis*, *Peltastes*, *Salenia*, *Phymosoma*, *Goniopygus*, *Codiopsis*, *Discoides*, *Phyllobrissus*, *Holaster*, *Toxaster*, *Enallaster*, *Epiaster*, *Antedon*, types mostly in coll. Almera (pp. 2–22), Aptian

of Montaren (Gard), *Diplopodia* n. sp. (p. 9); LAMBERT (161).—Morella, *Ech.* gen. et sp. indet. descr.; MIGUEL é IRIZAR (205).—Lower Aptian:—of Drôme, *Heterosalenia* n. sp.; SAVIN (247).—"Couche à Orbitolines," Dauphiné and Savoy, *Ech.*; MATTE (197) pp. 156–159.—Djebel Amour, Algeria, list of *Ech.*; RITTER (240) p. 30.—?, Louristan, n. spp. of *Pseudananchys* and *Hypsaster*; GAUTHIER (96).—Urgonian of Savoy, n. sp. of *Botriopygus*; LORIOL (176) p. 7.—Cretaceous "Couches rouges" of S. Rhaetic Alps, *Cardiaster* = *Collyrites*; LORENZ (175).

Urgonian to Valanginian of Central Jura Mts., *Ech.*; RITTENER (239) pp. 42–49.—Upper Barremian of Savoy, *Pygaulus*, *Botriopygus*; LORIOL (176) pp. 4–8.

Hauterivian:—near Cucuron (Vaucluse), *Toxaster*, also of less certain age, *Dysaster*; DEYDIER (68) p. 307.—Choranche (Isère), *Eugeniacr.* and *Ech.*; MATTE (197) pp. 148, 152.—Biassala, Crimea, list of *Ech.*; KARAKASCH (143) p. 99.—Caucasus, *Holectypus*, *Cyphosoma*, *Pseudodiadema*, *Toxaster*; BOGDANOWITSCH (25) pp. 67, 185.

Valangian:—of Isère, n. sp. of *Botriopygus*; LORIOL (176) p. 9.—Aizy-sur-Noyarey, *Ech.* (p. 123), Malleval, *Ech.* (p. 151); MATTE (197).—Alpes-maritimes, *Toxaster* n. sp., of Isère, *Pygurus*, *Cidaris*, *Rhabdocidaris* n. spp., *Diplocidaris* n. sp.; SAVIN (247).

Berriasian:—S. of Tafna basin, *Toxaster*, *Holectypus*; GENTIL (99) p. 604.—Lamoricière, Algeria, *Collyrites*, *Holectypus*, *Toxaster*; GENTIL (100) p. 185.

Neocomian, Djebel Amour and Oulad-Nayl, Algeria, list of *Ech.*; RITTER (240) pp. 29, 78.—Lower Neocomian near Kokkos, Crimea, *Pseudocidaris*, *Acrocidaris*; BROILI (33) p. 605.—Neocomian of Gunib, Daghestan, *Pseudodiadema*, *Holectypus*, *Pyrina*, *Clypeopygus*, *Pentacr.* [determinations most doubtful]; ABICH (1) pp. 21, 35.

Torinosu Limest., Japan, *Cidaris*, *Hemicidaris*; JAPAN (137) p. 60.—Glen Rose beds, Colorado section, Texas, *Holectypus* (p. 161), Walnut formation, Bosque R. valley, Texas, *Enallaster*, *Epiaster*, *Holectypus* (p. 207), Comanche Peak formation, Texas, Washita beds, *Epiaster* (pp. 226, 251, 260, 272), Comanche series of Texas, horizons and locc. of *Enallaster*, *Epiaster*, *Holectypus*, *Pseudodiadema*, *Heteraster*, *Cyphosoma*, *Macraster*, *Leiocidaris*, *Holaster*; HILL (129) for pp. vide sub spp.

c. **Jurassic**:—Distrib. of *Crin.* in France; FRITEL (86).—List of figured specimens of Echinoderms from the Swiss Jura in Basle Mus.; GREPPIN (112).

1. Upper:—

Portlandian (=Tithonian):—Stramberg beds at Nesselsdorf in Moravia: *Cyrtocr.*, *Sclerocr.*, *Eugeniacr.*, *Phyllocr.*, *Plicatocr.*, *Tetracr.*, *Pentacr.*, *Balanocr.*, *Antedon*, many n. spp., also remains of *Ast.* and *Oph.*, with list of *Ech.*; REMES (234).—Weisser Jura ζ in Suabia and Franconia, *Ech.*, *Crin.*: SCHMIERER (254) pp. 582, 584, 587, 597.—Chambéry, n. sp. of *Cidaris*; LORIOL (176) p. 2.—Upper Tithonian of Aizy-sur-Noyarey, *Ech.*, *Crin.* (p. 123), of Echaillon, *Ech.* and *Eugeniacr.* p. 131; MATTE (197).

Kimmeridgian:—Weisser Jura ϵ in Suabia, *Ech.*, *Ast.*, *Crin.*; SCHMIERER (254) pp. 572, 573.—Lalla Marnia, Algeria, list of *Ech.* and *Crin.*; GENTIL (99) p. 603.—Tafna, Algeria, *Ech.*, *Crin.*; GENTIL (100) p. 179.

Sequanian of Central Jura Mts., *Ech.* and *Crin.*; RITTENER (239) p. 26.

2. Middle:—Catalonia, *Plegiocidaris*; LAMBERT (161) p. 5.

Oxfordian:—Zone of *Terebratula impressa* near Basel, *Cidaris*, *Colly-*

rites, *Disaster*, *Balanocr.*, *Eugeniacr.*, *Pentacr.*; STRUEBIN (273) p. 83.—Lower Rauracian of Arcy-sur-Cure, *Hemicidaris undulata*; LAMBERT in Review of MAIRE (199) Zool. Rec. 1901.—Callovian to Lower Argovian of central Jura Mts., *Ech.* and *Crin.*; RITTENER (239) pp. 14, 22.—*Cardioceras Lamberti* beds near Basel, *Balanocr.*; STRUEBIN (273) p. 80.

3. Lower:—

Cornbrash, Bradfield Farm, near Norton, Gloucestersh., *Ech.*; REYNOLDS & VAUGHAN (236) p. 749.

Mittlerer brauner Jura, near Basel, *Cidaris*, *Pentacr.*, *Cyclocr.* (p. 57), *Rhabdocidaris* (p. 64), *Collyrites* (p. 66); STRUEBIN (273).—Dogger, Brauner Jura in Franken und der Oberpfalz, *Pentacr.*, *Astropecten*, *Hyboclypeus*, *Rhabdocidaris*; SCHLOSSER (251) pp. 550–553.—*Polyplocus*-Thone near Sehnde, Hanover, *Entrochus*; HOYER (133) p. 112.

Bathonian:—Great Oolite, Sodbury, *Cidaris*; REYNOLDS & VAUGHAN (236) p. 745.—Near Basel, *Cidaris*, *Hemicidaris*, *Pseudodiadema*, *Cainocr.*, *Pentacr.* (p. 73), *Holectypus*, *Clypeus*, *Echinobrissus* (p. 75); STRUEBIN (273).—Vesulian of Andelarre (Hte-Saône) *Echinobrissus*, *Holectypus*, *Acrosalenia*, *Hemicidaris*; PETITCLERC (222) p. 122.—Brauner Jura, die *Concavus-Sowerbyi*schichten near Basel, *Cidaris*; STRUEBIN (275).—Unterer brauner Jura, *Lioceras opalinum* zone near Basel, *Pentacr.*; STRUEBIN (273) p. 50.—Bathonian and Upper Bajocian of central Jura Mts., *Ech.* and *Crin.*; RITTENER (239) pp. 12, 13.

Bajocian:—Inferior Oolite, Sodbury, *Collyrites*; REYNOLDS & VAUGHAN (236) p. 737.—Northampton Sand, list of Echinoderms; THOMPSON (278) p. 212.

d. **Lias**:—Occurrences of Echinoderma in Ireland; MCHENRY & WATTS (184) p. 118.—Schwarzer Jura, in Franken und der Oberpfalz, *Pentacr.*, *Apiocr.*, *Cotylederma*, *Cidaris*, *Pseudodiadema*, *Diademopsis*; SCHLOSSER (251) pp. 518–538.

Upper, or Toarcian,—England, *Pentacr.*, *Diplocidaris*, Transition beds *Pentacr.*, Middle Lias, Ferrocrinoids, *Hemipedina*; WALFORD (291) pp. 276, 277.—Various locc. in Northamptonshire *Pentacr.*, *milleri*?; THOMPSON (278) pp. 215, 236, 238, 239.—Zone of *Posidonomya bronni* in Suabia and Franconia, evidence of Pentacrinids as to depth; POMPECKJ (225) p. 42.—Zone of *Lytoceras jurense*, *Pentacr. jurensis*; JANENSCH (135) p. 16.

Middle, or Pliensbachian (=Charmouthian):—in Hanover, *Pentacr. subangularis*; HOYER (132).—Amaltheen-Thone, Lühnde in Hanover, *Pentacr.*; HOYER (133) p. 125.—Castel del Monte, Umbria, *Cidaris*; ANGELIS D'OSSAT (9).

Lower, or Sinemurian:—Sodbury, *Cidaris*, *Pseudodiadema*; REYNOLDS & VAUGHAN (236) p. 720.—In Hanover, zone of *Amm. oxynotus*, *Pentacr. scalaris*, zone of *Amm. raricostatus*, *P. scalaris*, *Cidaris*; HOYER (132).—Near Basel, *Pentacr.*; STRUEBIN (273) pp. 38, 40.—Zones of *Psiloceras planorbe* and *Schlotheimia angulata* near Basel, *Pentacr.*, *Cidaris*, also zone of *Pentacr. tuberculatus*; STRUEBIN (274).—Alpe di Corfino, *Apiocr.*?; LEVI (168) p. 398.—Mt. Generoso and Saltrio in Lombardy, *Pentacr.*; REPOSSI (235) p. 162.

Rhaetic of Lombardy, *Pentacr.*, *Cidaris*; REPOSSI (235) pp. 156, 157.

e. **Trias**:—Koessener Schichten in Plessurgebirge, *Pentacr.*, *Cidaris*, *Hypodiadema*; ROTHPLETZ (243) p. 17.—Muschelkalk, Vorbachthal near Jena, *Encrinus* cup; LEYDIG (169) p. 67.—Upper Muschelkalk, *Encrinus*; HAAG (117). *Encrinus liliiformis* in Oberschlesien is only in Upper Muschelkalk, *E. spinosus* is in Lower M.K.; Abstract of MICHAEL (201).

(iv) PALAEOZOIC.

a. **General**:—British Palaeozoic *Echinoderma*, historical specimens; ALLEN (7).—Occurrences of *Echinoderma* in Ireland; MCHENRY & WATTS (184) p. 116.—Bohemian *Cystidea*, see II, E, i, d; KATZER (144).

b. **Permian**:—Vacant.

c. **Permo-Carboniferous**:—Vacant.

d. **Upper Carboniferous**:—Coal Measures, Kansas; Lecompton Limest. (p. 164) and Deer Creek Limest. (p. 165), *Archaeocidaris*; Hartford Limest., *Zeacr.*, *Archaeocidaris* (p. 167); Severy shales, *Ceriocr.* (p. 170); Howard Limest., *Ceriocr.*, *Erisocr.*, *Scaphiocr.* (p. 172); Elmdale Formation (pp. 179, 180) and Cottonwood Limest. (p. 181), *Archaeocidaris*; BEEDE (16).—Osage City Shales, at Topeka, Kan., *Ceriocr.*; BEEDE (15) p. 147.—Missourian of Pottawattamie co. Iowa, spp. of *Archaeocidaris*, *Erisocr.*, *Eupachycr.* and *Hydreiocr.*, with locc.; UDDEN (281) p. 231.—Millstone Grit, Glan Rhymney near Abergavenny, *Poteriocr.*, *Rhodocr.*; STRAHAN & GIBSON (272) p. 47.

e. **Lower Carboniferous**:—Occurrences of Echinoderma in Ireland; MCHENRY & WATTS (184) p. 115.—E. Fife, list of *Crin.*, *Ech.* and ? *Oph.* with locc.; PEACH (216) p. 361.

Yoredale beds at Clattering Sykes, Yorkshire, *Platycr.*, *Scaphiocr.* (p. 436), Redesdale Limest., Yorkshire, *Ulocr.*, *Forbesiocr.*, *Scytalecr.*, *Archaeocidaris* (p. 464), Carboniferous Limestone, calcareous muds at Thornton, Rain Hall, and Chipping Quarries, Yorkshire, *Palaechinus* (pp. 426, 427); HIND (131).—Lower Carboniferous Limestone, Cwmynyscoy, Monmouthshire, *Actinocr.*, *Poteriocr.*; CHURCHILL (43).—Viséan, Calcaire de Sablé (Sarthe) *Pentremites*, *Platycr.* sp.; LEBESCONTE (164) p. 175.—Carboniferous Limestone, R. Schartymka, E. Urals, *Poteriocr.*, *Rhodocr.* and columnals; YANĪSHEVSKIĬ (304) p. 98, pl. i.—Sahara, Tidikelt, *Crin.* comparable to those collected by Foureau in Azdger country, *Poteriocr.*, *Rhodocr.*, *Taxocr.*; FLAMAND (78).

Chichibu series of Japan, locc. of *Crin.* and *Archaeocidaris*; JAPAN (137) pp. 38–41, 46.

N. America, distribution of *Ech.*, *Pholidocidaris*, *Palaechinus*, *Melonites*, *Oligoporus*, *Lepidesthes*, *Archaeocidaris*, *Lepidechinus*; KEYES (151) p. 179.—Kaskaskia Limest., Kentucky (pp. 89, 97) Tennessee (p. 97), *Pentremites*; Warsaw Limest., Indiana, *Pentremites* (p. 87–90), *Tricoelocr.* (p. 90), *Talarocr.* (p. 91), *Metablastus* (p. 96); Knobstone (? = Keokuk), Indiana, *Orbitremites* (p. 86); Keokuk Limest., Indiana, *Talarocr.* (p. 91), Greene co., Ky., *Orbitremites* (p. 96): GREENE (111).—Keokuk Limestone, Missouri, n. spp. of *Cyathocr.*; ROWLEY (244).—Burlington Limestone, Missouri, n. spp. of *Lobocr.* (?) and *Eretmocr.*; ROWLEY (244).—Louisa co., Iowa, Lower Burlington and Upper Burlington, list of *Crin.* and *Pentremites*; UDDEN (280) pp. 87, 88.—Lower Kinderhook, shales at Snyder Creek, near Fulton, Callaway co., Missouri, *Melocr.*, *Aristocr.*; KEYES (153) p. 285.—Chouteau Limestone, Missouri, n. sp. of *Agaricocr.*; ROWLEY (244).

f. **Devonian**:—

Middle:—Eifelian, Calcaire de Chaudefonds (Maine-et-Loire) *Melocr.*; LEBESCONTE (164) p. 168.

Lower:—Bedruthan, Cornwall, list of *Crin.* and an *Ast.* indet.; FOX (84) p. 543.—Coblentzian, Ille-et-Vilaine, *Belocr.*; KERFORNE (146).—Schistes a *Phacops potieri*, *Haplocr.*; KERFORNE (147).

Upper:—near Charlestown, Ind., *Nucleocr.*; GREENE (110): *Eleutherocr.* (p. 91), *Pentremitidea*? (p. 92, 93), *Codaster*? (p. 95), Clark co. Ind., *Codaster* (p. 94); GREENE (111).—Chemung fauna between Grimes sandst. and High Point sandst., Deyo basin, N.Y., *Arthracantha* (p. 624), Grimes sandst. at High Falls, *Paropsonema* (p. 623); LUTHER (179): this called Ithaca fauna by CLARKE in Postscript.

Middle:—Falls of Ohio, *Nucleocr.*; GREENE (110).—Falls of Ohio (pp. 94, 95), Columbus, O. (p. 95), *Codaster*; GREENE (111).—Hamilton group of Thedford, lists and horizons of *Ast.*, *Crin.*, *Blast.*; SHIMER (262) p. 184.

Comparative list of *Crin.*, *Blast.*, and *Cyst.* genera in Corniferous and Oriskany faunas; WELLER (294) p. 425.

g. **Silurian**:—Occurrences of Echinoderms in Ireland; MCHENRY & WATTS (184) p. 112.—Wenlock beds, Coonakeel, co. Kerry, Ireland, *Crotalocr.* sp.; GARDINER & REYNOLDS (94) p. 245.—Wenlock Limest. in Monmouthshire, *Crotalocr.*, *Cyathocr.*, *Periechocr.*; STRAHAN (271) p. 10.—*Crin.* columnals; KERFORNE (149) p. 216.

Niagara Limest., Hamilton co., Ind., *Eucalyptocr.*; KINDLE (154).—Tarr Hole, Bartholomew co., Indiana, *Eucalyptocr.*, *Lyriocr.*, *Stephanocr.*; CUMINGS (55).

h. **Ordovician**:—Belgium, *Echinosphaera*, *Sphaeronis*, *Glyptocr.*; MALAISE (189) p. 219.

Upper:—Crozon (Finistère) *Aristocystis*? and *Crin.* columnals; KERFORNE (149) pp. 20, 201, 202.—S. of Rennes, *Encr. andegavensis*; KERFORNE (148) p. 176.—Niveau de Riadan, Ille-et-Vilaine, *Encr. andegavensis*; BEZIER & LEBESCONTE (22) p. 277.

Middle: S. of Rennes, *Echinosphaera*; KERFORNE (148) p. 174.—Crozon (Finistère), *Craterina* (p. 202), *Aristocystis*? (pp. 29, 108, 201); KERFORNE (149).—Bed d 1 γ, Cipovic, Bohemia, *Entrochus*, and d 3 near Lodenitz, *Crin.* columnals; ZELIZKO (305).

Trenton and Cincinnati periods near Cincinnati, complete list of *Crin.*, *Cyst.*, *Ast.*, *Oph.*: HARPER & BASSLER (121) pp. 3–7.—Cincinnati period, *Iocr.* (p. 65), Utica beds, lists of *Crin.* and *Ast.* (pp. 68, 70, 72), Lorraine beds, lists of *Crin.*, *Cyst.*, *Ast.* and *Edrioasteroidea* (pp. 75, 79, 83), Richmond group, lists of *Crin.*, *Ast.*, *Cyst.* and *Edrioasteroidea* (pp. 89, 91, 94), Trenton, Point Pleasant Beds, list of *Crin.* and *Palaeaster* (p. 62): all at Cincinnati; NICKLES (207).—Trenton of Eastern Montgomery co., N.Y., *Schizocrinus*; CUMINGS (54) p. 455.

k. **Cambrian**:—

Middle:—*Paradoxides*-beds of Bornholm, *Problematicum*; GRÖNWALL (115) p. 165, pl. iv.

IV. SYSTEMATIC†.

(A.)—ECHINODERMA IN GENERAL.

Principles of classification of Echinoderms; BATHER (14A) p. 618.—

† A dagger prefixed to the name of a species indicates that it is fossil; prefixed to the name of the author, it denotes that the reference is to the species in a fossil state; prefixed to the name of a genus, it indicates that all species in the same paragraph are fossil, and the † is therefore not repeated before each name. The abbreviations *l. c.* and *op. cit.* refer only to the place or work quoted *immediately before*.

A name and reference quoted without further statement [*e.g. Ankyroderma danielsseni*; HEROUARD (127) p. 45] indicate that the quoted author's statement refers merely to locality or some question of slight importance. Further information can usually be gleaned from the cross-references under TITLES.

General history and criticism of recent classifications by Perrier, P. H. Carpenter, Semon, Hamann, Cuénot, Bell, MacBride, Bury, Bather, Sollas, Neumayr, Haeckel, and proposal to form two sections, not named, one for *Hol.* and *Crin.* [presumably all *Pelmatozoa*], the other for *Oph.*, *Ast.*, and *Ech.*; RUSSO (245).

(B.)—HOLOTHURIOIDEA.

Achlyonice, vide sub *Elpidinae*.

Allantis n. g. of *Synallactinae*, with genotype *Holothuria intestinalis* (p. 21), *A. intestinalis* var. *verrilli*, descr. (p. 18, pl. i); HEROUARD (127).

Ankyroderma, spicules; HEROUARD (125). *A. danielsseni*; HEROUARD (127) p. 45: is syn. of *A. musculus*; PERRIER (221). Vide etiam sub *Molpadia*.

Bathyplotes, incl. *Herpysidia*, and probably *Stichopus challengeri* and *S. moseleyi*; HEROUARD (124). *B.* sp.; ALBERT (4) p. 963: RICHARD (238) pp. 88, 89.

Benthodytes janthina, aliform expansion; HEROUARD (127) p. 30.

Chirodota,—+*C.* sp.; HALL (118) p. 82, pl. xi. *C. discolor*, *C. laevis*; CLARK (46) p. 562. *C. pisanii*, parasite; VOIGT (290).

Cucumaria crocea; BELL (17) p. 214. *C. frondosa*; PEARCEY (208) p. 306. *C. fucicola*, habitat, food of fish; PEARCEY (218) p. 306. *C. japonica*, short descr.; CLARK (46) p. 562. *C. lactea*, food of fish; PEARCEY (218) p. 306. *C. laevigata*, anatomy and hermaphroditism; ACKERMANN (2). *C. lubrica*, slight differences from type; CLARK (46) p. 563. *C. planci*; GOURRET (104). *C. vegae*; CLARK (46) p. 563.

Deima sp.; ALCOCK (5) p. 290 and fig. *D. atlanticum*, full description and colour in life; HEROUARD (127) p. 32, pls. iii, iv, v, viii.

Elpidia incerta and *E. purpurea*, referred to *Peniagone* (p. 38), *E. verrucosa*, referred to *Scotoplanes* (p. 37), *E. willemoesi*, referred to *Peniagone* (p. 38); HEROUARD (127). Vide etiam sub *Irpa* et *Tutela*.

Elpidinae, characters discussed, species resorted into genera—*Elpidia* (type *E. glacialis*), *Parelpidia* (type *P. elongata*), *Scotoplanes* (type *S. globosa*), *Kolga* (type *K. hyalina*), *Peniagone* (type *P. wyvillei*), *Scotoanassa* (type *S. diaphana*), *Achlyonice*, and *Eunypniastes*; HEROUARD (127) p. 35.

Eunypniastes, vide sub *Elpidinae*.

Euphronides talismani, descr.; HEROUARD (127) p. 30, pl. ii.

Eupyrgus scaber; ALCOCK (5) p. 290.

Herpysidia is syn. of *Bathyplotes*, q. v.; HEROUARD (124).

Holothuria, sp.; BELL (17) p. 215. *H. arenicola*; CLARK (48) p. 528. *H. atra*?; CLARK (48) p. 530: VOELTZKOW (289) p. 565. *H. forskali*, incl. *H. catanensis*, cuvierian organs; BARTHELS (14). *H. frequentiamensis* n. sp. [melius *frequentimensa*], Clipperton Id. (p. 530), *H. fuscorubra* (p. 527); CLARK (48). *H. helleri*, cuvierian organs; BARTHELS (14). *H. impatiens*; CLARK (48) p. 528: cuvierian organs; BARTHELS (14). *H. marenzelleri*; CLARK (48) p. 528. *H. mexicana*, colour in life, young; HEROUARD (127) p. 7, pl. i. *H. nigra*, see II, D, viii, b; BORRADAILE (27) p. 200. *H. pardalis*; VOELTZKOW (289) p. 565. *H. polii*, spicules descr.; HEROUARD (127) p. 7, pl. i. *H. rathbuni*; VERRILL (285) p. 37, pl. i. *H. stellati*; HEROUARD (127) p. 7: movement of spermatozoa; BULLER (38) p. 151. *H. tremula* is a *Stichopus* apud Östergren and incl. *S. richardi*; PERRIER (221). *H. tubulosa*; FREDERICQ (85): HEROUARD (127) p. 7: II, C, vii; PRZIBRAM (228). *H. verrilli*; RICHARD (238) p. 83: made a var. of *H. intestinalis*, and referred to n. g. *Allantis*; HEROUARD (127) p. 21.

Irpa abyssicola, referred to *Elpidia*; HEROUARD (127) p. 37.
Kolga furcata, descr., colour in life (p. 40, pls. iii, vi, viii), *K. nana*, referred to *Scotoplanes* (p. 37), *K. obsoleta*, descr. (p. 41, pls. vi, viii); HEROUARD (127). Vide etiam sub *Elpidinae* et *Periamma* et *Scotoplanes*.
Labidoplax digitata; HEROUARD (127) p. 45.
Laetmogone wyville-thomsoni, descr.; HEROUARD (127) p. 31, pl. iv.
Laetmophasma (?) sp.; HEROUARD (127) p. 35.
Mesothuria lactea?; RICHARD (238) p. 89: descr.; HEROUARD (127) p. 21, pl. i. *M. murrayi*, descr.; HEROUARD (127) p. 23.
Molpadia musculus is *Ankyroderma* and incl. *A. danielsseni*; PERRIER (221).
Paelopatides atlantica **n. sp.**, 4020 metres, E. of S. Miguel, Azores; HEROUARD (127) p. 16, pl. i.
Pannychia glutinosa **n. sp.**, 2102 metres, W. of Graciosa, Azores; HEROUARD (127) p. 32, pl. iv.
Parelpidia, vide sub *Elpidinae*.
Paroriza prouhoi **n. g.** et **sp.** of *Synallactinae*, 4360 metres, between Portugal and Azores, colour in life; HEROUARD (127) p. 24, pls. vii, viii.
Peniagone affinis, referred to *Kolga* (p. 38), *P. azorica*, notes on spicules (p. 42, pl. vi), *P. challengeri*, *P. naresi*, and *P. porcellus*, referred to *Kolga*; HEROUARD (127) p. 38. Vide etiam sub *Elpidia* et *Elpidinae*.
Periamma roseum, referred to *Kolga*; HEROUARD (127) p. 38.
Pseudostichopus depressus **n. sp.**, 4360 metres, between Portugal and Azores (p. 15, pl. ii), *P. occultatus*, descr., and young (p. 14, pl. ii), *P. villosus*, colour in life, external appearance in life, anatomy (p. 11, pls. ii, vii); HEROUARD (127).
Psolus phantapus; PEARCEY (218) p. 307.
Psychropotes grimaldii, full description, colour in life, distinguished from *P. buglossa* (p. 25, pl. iii), *P. kerhervei* **n. sp.**, 5005 metres, near Azores (p. 27, pl. iv); HEROUARD (127).
Scotoanassa translucida, fully descr., colour in life; HEROUARD (127) p. 43, pls. iii, vi.
Scotoplanes delagei, fully descr. (p. 39, pls. vi, viii), *S. insignis*, and *S. robusta*, referred to *Kolga* (p. 38); HEROUARD (127). Vide etiam sub *Elpidia* et *Elpidinae* et *Kolga*.
Stichopus californica; CLARK (46) p. 563. *S. challengeri*, v. sub *Bathyplotes*, *S. japonicus*, young; CLARK (46) p. 563, *S. moseleyi*, v. sub *Bathyplotes*, *S. regalis*; FUERTH (90) p. 344: HEROUARD (127) p. 11: PERRIER (221): arsenic; BERTRAND (21). *S. richardi*, full description; HEROUARD (127) p. 8, pls. i, viii: is syn. of *S. tremulus*; PERRIER (221). *S. tremulus*, see II, D, viii.
Synapta, anchor plates; HEROUARD (125). *S. digitata*, urns; CUÉNOT (52) p. 87: histology; SCHNEIDER (255) pp. 665–672. *S. inhaerens*, histology; op. cit. pp. 666, 667: urns; CUÉNOT (52) p. 87.
Thyone, sp.; BELL (17) p. 214. *T. briareus*, feeding; GRAVE (106). *T. fusus*, food of fish; PEARCEY (218) p. 307. *T. inermis*; HEROUARD (127) p. 45. *T. raphanus*, food of fish; PEARCEY (218) p. 307.
Trochostoma; MOERNER (206).
Tutela echinata, referred to *Elpidia*; HEROUARD (127) p. 37.

(C).—ECHINOIDEA.

†*Acrocidaris*,—*A. minor*, descr.; BROILI (33) p. 605, pl. i. *A. nobilis*; SCHMIERER (254) p. 584.
Acrocladia sp., parasite; KÜKENTHAL (160).
†*Acropeltis* sp.; LOVISATO (177) p. 13.

†*Acrosalenia*,—*A. hemicidaroides*; REYNOLDS & VAUGHAN (236) p. 749. *A. spinosa*; loc. cit.: PETITCLERC (222) p. 123.

†*Actinophyma* rediagnosed (p. 149), *A. spectabile*, redescr., incl. *Cyphosoma persicum* (p. 151, pl. xx); GAUTHIER (96): apparently not this sp., but allied to *Lambertechinus*; LAMBERT in Review.

Alticostati, vide sub *Clypeaster*.

†*Amblypygus dilatatus*; OPPENHEIM (210) p. 197: descr.; CHECCHIA (40) p. 55, pls. ii, iii.

†*Amphiope*,—*A. bioculata*, notes on cast of type, redescr. from Helvetian and Tortonian of Hérault; LORIOL (176) p. 21, pl. ii. *A. fuchsi*, **nom. nov.** pro *A. truncata* Fuchs non *Lobophora truncata* Ag.; FOURTAU (83): but *Lobophora* Ag. non Serville, is preserved as *Tretodiscus* Pomel; LAMBERT in Review. *A. perspicillata*; DEYDIER (68) p. 321: descr. fr. Hérault; LORIOL (176) p. 23, pl. iii.

Ananchites vel *Ananchytes*, vide sub *Echinocorys*.

Anapesus, vide sub *Echinus* et *Toxopneustes*.

†*Arachnoides elongatus* Duncan 1876, type; GEOL. SOC. LONDON (101) p. 73.

†*A. loveni* Duncan 1876, type; l. c.

†*Arbacia fragilis*; LEBESCONTE (164) p. 279. *A. punctulata*, II, F, viii; GREELEY (109): LOEB & LEWIS (173): LYON (180). *A. pustulosa*, see II, F, viii; ARIOLA (11): LOEB (171): movement of spermatozoa; BULLER (38) p. 151: fertilisation; DUNGERN (75). *A. stellata*; CLARK (48) p. 527.

†*Arbacina*,—*A.* af. *monilis*; PICQUENARD (224). *A. tenera* **n. sp.**, Burdigalian of Les Angles (Gard); LORIOL (176) p. 11, pl. iv.

†*Archaeocidaris*,—*A.* sp.; BEEDE (16) pp. 179, 180, 181. *A.* sp. ind. Meek and Worth 1873, referred to *A. spinoclavatus*, (p. 190), *A. aculeata*, descr. (p. 188, pl. xviii); KEYES (151). *A. agassizi*; BEEDE (16) pp. 165, 167: descr.; KEYES (151) p. 185, pl. xviii. *A.* cf. *agassizi*; BEEDE (16) p. 164. *A. biangulata*, descr. (p. 189, pl. xviii), *A. cratis*, descr. (p. 188), *A. dininnii*, descr. (p. 190, pl. xviii), *A. drydenensis*, descr. (p. 184), *A. edgarensis* and *A. gracilis*, synn. of *A. aculeata*, (p. 189), *A. hallianus* (Geinitz), descr. (p. 190), *A. illinoisensis*, descr. (p. 187), *A. keokuk*, descr. (p. 186), *A. legrandensis* (p. 185), *A. longispinus*, descr. (p. 191), *A. megastylus*, descr. (p. 189, pl. xviii), *A. mucronata*, descr. (p. 188), *A. newberryi* (p. 187), *A. norwoodi*, descr. (p. 188), *A. ornatus*, descr. (p. 191), *A. shumardiana* (p. 186), *A. spinoclavatus*, descr. (p. 190), *A. triplex* (p. 191), *A. triserata* [sic] (p. 190); KEYES (151). *A. trudifer*; BEEDE (16) p. 167: descr.; KEYES (151) p. 191. *A. urei*; HIND (131) p. 464. *A. verneuiliana* Swallow non King, syn. of *A. aculeata*; KEYES (151) p. 188. *A. wortheni*, text-fig.; FRITEL (88): descr.; KEYES (151) p. 187, pl. xx.

†*Archiacia scandalina*; MICHALET (203) p. 583.

Asthenosoma hystrix; RICHARD (238) p. 82. *A. urens*; BELL (19) p. 231.

Astrolampas, vide sub *Pygurus*.

Astropyga sp., juv.; BELL (19) p. 231.

†*Bothriocidaris*, descr. and discussed as ancestor of *Ech.*, fig. of *B. globulus*; BATHER (14 A) pp. 619, 620. *B. pahleni*, text-fig.; FRITEL (88).

†*Bothriopygus* (vel *Botriopygus* vel *Botryopygus*),—*B. demolyi* **n. sp.**, Urgonian near Grevy-sur-Aix, Savoy (p. 7, pl. i), *B. escheri*, corrections to fig. in 'Echinologie helvét.' (p. 7); LORIOL (176). *B. inflatus* (Cott. and Gauth. sub *Parapygus*); GAUTHIER (96) p. 144. *B. savini* **n. sp.**, Upper Barremian of Corbel, Savoy (p. 6, pl. i), *B. testudo*, from Valangian of Isère (p. 9, pl. i), *B. torcapeli*, additional notes (p. 8, pl. i); LORIOL (176).

†*Breynia*,—*B. carinata* D'Archiac and Haime 1853, type; GEOL. SOC. LONDON (101) p. 45. *B. vicentina*; OPPENHEIM (210) p. 268.

Brissidae, divided into 2 sub-fam. :—*Mesospatanginae* and *Neospatanginae* ; LAMBERT in GROSSOUVRE (116) p. 969.

†*Brissoides* Klein 1734, Cuvier 1822, preferred to *Eupatagus* Ag. 1847 ; LAMBERT (161) p. 48 : this conclusion not accepted ; OPPENHEIM (211). *B. acuminatus*, descr., distinguished from *Spatangus ornatus* ; LAMBERT (161) p. 49. *B. biarritzensis* Cott. distinguished from *B. fallax* ; LAMBERT in Review of DOUVILLÉ (71). *B. confractus* **n. sp.**, Eocene of Barcelona, distinguished from *Spatangus elongatus* Ag., the type appears to be moule x, 86 of Agassiz from Alpes vaudoises (p. 50, pl. iv), *B. cossmanni* **n. sp.**, Eocene of Catalonia (p. 52, pl. iv) ; LAMBERT (161). *B. fallax* **n. sp.**, based on *Eupatangus biarritzensis* Cott., Pal. franc., Echin. Eoc. ii, p. 656, non Cott., op. cit. i, p. 75 ; LAMBERT in Review of DOUVILLÉ (71). *B. oosteri* **n. sp.**, based on "débris à peu près indeterminables" figd. by Ooster 1865, and Loriol 'Echin. helvet.' ; LAMBERT (161) p. 51. Vide etiam sub *Euspatangus*.

†*Brissopatagus*,—*B. beyrichi* and *B. damesi* (p. 271), *B. palejensis* Mazzetti 1894, syn. of *Euspatangus minutus* (p. 161) ; OPPENHEIM (210).

†*Brissopneustes* discussed, not more than a subgenus of *Micraster* (q. v.) ; LAMBERT (163) p. 125.

Brissopsis sp. juv. ; BELL (19) p. 232. †*B. anatolica* **n. sp.**, allied to *B. ottnangensis*, Neogene of Cilicia ; TOULA (279) p. 250, pl. viii. †*B. bofilli* **n. sp.**, Eocene of Olot ; LAMBERT (161) p. 47, pl. iii. †*B. constricta* **n. sp.**, Upper Eocene, Mollah Ghiavan, Persia ; GAUTHIER (96) p. 158, pl. xxi. †*B. cretacea*, v. sub *Micraster idae*. †*B. eurystoma* ; OPPENHEIM (210) p. 263. *B. lyrifera* ; GRIEG (113) p. 34 : food for fish ; PEARCEY (218) p. 318. †*B.* aff. *nicoleti* ; SCHAFFER (250) pp. 23, 24, 28. †*B. ottnangensis* ; MARIANI (190) p. 321. †*B.* cf. *ottnangensis* ; OPPENHEIM (210) p. 263. †*B. pezenasensis* **n. sp.**, Helvetian of Hérault ; LORIOL (176) p. 24, pl. iv. †*B.*? *scutiformis* and †*B.*? *sowerbyi*, types of D'Archiac and Haime 1853 ; GEOL. SOC. LONDON (101) p. 45. †*B. sypontinus* **n. sp.**, Eocene, Mt. Gargano, type in Ufficio geologico, Roma ; CHECCHIA (40) p. 69, pl. iii.

Brissus sp. juv. ; BELL (19) p. 232. †*B. bastiae* **n. sp.**, Middle Oligocene, Mt. Bastia near Montecchio maggiore,="*B.* cf. *dilatatus* Des." Dames ; OPPENHEIM (210) p. 261 and fig. †*B. expansus*, †*B. inaequalis*, and †*B. rana*, types of Forbes 1845 ; GEOL. SOC. LONDON (101) p. 43. †*B. scutiger* and †*B.* (*Hemiaster*) *subdepressus*, types of Forbes in Sharpe 1850 ; GEOL. SOC. LONDON (101) p. 30.

Calveria gracilis, copepod parasitic in spines ; HANSEN (120).

†*Caratomus*,—*Ceratomus* [sic] sp. ; SEMENOW (258) p. 11. *C. avellana* Dubois ; DEECKE (57) p. 114 : loc. of type-specimens in Transcaucasia not Crimea, search for types fruitless, but specimens at Zurich described (p. 304), *C. bueltenensis* **n. sp.**, Lower Senonian near Buelten in Hannover, distinguished from *C. avellana*, *C. peltiformis*, and *C. gehrdenensis* (p. 304, pl. xii), *C. circularis* **n. sp.**, Turonian of Graes near Ahaus, N. Westphalia (p. 302, pl. xi), *C. gehrdenensis* (olim *gehrdensis*) F. A. Roemer, types redescr. (p. 310, pl. xii), *C.* (?) *globosus* (F. A. Roem. sub *Galerites*), descr. (p. 314), *C. goslariensis* **n. sp.** (wahrscheinlich), Lower Senonian of Sudmerberg near Goslar (p. 311, pl. xii), *C. laubei*, measurements (p. 322), *C. muelleri* **n. sp.** Maestrichtian of Vetschau near Aachen, type at Aachen (p. 316, pl. xi) ; SCHLUETER (252). *C. obsoletus*, genus doubtful ; OPPENHEIM (210) p. 195. *C. orbicularis* discussed, specimen quoted from C. la Hève by d'Orbigny is not this sp. (p. 303), *C. peltiformis*, discussed (p. 308), *C. rostratus* (p. 319), *C. tenuiporus* **n. sp.**, Mucronaten-Kreide, near Löschnitz (p. 315, pl. xi), *C.* cf. *truncatus*, Lower Senonian, Westphalia, descr. (p. 313), *C. vetschauensis* **n. sp.**, Maes-

trichtian of Vetschau near Aachen, types in Hochschule of Aachen (p. 318, pl. xi); SCHLUETER (252).

†*Cardiaster*,—*C. ananchytis*; DEECKE (57) p. 114. "*C. cotteanus* Otto" discussed, *C. cotteanianus*, Sturm (296) Zool. Rec. 1901 is not this sp.; SCHLUETER (252) p. 328. *C. gillieroni* Loriol is a *Stegaster*; GROSSOUVRE (116) p. 571: referred to *Collyrites capistrata*; LORENZ (175). *C. granulosus*; GROSSOUVRE (116) p. 133. *C. jugatus*; SCHLUETER (252) p. 328. *C. pygmaeus* quoted by Rowe should be *C. truncatus*; LAMBERT (162). *C.* cf. *subtrigonatus* of de Loriol, referred to *Collyrites friburgensis*; LORENZ (175).

†*Cassidulus*,—*C. bazini*; LEBESCONTE (164) p. 279. *C.* cf. *elongatus*; SEMENOW (258) p. 12. *C. testudinarius*; OPPENHEIM (210) p. 196. Vide etiam sub *Nucleolites*.

†*Catopygus*,—*C.* sp.; SEMENOW (258) p. 12. *C. carinatus*; FORTIN (82) p. 197. *C. goldfussi* Jos. Muell. is a *Faujasia apicalis* (Des.); SCHLUETER (252) p. 324. *C. switensis* discussed; LAMBERT (161) p. 15. Vide etiam sub *Phyllobrissus*.

Cidaris, restricted, with genotype *C. mauri* Schynwoet 1711, and with subgenus *Dorocidaris*; LAMBERT (161) p. 27. †*C.* sp. spines figd. D'Archiac & Haime 1853; GEOL. SOC. LONDON (101) p. 44. †*C.* sp.; KOSSMAT (159) p. 53: STRUEBIN (273) pp. 38, 57, 73. *C.* sp. parasite; KÜKENTHAL (160). †*C.* (*Leiocidaris*) *alta*, discussed, can scarcely include specimen from Roncà quoted by Hesse; OPPENHEIM (210) p. 171. †*C. amalthei*; SCHLOSSER (251) p. 530. †*C. antarctica*, plates and spines; ORTMANN (212) p. 51, pl. xi. †*C. armata*; SCHLOSSER (251) p 523. †*C. asperula*; SEMENOW (258) p. 9. †*C. avenoniensis*; LEBESCONTE (164) p. 279: LOVISATO (177) p. 12. †*C.* (*Leiocidaris*) *balestrai* **n. sp.**, Middle Oligocene, S. Luca near Marostica; OPPENHEIM (210) p. 172, pl. ix. †*C. blumenbachi*; SCHMIERER (254) pp. 572, 584, 587. †*C.* aff. *bradfordensis*; REYNOLDS & VAUGHAN (236) p. 745. †*C. calamus*, maintained, locality discussed; OPPENHEIM (210) p. 167. †*C. canavarii*; MARIANI (190) p. 321. †*C. cervicalis*; STRUEBIN (273) p. 83. †*C. cervicornis* Schauroth. non Quenst.; OPPENHEIM (210) p. 166. †*C. coronata*; SCHMIERER (254) p. 572. †*C.* aff. *edwardsi*; REYNOLDS & VAUGHAN (236) p. 720. †*C. elegans* (pp. 569, 572, 582, 587), †*C. florigemma* (p. 597); SCHMIERER (254). †*C. gingensis*; STRUEBIN (273) p. 57 & (275). †*C. glandifera*?; SCHMIERER (254) p. 597. †*C. grolanus* **n. sp.** radiole, Middle Eocene of Grola near Cornedo; OPPENHEIM (210) p. 167 & text-fig., pl. ix. †*C. halaensis* D'Archiac & Haime, 1853, type; GEOL. SOC. LONDON (101) p. 44. †*C. interlineata* (p. 165), †*C.* (*Leiocidaris*) *itala*, distinguished from Egyptian form (p. 170); OPPENHEIM (210). †*C. jeani* **n. sp.**, Senonian, Fontfroide (Aude), type in coll. Savin; SAVIN (247) p. 11, pl. ii. †*C. marginata*; SCHMIERER (254) pp. 572, 587, 597. *C.* (*Eucidaris*) *metularia*; BELL (19) p. 230: VOELTZKOW (289) p. 565. †*C.* (*Leiocidaris*) *mezzoana*; OPPENHEIM (210) p. 171. †*C. monilifera*; SCHMIERER (254) p. 572. †*C. numismalis*; HOYER (132) p. 36. †*C. nummulitica*, referred to *Phalacrocidaris*; LAMBERT (161) pp. 27, 28. †*C. oosteri*; OPPENHEIM (210) p. 165. †*C. perlata*; SCHMIERER (254) p. 587. †*C. pleracantha*, distinguished from *C. colocynda*; GROSSOUVRE (116) p. 133. †*C. problematica*, radiole descr.; SAVIN (247) p. 12, pl. i. †*C. propinqua*; SCHMIERER (254) p. 572. †*C.* (*Leiocidaris*) *pseudojurassica*, discussed; OPPENHEIM (210) p 171. †*C. reussi*; SEMENOW (258) p. 9. †*C.*, cf. *rhopalophora*; ANGELIS D'OSSAT (9). †*C. rohlfsi* **n. sp.**, Danian, N. of Dachel oasis, Libyan desert; WANNER (292) p. 106, pl. xv. †*C. rosaria*; MARIANI (190) p. 321. †*C. rossii*; OPPENHEIM (210) p. 169. †*C. savini* **n. sp.**, Tithonian near Chambéry, radioles only; LORIOL (176) p. 2, pl. i. †*C. scabra* **n. sp.**, Louristan;

GAUTHIER (96) p. 147, pl. xx. †*C.* (*Leiocidaris*) *scampicii*, incl. *C.* cf. *sabaratensis* Dames, discussed; OPPENHEIM (210) p. 169. †*C. scillæ* Wright 1866, type; GEOL. SOC. LONDON (101) p. 32. †*C. serrata*; WOLLEMANN (300). †*C. spileccensis*, radioles and a plate discussed and redescr.; OPPENHEIM (210) p. 163 & text-figg., pl. vii. †*C. spinigera*, radioles, discussed; OPPENHEIM (210) p, 165. †*C. spinulosa*; STRUEBIN (273) p. 57 & (275). †*C. subularis*; OPPENHEIM (210) p. 165. †*C. subvesiculosa*; FORTIN (82) p. 197 and SEMENOW (258) p. 8. †*C.* cf. *subvesiculosa*; PERON (219) p. 509. †*C. suevica*; SCHMIERER (254) p. 572. *C. thouarsii*; CLARK (48) p. 526. †*C. tombecki*, distinguished from *C. forchhammeri*; GROSSOUVRE (116) p. 139. †*C. tuberculosa*; SCHMIERER (254) p. 572. †*C.* (*Rhabdocidaris*) *ugolinorum* **n. sp.**, radioles, Ronca beds, Lutetian, near Verona; OPPENHEIM (210) p. 166, pl. viii. †*C. verneuili* D'Archiac & Haime 1853, type; GEOL. SOC. LONDON (101) p. 44. †*C. veronensis*, type-specimen discussed; OPPENHEIM (210) p. 169. †*C. verticillata*; ROTHPLETZ (243) p. 17. †*C. vesiculosa* in Sarrazin de Bellignies, Hainaut, as determined by Cotteau, 1874, is probably *C. essenensis*; GROSSOUVRE (116) p. 298. Vide etiam sub *Dorocidaris*, *Leiocidaris*, et *Rhabdocidaris*.

†*Cionobrissus* diagnosed and discussed (p. 160), *C. morgani* **n. sp.**, Upper Eocene, Mollah Ghiavan, Persia (p. 161, pl. xxi); GAUTHIER (96).

†*Circopeltis baicherei*; LAMBERT (161) p. 39.

†*Cleistechinus canavarii*; MARIANI (190) p. 322.

Clypeaster, three sections proposed with nom. nov. *Alticostati*, *Stricte-infundibulati*, *Intermedii*, but not clearly defined; LOVISATO (177) pp. 14–19: list of spp. in Syracuse Limestone; †RAGUSA (231) p. 24. *C.* sp. juv.; BELL (19) p. 232. †*C.* sp.; DEYDIER (68) p. 314. †*C.* aff. *acuminatus*, descr. fr. Cilicia; TOULA (279) p. 250, pl. viii. †*C. affinis* Goldf., figd. Grant 1840; GEOL. SOC. LONDON (101) p. 36. †*C. altus*; BOFILL Y POCH (24) p. 412: LOVISATO (177) p. 14: SCHAFFER (250) pp. 14, 15, 20, 21, 24, 29: TOULA (279) p. 248. †*C. bassanii* **n. sp.**, Helvetian of Cagliari in Sardinia; LOVISATO (177) p. 19, no fig. †*C. biarritzensis*; DOUVILLÉ (71) p. 31. †*C. breunigi*, perhaps a *Laganum*; OPPENHEIM (210) p. 190. †*C. canavarii* **n. sp.**, Cagliari (p. 18, no fig.), †*C. capellinii* **n. sp.**, various locc. (p. 17, no fig.), †*C. cotteaui* **n. sp.**, S. Bartoloméo [nom. preocc. Egozcue, 1898] (p. 14, no fig.): all Helvetian of Sardinia; LOVISATO (177). †*C.* cf. *crassicostatus*; SCHAFFER (250) p. 20. †*C. depressus* Grant 1840, type; GEOL. SOC. LONDON (101) p. 36. †*C. gauthieri* **n. sp.**, Helvetian of S. Bartolomeo in Sardinia; LOVISATO (177) p. 15, no fig. †*C. gibbosus*, op. cit. p. 14: SCHAFFER (250) pp. 14, 15, 24, 29. †*C.* aff. *gibbosus* Risso, descr. fr. Cilicia; TOULA (279) p. 249, pl. viii: M. de Serres, not Risso, is author of sp.; LAMBERT in Abstract. †*C. intermedius*; LOVISATO (177) p. 14: SCHAFFER (250) pp. 15, 21. †*C. isseli* **n. sp.** (p. 20), †*C. lamberti* **n. sp.** (p. 17, no fig.): Helvetian of Cagliari in Sardinia; LOVISATO (177). †*C.* aff. *marginatus*; SCHAFFER (250) p. 15. †*C. martinianus*, descr., incl. *C. scutum*; AIRAGHI (3) p. 379. †*C. michelinii* and †*C. michelottii*; OPPENHEIM (210) p. 191. †*C. oblongus* Grant 1840, type; GEOL. SOC. LONDON (101) p. 36. †*C. pentagonalis*, descr.; AIRAGHI (3) p. 378. †*C. placenta*; OPPENHEIM (210) p. 192: the work of Mayer-Eymar (224) Zool. Rec. 1897 criticised; OPPENHEIM (211) p. 71. †*C.*(?) *priscus*; OPPENHEIM (210) p. 190. †*C.* cf. *profundus*; LOVISATO (177) p. 14. †*C. regulus*; OPPENHEIM (210) p. 192. †*C.* aff. *reidii*; LOVISATO (177) p. 14. †*C. robinaldinus*?; ABICH (1) p. 22, pl. iii. *C. rotundus*; CLARK (48) p. 526. †*C. scutum* distinguished from *C. martinianus*; OPPENHEIM (210) p. 191. †*C.* cf. *subconicus* and †*C. suboblongus* (p. 14), †*C. taramellii* **n. sp.**, Helvetian of Cagliari in Sardinia [nom. preocc. Airaghi, 1899]; LOVISATO (177) p. 18, no fig.

†*C. tauricus*; SCHAFFER (250) p. 20. †*C. varians* Grant 1840, type; GEOL. SOC. LONDON (101) p. 36. †*C. zumoffeni* **n. sp.**, Miocene of Lebanon and Beyrout; LORIOL (176) p. 28, pl. iv.

Clypeolampas, vide sub *Echinolampas*.

†*Clypeus*,—*C. hugii* and *C. ploti*; STRUEBIN (273) p. 75.

†*Codiopsis lorini*, distinguished fr. *C. alpina* Gras; LAMBERT (161) p. 14.

†*Coelopleurus*,—*C.* sp.; OPPENHEIM (210) p. 175. *C. coronalis* Klein, 1734 = *C. equis* Valenc. 1825, distrib.; LAMBERT (161) p. 31. *C. forbesi* D'Archiac & Haime 1853, type; GEOL. SOC. LONDON (101) p. 44. *C. isabellae*; LAMBERT (161) p. 31. *C. pratti* D'Archiac & Haime 1853, type; GEOL. SOC. LONDON (101) p. 44.

†*Collyrites*,—*C.* sp.; STRUEBIN (273) p. 66. *C. buchi* (p. 582), *C. carinata* (pp. 572, 597); SCHMIERER (254). *C. friburgensis* of Ooster 1865, pl. ii, fig. 6, probably *Stegaster altus*; GROSSOUVRE (116) p. 571. *C. ovalis*; REYNOLDS & VAUGHAN (236) p. 737: STRUEBIN (273) p. 83. *C. silicea*; SCHMIERER (254) pp. 572, 587.

†*Conoclypeus*,—*C.* sp.; MARTELLI (193) p. 93. *C. anachoreta*; MARTELLI (192). *C. campanaeformis*, perhaps incl. *C. conoideus ellipsobasalis* Quenst.; OPPENHEIM (210) p. 185. *C. conoideus*; op. cit. p. 184: MARTELLI (192): descr. and measured; MARTELLI (193) p. 93: (see II, E, iv); LEYDIG (169) p. 67. *C. flemingi* D'Archiac & Haime 1853, type; GEOL. SOC. LONDON (101) p. 45. *C. marginatus*, locality discussed; OPPENHEIM (210) p. 185. *C. morgani* **n. sp.**, Mid. Eocene, Soh, between Kachan and Ispahan; GAUTHIER (96) p. 181, pls. xxiii & xxiv. *C.* cf. *ovatus*; DEECKE (57) p. 114. *C. pentagonalis* **n. sp.**, Middle Eocene near Novale; OPPENHEIM (210) p. 186 & fig.

†*Coptechinus italus* **n. sp.**, Priabona beds near Verona, close to the Australian *C. lineatus*; OPPENHEIM (210) p. 180.

†*Coptosoma*,—*C. blanggianum* Cott. is not the same as Desor's sp., but is probably a *Micropsidia* (p. 32), *C. cribrum*, defined (p. 31), *C. haimei* Desor, and its variations, now first descr. and figd., **n. varr.** *montserratensis* et *michaelis*, Eocene of Montserrat and St. Miquel-du-Fay (p. 32, pl. iv), *C. vidali* **n. sp.**, Eocene of Montserrat (p. 35, pl. ii); LAMBERT (161).

†*Cottaldia benettiae*; MICHALET (203) p. 583.

†"*Craterolampas raulini* Cott." Airaghi 1901, very doubtful; OPPENHEIM (211) p. 67.

†*Cyclaster*, discussed; LAMBERT (163) pp. 125, 126: fascioles and apical system discussed (p. 224), *C. dal-lagoi* **n. sp.** Middle Eocene, Meggiara near Novale (p. 229, pl. viii), *C. declivis* Cott. (as *declivus*) compared with *C. subquadratus* (p. 226), *C. oblongus* (p. 226); OPPENHEIM (210). *C. ovalis*, apical system figd.; CHECCHIA (41). *C. subquadratus*, details discussed (p. 228), *C. tuber* (p. 226); OPPENHEIM (210). Vide etiam sub *Isopneustes*.

†*Cyphosoma*,—*C. cribrum*; MARTELLI (192) & (193) p. 89: incl. "*Echinometra thomsoni* d'Arch." of Schauroth; OPPENHEIM (210) p. 175. *C. loryi*; BOGDANOWITSCH (25) pp. 68, 186. *C. persicum*, syn. of *Actinophyma spectabile*; GAUTHIER (96) p. 152. *C. pulchrum*, distinguished from *C. blanggianum* and *C. pellati*, locality discussed; OPPENHEIM (210) p. 175 & fig. †*C. radiatum* (p. 10), *C. regulare* (p. 9); SEMENOW (258) *C. texanum*; HILL (129) p. 226. Vide etiam *Phymosoma*.

†*Cyrtoma* McClelland 1840 = *Stigmatopygus* d'Orb. 1860 (p. 61), *C. posthumum*, redescr. (p. 60, pl. xii); ORTMANN (212): not this genus; LAMBERT in Review.

Diadema,—†*D. airaghii* Lambert MS.; LOVISATO (177) p. 13. †*D. lusitanicum* Forbes in Sharpe 1850, type; GEOL. SOC. LONDON (101) p. 30. *D. mexicanum*; CLARK (48) p. 526. †*D. rude* Forbes in Sharpe 1850, type; GEOL. SOC. LONDON (101) p. 30. *D. saxatile*; BELL (19) p. 230.

†*Diademopsis criniferus*; SCHLOSSER (251) p. 535.

†*Diplocidaris*,—*D. alternans*; SCHMIERER (254) pp. 572, 588. *D. desori*; WALFORD (291) p. 276. *D. etalloni*; SCHMIERER (254) pp. 572, 588, 597. *D. gevreyi* **n. sp.**, Valanginian of Malleval (Isère), type in coll. Gevrey; LAMBERT in SAVIN (247) p. 19, pl. i. *D. gigantea*; SCHMIERER (254) pp. 572, 588.

†*Diplodetus cretaceus* v. sub *Micraster idae.*

†*Diplopodia* M'Coy, probably syn. of *Tetragramma* Ag., spp. ranged in two groups (p. 6), *D. almerai*, introduced as "Lambert, 1901. Syn. *D. Almerae* Lambert *in* J. Almera...1899," but the reference to Almera is a *nomen nudum*, and this appears to be **n. sp.** 1902, Aptian, near Barcelona (p. 10, pl. i), *D. brongniarti*, defined (p. 8), distrib. (p. 10), *D. dubia*, discussed (p. 9), *D. dumasi* **n. sp.**, Aptian of Montaren (Gard) (p. 9), *D. malbosi*, defined (p. 8), separated from that of de Loriol, "Echin. helvet." (p. 9) distrib. (p. 10), *D. marticensis*, defined (p. 7), **n. var.** *bofilli*, Aptian near Barcelona (p. 11, pl. i), *D. picteti*, distinguished from *Pseudodiadema picteti* Cott. (p. 9), *D. raulini*, defined (p. 7), *D. renevieri*, defined (p. 8); LAMBERT (161). *D. variolaris*; MICHALET (203) p. 583. Vide etiam sub *Pseudodiadema.*

†*Disaster* vel *Dysaster*,—*D.* cf. *anasteroides*; DEYDIER (68) p. 307. *D. granulosus*; SCHMIERER (254) pp. 572, 582: STRUEBIN (273) p. 83.

†*Discoidea* vel *Discoides*,—*D. cylindrica*; WOLLEMANN (300): SEMENOW (258) p. 9. *D. decoratus*; LAMBERT (161) p. 14. *D. minima*; WOLLEMANN (302). *D. morgani* **n. sp.**, Albian? Kanepan, Persia; GAUTHIER (96) p. 119, pl. xviii. *D. subuculus*; FORTIN (82) p. 197.

†*Distefanaster* **n. g.** of *Spatangidae Prymnadetes* (p. 72), with genotype *D. garganicus* **n. sp.**, Eocene, Mt. Gargano, type in Ufficio Geologico, Roma (p. 75, pl. iii); CHECCHIA (40): apical system figd., absence of l. ant. genital; CHECCHIA (41): validity of genus questioned by LAMBERT in Reviews.

†*Ditremaster* discussed, perhaps not different from *Opissaster*; GAUTHIER (96) p. 165. *D. corculum* (Laube sub *Hemiaster*); LAMBERT (161) p. 41. *D. masciae* **n. sp.**, Eocene, Mt. Gargano, type in Ufficio Geologico, Roma; CHECCHIA (40) p. 70, pl. ii. *D. nux*; OPPENHEIM (210) p. 224: LAMBERT (161) p. 41: descr., distrib., with **var. nov.** *aegyptiaca* (p. 167); GAUTHIER (96) p. 164, pl. xxi: vide etiam *Opissaster.*

Dorocidaris papillata; GRIEG (113) p. 31: RICHARD (238) pp. 82, 87, 88, 89. †*D. hystrix* (=*papillata*); SCALIA (249) p. 2. Vide etiam sub *Cidaris.*

Dysaster, vide *Disaster.*

†*Echinanthus*,—*E. affinis* distinguished from *E. issyaviensis*; GROSSOUVRE (116) p. 139. *E. bufo*; OPPENHEIM (210) p. 198. "*E. bufo* Laube" Airaghi 1901, not this sp.; OPPENHEIM (211) p. 67. *E. camerinensis*; MARIANI (190) p. 321. *E. catopygus* **n. sp.**, Middle Eocene, Avesa, distinguished from *E. bathypygus* &c.; OPPENHEIM (210) p. 199 & fig. *E. desmoulinsii*, Airaghi 1901 corrected; OPPENHEIM (211) p. 67. *E. gasperinii* **n. sp.**, Eocene, Botticelle in Dalmatia; MARTELLI (193) p. 92, pl. vii. *E. halaensis* D'Archiac & Haime 1853, type; GEOL. SOC. LONDON (101) p. 45. *E. issyaviensis* Klein=*Curieri* Desor, *E. placenta*; OPPENHEIM (210) p. 198. *E. profundus* D'Archiac & Haime 1853, type; GEOL. SOC. LONDON (101) p. 45. *E. scutella* (p. 197), *E. sopitianus*, *E. tumidus*, and *E. zignoi* **nom. nov.** pro *E. bericus* Oppenh. ex de Zigno non Schauroth; OPPENHEIM (210) p. 198.

Echinarachnius, cannot be distinguished from *Scutella* (q. v.), even by arrangement of pillars of endoskeleton; ORTMANN (212) p. 56. †*E. excentricus*; ARNOLD (13) pp. 126, 130, 134, 136.

†*Echinobrissus*,—*E.* sp.; MICHALET (203) p. 583: SEMENOW (258) p. 12.

E. australiae Duncan 1876, type; GEOL. SOC. LONDON (101) p. 73. *E. clunicularis*; PETITCLERC (222) p. 122: REYNOLDS & VAUGHAN (236) p. 749: STRUEBIN (273) p. 75. *E. suevicus*; SCHMIERER (254) p. 572.

Echinocardium australe; SAYCE (248) p. 149. *E. cordatum*; GRIEG (113) p. 33: LEIPER (166): movement of spermatozoa; BULLER (38) p. 151: food for fish; PEARCEY (218) p. 318. *E. flavescens*; GRIEG (113) p. 34: food for fish; PEARCEY (218) p. 318. †*E.* (?) *gibbosum* **n. sp.**, Schio beds, Scurelle near Borgo; OPPENHEIM (210) p. 260, pl. viii. *E. pennatifidum*; MEEK (199) pp. 8, 9.

†*Echinoconus*,—*E. albogalerus*, not found in Turonian of Germany, d'Orbigny's fig. criticised; SCHLUETER (252) p. 321. *E. conicus* et varr.; DEECKE (57) pp. 89, 111. *E. conicus*; SEMENOW (258) p. 10. *E. gigas*?; PERON (219) p. 521. *E. globulus*; HILL (130). *E.* cf. *globulus*?; SEMENOW (258) p. 10. *E. roemeri*; WOLLEMANN (300). *E. subconicus*; WOLLEMANN (298, 299 & 302). *E. subrotundus*; WOLLEMANN (302). *E.* cf. *subrotundus*; SEMENOW (258) p. 10. *E. vulgaris* et varr.; DEECKE (57) p. 114. Vide etiam *Galerites*.

†*Echinocorys* [incl. *Ananchites* vel *Ananchytes*],—distinguished from *Galeola*, incl. *Oolaster* (q. v.); LAMBERT in GROSSOUVRE (116) p. 971. *E. arnaudi*, measured; ARNAUD (12) p. 34. *A. bayfieldi*; LENEY (167) p. 227. *E. carinata* Defr., v. *E. hemisphaerica*. *A. corculum*; ABICH (1) p. 13, pl. i: WOLLEMANN (300 & 301). *E. cotteaui* **n. sp.**, based on *E. semiglobus* Cott. non Lam.,—and *E. duponti* **n. sp.**, based on *E. sulcatus* Arnaud non Goldfuss; LAMBERT in Review of ARNAUD (12). *E. elatodepressus* Grateloup [as var. of *E. conoideus*] cum **varr. nov.** *ferescutatus*, *depressus*, *elatus*, note by V. GAUTHIER, measurements; ARNAUD (12) p. 33, pls. vi–ix: LAMBERT in Review says Grateloup's form is a *Galeola*, but the 3 varr. are true *Echinocorys*. *E. fonticola* **n. sp.**, Upper Campanian, Tercis, also in Charente and Charente Inf. [see II, B, ii, e] (p. 31, pls. ii–iv), *E. heberti*, measured (p. 32); ARNAUD (12). *E. hemisphaerica* Brongn. replaces *E. carinata* Defr. non Lam.; LAMBERT in GROSSOUVRE (116) p. 971. *E. meudonensis* Lambert (=*ovata* Auct.); GROSSOUVRE (116) p. 133. *E. orbis*, descr., distrib., measurements; ARNAUD (12) p. 30. *A. ovata*; ABICH (1) p. 13, pl. i: SHEPPARD & STATHER (259): WOLLEMANN (298, 299, 300, 301, 302): var. *perconicus*; DEECKE (57) p. 113. *E. ovata* and var. *scutata* distinguished; GROSSOUVRE (116) p. 120. *A.* cf. *papillosus*?; SEMENOW (258) p. 13. *E. pyrenaicus*, measured; ARNAUD (12) p. 35. *E. scutatus*; HILL (130). *E. semiglobus*, cum **varr. nov.** *pyramidalis*, *depressus*, *hemisphoericus* [sic], *conicus*, all Garumnian of Tercis; ARNAUD (12) p. 35. *A. striatus* (pp. 109, 111, 121); DEECKE (57): of Elbert non Goldf. resembles *Echinocorys gravesi* Desor; LAMBERT in Review of ELBERT 1901. *E. subconica* [? **n. sp.**] for a Parisian form previously referred by Lambert to *E. conoidea* or *E. conica*; LAMBERT in GROSSOUVRE (116) p. 971. *E. sulcatus*, measured; ARNAUD (12) p. 38, pl. x: of Saltholm chalk, rather resembles *E. semiglobus* Lam. non Cott.; LAMBERT in GROSSOUVRE (116) p. 707: of Goldf. from Saltholm=*Galeola papillosa* Klein 1734; LAMBERT in GROSSOUVRE (116) p. 971. *E. tenuituberculatus*, measured; ARNAUD (12) p. 34. *E. vulgaris*; REID (233) pp. 6, 7: WALFORD (292) p. 107: dates of first appearance; GROSSOUVRE (116) p. 20: var. *gibba*; PERON (219) p. 535: quoted by Rowe, probably not the true *E. gibbus*; LAMBERT (162): var. *ovata*; SEMENOW (258) p. 13, pl. i: **var. nov.** *posterosulcata*, Upper Senonian, Aube; VALETTE (283) p. 16: probably a form of *E. conicus*; LAMBERT in Review: var. *pustulosa*; SEMENOW (258) p. 14: var. *pyramidalis*; SEMENOW (258) pl. i, legend refers to p. 13 [but it is not mentioned there]: var. *pyramidatus*, quoted by

Rowe, probably not the true *E. pyramidatus*; LAMBERT (162): var. *semigloba*; SEMENOW (258) p. 14: var. aff. *E. semiglobus*, brown chalk of Ciply; LAMBERT in GROSSOUVRE (116) p. 304: var. *striata*?; PERON (219) p. 520: var. *sulcata*; SEMENOW (258) p. 14.

Echinocyamus,—†*E.* sp.; AIRAGHI (3) p. 375: JOLEAUD (140). †*E. affinis*; OPPENHEIM (210) p. 188. †*E. lebesconti*; PICQUENARD (224). *E. pusillus*; GRIEG (113) p. 32: food for fish; PEARCEY (218) p. 316. †*E. subcaudatus*?, descr.; CHECCHIA (40) p. 57: is a *Fibularia*; LAMBERT in Review. †*E. pyriformis*; OPPENHEIM (210) p. 188. Vide etiam sub *Fibularia*.

†*Echinolampas*,—*E.* sp.; MARTELLI (193) p. 91. *E. africanus*, incl. *E. fraasi* and *E. osiris*; FOURTAU (83): but *E. osiris* is prior to *E. africanus*; LAMBERT in Review. *E.* (*Clypeolampas* Bittner non Pomel) *alienus*, redescr.; OPPENHEIM (210) p. 210. *E. angulatus*; MARIANI (190) p. 321. *E. archiaci*; LAMBERT (161) p. 40. *E. bathystoma* **n. sp.**, Schio beds, Mt. Brione near Riva; OPPENHEIM (210) p. 216, pl. ix & text-fig.: descr.; AIRAGHI (3) p. 383. *E. beaumonti* (p. 208), *E. blainvillei*, compared with *E. cassinellensis* and *E. laurillardi* (p. 211); OPPENHEIM (210). *E.* cf. *blainvillei*; OPPENHEIM (209) p. 276. *E. blaviensis*; OPPENHEIM (210) p. 208. *E. contii*; MARIANI (190) p. 321. *E. curtus* Ag. maintained, incl. *E. obesus* Bitt. and *E. galerus* Mazz.; OPPENHEIM (210) p. 202. *E. dinanensis*; LEBESCONTE (164) p. 279: PICQUENARD (224). *E. discoideus* D'Archiac & Haime 1853, type; GEOL. SOC. LONDON (101) p. 45. *E. discus*; OPPENHEIM (210) p. 216: descr., incl. *E. conicus*; AIRAGHI (3) p. 382. *E. fraasi*, is var. of *E. africanus*; FOURTAU (83). *E. galerus* Mazzetti 1894, syn. of *E. obesus* and *E. curtus*; OPPENHEIM (210) p. 161. *E. globulus*, descr.; AIRAGHI (3) p. 381: incl. *E. inflatus* Laube, *E. amygdalinus* Mayer-Eymar, and '*E. ellipticus* Gf.' of Quenst.; OPPENHEIM (210) p. 201. *E. grossouvrei* **n. sp.**, Mid-Eocene, Soh, between Kachan and Ispahan; GAUTHIER (96) p. 177, pl. xxi. *E. hemisphaericus*; DEYDIER (68) pp. 314, 326. *E. hydrocephalus*; OPPENHEIM (210) p. 215. *E.* cf. *inflatus*, descr. and measured; MARTELLI (193) p. 91, pl. vii. *E. jacquemo(n)ti* D'Archiac & Haime 1853, type; GEOL. SOC. LONDON (101) p. 45. *E. junasensis* **n. sp.**, Tortonian of Junas (Gard); LORIOL (176) p. 13, pl. iii. *E. justinae* (p. 204), *E. lepsiusi* (p. 204), *E. montevialensis* (p. 209); OPPENHEIM (210). *E. morgadesi* **n. sp.**, Eocene of Barcelona; LAMBERT (161) p. 39, pl. iii. *E. orcagnanus* **n. sp.**, Schio beds of Val Orcagna near Castelcucco; OPPENHEIM (210) p. 219 & fig. *E. osiris* is var. of *E. africanus*; FOURTAU (83). *E. ottellii*; OPPENHEIM (210) p. 206. *E. ovalis*; LAMBERT (161) p. 40. *E. parolinii* **n. sp.**, Middle Oligocene of Gambugliano, type in Mus. civ. Bassano (p. 213 & figg.). *E. politus*? from Verona, if not this sp., to be called *E. vitifer* Oppel 1898, vide etiam *E. quenstedti* (p. 206); OPPENHEIM (210). *E. praedensa* **n. sp.**, Mid-Eocene, Soh, between Kachan and Ispahan; GAUTHIER (96) p. 179, pl. xxii. *E. quenstedtii* **n. sp.**, based on *E. politus* Quenst. non Desm., probably Priabona beds, near Verona (p. 209), *E. schlotheimi* **n. sp.**, Older Tertiary of Verona, holotype in Schlotheim coll., Berlin (p. 204 & figg.); OPPENHEIM (210). *E. s[c]indensis* D'Archiac & Haime 1853, type; GEOL. SOC. LONDON (101) p. 45. *E. scurellensis* **n. sp.**, Schio beds of Scurrelle near Borgo; OPPENHEIM (210) p. 218, pl. ix. *E. scutiformis*; DEYDIER (68) pp. 314, 321. *E. sph[ae]roidalis* D'Archiac & Haime 1853, type; GEOL. SOC. LONDON (101) p. 45. *E. subaffinis*, discussed (p. 216), *E. subcylindricus* incl. *E. stoppanianus* (p. 203), *E. subquadratus* (p. 216), *E. subsimilis*, discussed (p. 212); OPPENHEIM (210). *E. suessi*; op. cit. p. 203: MARTELLI (192): descr. and measured; MARTELLI (193)

p. 90, pl. vii. *E. veronensis*; OPPENHEIM (210) p. 202. *E. vicaryi* D'Archiac & Haime 1853, type; GEOL. SOC. LONDON (101) p. 45. *E. zignoi* (p. 211), *E. zovizzanus* **n. sp.**, based on '*E. affinis* Desm.' of Quenst., Oligocene of Sovizzo (p. 215); OPPENHEIM (210).

Echinometra lucunter; BELL (19) p. 231. †*E. miocenica* **n. sp.**, Tortonian near Cruzy (Hérault); LORIOL (176) p. 12, pl. iii. †*E. thomsoni* D'Archiac & Haime 1853, type; GEOL. SOC. LONDON (101) p. 45.

Echinoneus,—†*E. balestrai* **n. sp.**, Middle Oligocene, Mt. Viale; OPPENHEIM (210) p. 195, pl. viii. *E. cyclostomus*; BELL (19) p. 232. *E. semilunaris*; VERRILL (285) p. 37.

†*Echinopedina*, discussed, perhaps only a subgenus of *Pedina* (p. 29), *E. gacheti*, genotype, redescr. (p. 28 & fig.), *E. granulosa* **n. sp.**, Eocene of Montserrat (p. 28, pl. ii); LAMBERT (161).

†*Echinopsis subuculus* Forbes in Sharpe 1850, type; GEOL. SOC. LONDON (101) p. 30.

Echinostrephus molare, habits; ALCOCK (5) p. 172.

Echinothrix desori & *E. diadema*; BELL (19) p. 230.

Echinus acutus; PEARCEY (218) p. 315. *E. alexandri*; RICHARD (238) p. 83. †*E.* (*Anapesus*) *balestrai* **n. sp.**, Oligocene, Gomberto beds, between S. Luca and Marostica; OPPENHEIM (210) p. 182, pls. vii, viii. †*E. drydenensis*, v. sub *Archaeocidaris*. †*E. dubius* Grant 1840, type; GEOL. SOC. LONDON (101) p. 36. *E. elegans*; GRIEG (113) p. 31. *E. esculentus*; GRIEG (113) p. 32: local var. Cromarty Firth, food for fish; PEARCEY (218) p. 316: II, F, iii; BRYCE (34, 35): development; MACBRIDE (181, 182 & 183): II, F, viii; BRYCE (36): DELAGE (59). †*E. hungaricus*, its relations to *Anapesus*; OPPENHEIM (211) p. 67. *E. margaritaceus*; BELL (17) p. 219. *E. microtuberculatus*; GOURRET (104): movement of spermatozoa; BULLER (38) p. 151: fertilisation; DUNGERN (75): II, F, iv, c; RHUMBLER (237): II, F, viii; STEVENS (270). *E. miliaris*; ALLEN & TODD (6) p. 317: food for fish; PEARCEY (218) p. 315: development; THEEL (277). *E. norvegicus*, food for fish; PEARCEY (218) p. 315: distrib., incl. *E. rarispinus*; GRIEG (113) p. 31. †*E. olisiponensis* Forbes in Sharpe 1850, type (p. 30), †*E. stracheyi* D'Archiac & Haime 1853, type (p. 44); GEOL. SOC. LONDON (101).

†*Ellipsechinus miqueli*; DEYDIER (68) p. 326.

†*Enallaster*,—*E. delgadoi* compared with *E. texanus* and other spp. (p. 19, pl. i), *E. oblongus*, distrib., belongs to section *Heteraster* (p. 18); LAMBERT (161). *E. texanus*; HILL (129) pp. 206, 226, pl. xxvii.

Encope micropora; CLARK (48) p. 527.

†*Enichaster oblongus*; OPPENHEIM (210) p. 220.

†*Eocidaris*,—*E. blairi*, referred to *Archaeocidaris keokuk*; KEYES (151) p. 186. *E. drydenensis*, v. sub *Archaeocidaris*. *E. hallianus*, referred to *Archaeocidaris* (p. 190), *E. squamosus*, referred to *Lepidechinus* (p. 193); KEYES (151).

†*Epiaster*,—*E.* sp. said to come from Senonian near Nice; GAUTHIER (96) p. 131. *E. brevis* Schlueter is a *Micraster*, cf. *M. icaunensis*; LAMBERT in GROSSOUVRE (116) p. 958. *E. duncani* **n. sp.**, Orbitolina marls of Sémha; KOSSMAT (159) p. 53, pl. v. *E. elegans*; HILL (129) pp. 206, 226, 251, 260, 272, pl. xxxvi. *E. gibbus*; WOLLEMANN (300): of Schloth., v. sub *Isomicraster*. *E.* cf. *gibbus*; SEMENOW (258) p. 16, pl. i. *E. lamberti* **n. sp.**, Senonian, Kanepan and Tidar, Persia; GAUTHIER (96) p. 129, pl. xix. *E. orientalis* **n. sp.**, Terebratula limest. of Sémha; KOSSMAT (159) p. 57, pl. v. *E. prior* **n. sp.**, Aptian of Barcelona, passage form from *Toxaster* through *T. collegnoi*; LAMBERT (161) p. 20, pl. iv. *E. renati*, v. sub *Isomicraster*. *E. whitei*; HILL (129) p. 226.

Eucidaris, vide sub *Cidaris*.

Eupatagus, vide *Euspatangus*.

†*Eurhodia*,—*E. calderi* (p. 51), *E. morrisi* (p. 45), types of D'Archiac and Haime 1853; Geol. Soc. London (101).

†*Euspatangus* (vel *Eupatagus*) Ag. made syn. of *Brissoides* (q. v.); Lambert (161) p. 48. *E.* ? *avellana* D'Archiac & Haime 1853, type; Geol. Soc. London (101) p. 45. *E. biarritzensis* Cott. vide *Brissoides fallax* et *biarritzensis*. *E. bicarinatus*; Oppenheim (210) p. 271. *E. elongatus* discussed and distinguished from *Brissoides confractus* and *B. oosteri* (qq. v.); Lambert (161) p. 50. *E. formosus*, referred by Dames to *E. multituberculatus*; Oppenheim (210) p. 268. *E. ghiavanensis* **n. sp.**, Upper Eocene, Mollah Ghiavan, Persia; Gauthier (96) p. 156, pl. xxi: =*Brissoides*; Lambert in Review. *E. laubei* Duncan 1876, type; Geol. Soc. London (101) p. 73. *E. minutus*; Oppenheim (209) p. 276: descr.; Airaghi (3) p. 385: probably incl. *Brissopatagus palejensis* Mazz. & "*E.* cf *de Koninckí* Wright" Airaghi; Oppenheim (210) p. 271. *E. ornatus*; Douvillé (71) p. 31: also **n. var.** *gombertina*, Oligocene near Castelgomberto; Oppenheim (210) p. 270, pl. ix. *E. patellaris* D'Archiac & Haime 1853, type; Geol. Soc. London (101) p. 45. *E. priabonensis* **n. sp.**, Priabona beds and Oligocene, based on specimen referred by Dames to *E. tournoueri* Cott.; Oppenheim (210) p. 268. *E. rostratus* D'Archiac & Haime 1853, type (p. 45), *E. rotundus* Duncan 1876, type (p. 73); Geol. Soc. London (101). *E. tournoueri* (p. 269 and fig.), *E. veronensis* (p. 268); Oppenheim (210).

†*Fibularia* (*Echinocyamus*) *pseudopusilla*; Lovisato (177) p. 13. *F. volva*; Bell (19) p. 232. Vide etiam sub *Echinocyamus*.

†*Fourtaunia* **n. g.** of prymnodesmian *Spatangidae*, with genotype *Hypsopatagus sancta-mariai* Gauth.; Lambert (161) p. 53.

†*Gagaria* syn. of *Thylechinus*; Lambert (161) p. 38.

†*Galeodea stephaniophora*; De Stefani (67) p. 26.

†*Galeola*, distinguished from *Echinocorys* and *Corculum*; Lambert in Grossouvre (116) p. 971.

†*Galerites*,—*G. abbreviatus* is a *Pironaster*; Schlueter (252) p. 327. *G. pulvinatus* Grant 1840, type; Geol. Soc. London (101) p. 36. *G.* (*Echinoconus*) *subconicus* and *G. subrotundus* (p. 320), *G. vulgaris* is a *Pironaster* (p. 327); Schlueter (252). Vide etiam *Echinoconus*.

†*Gibbaster* Gauth. 1887, probably not a valid genus, but in any case to be restricted to fasciolate forms (p. 958), of Seunes 1889 non Gauth., replaced by *Tholaster* Seunes 1891 (p. 959); Lambert in Grossouvre (116).

†*Glypticus*,—*G. hieroglyphicus* (pp. 569, 573), *G. sulcatus* (p. 588); Schmierer (254).

†*Goniopygus*,—*G. delphinensis*; Lambert (161) p. 13. *G.* cf. *marticensis*; Kossmat (159) p. 57, pl. v.

†*Gualteria*, discussed and compared with *Tuberaster* (p. 259), *G. aegrota* (p. 257), *G. meneguzzoi* **n. sp.**, Middle Oligocene, Castelgomberto (p. 257, pl. vii); Oppenheim (210).

Hemiaster,—†*H. amplus* Desor, is perhaps *Opissaster*; Gauthier (96) p. 143. †*H. avesanus* **n. sp.**, Middle Eocene of Avera near Verona, perhaps deep ambulacra formed broodpouch; Oppenheim (210) p. 223 & fig. †*H. bathensis*; Michalet (203) p. 583. †*H. branderianus*; Reid (233) p. 25. †*H. bufo*; Michalet (203) pp. 579, 583. †*H. canaliculatus*, v. sub *Schizaster*; Grossouvre (116). †*H. canaliferus*; De Stefani (67) p. 26. †*H. canavarii*; Mariani (190) p. 320. *H. cavernosus*; Bell (17) p. 219. †*H. chargensis* **n. sp.**, Danian, near Chargeh, Libyan desert; Wanner (292) p. 108, pl. xv. †*H. desvauxi*; Michalet (203) p. 583. †*H. devolutus* **n. sp.**, Cenomanian ?, Kouh Valamtar, Persia; Gauthier (96) p. 117, pl. xvii. †*H. digonus*

D'Archiac & Haime 1853, type (p. 45), †*H. forbesii* Baily 1855, type (p. 59); GEOL. SOC. LONDON (101). †*H. galantigensis*; OPPENHEIM (211) p. 66. †*H. kanepanensis* **n. sp.**, Senonian, Kanepan, Persia; GAUTHIER (96) p. 133, pl. xix. "*H.* cf. *lacunosus* Goldf." Sturm (296) Zool. Rec. 1901, not this sp.; SCHLUETER (252) p. 329. †*H. lamberti* **n. sp.**, Senonian near Martigues (Bouches-du-Rhône); SAVIN (247) p. 2, pl. 1. †*H. ligeriensis*, St. Sirac, Pyrenees, wrongly referred by Cotteau 1887 to *H. gauthieri*; GROSSOUVRE (116) p. 429. †*H. minimus* quoted by Rowe probably = *H. nasutulus*; LAMBERT (162). †*H. morgani* **n. sp.**, Senonian, Arköwaz, Persia; GAUTHIER (96) p. 131, pl. xix. †*H. nasutulus*, variations in various locc.; GAUTHIER in GROSSOUVRE (116) p. 421. †*H. noemiae* **n. var.** *gulgulensis*, Upper Cretaceous, Arköwaz, Gouvah, and Goulgoul, Persia, perhaps a sexual form; GAUTHIER (96) p. 140, pl. xix. †*H. orbignyi*; MICHALET (203) p. 583. †*H. parthicus* **n. sp.**, Louristan, compared with *H. latigrunda* and *H. indicus*; GAUTHIER (96) p. 137, pl. xx. †*H. praeceps*; OPPENHEIM (210), p. 223. †*H. pseudo-fourneli* [*-fourneti*, sic]; MICHALET (203) p. 583: Per. and Gauth. = *H. proclivis* of Zittel's list, but does not = *Periaster* (?) *roachensis* Gauth. of Blanckenhorn; BLANCKENHORN in Review of FOURTAU (119) Zool. Rec. 1901. †*H. pulcinella* (Oppenh. sub *Linthia*); OPPENHEIM (210) p. 223. †*H. recurvus* **n. sp.**, Senonian, Arköwaz, Persia, perhaps *Iraniaster*; GAUTHIER (96) p. 135, pl. xix. †*H. semhae* **n. sp.**, Terebratula limest. of Sémha; KOSSMAT (159) p. 57, pl. v. †*H. superbissimus* Coq., added details; GAUTHIER (96) p. 133. †*H. texanus*; HILL (129) pl. xlv.

Hemiasterinae, a tribe of *Mesospatanginae*, = *Hemiaster* Auctt.; LAMBERT in GROSSOUVRE (116) p. 969.

†*Hemicara pomeranum* **n. g.** et **sp.**, zone of *Belemnitella mucronata* near Löschnitz in Pomerania; SCHLUETER (252) p. 332, pl. vi: allied to *Clypeolampas*; LAMBERT in Review.

†*Hemicidaris*,—*H.* sp.; STRUEBIN (273) p. 73, *H. agassizi* (p. 584), *H. crenularis* (pp. 569, 573, 588), *H.* ? *cucumis* (p. 573), *H. fistulosa* (pp. 573, 584, 588), *H. intermedia* (p. 588); SCHMIERER (254). *H.* cf. *lucensis*; PETITCLERC (222) p. 123. *H. subteres*; SCHMIERER (254) p. 573.

†*Hemipedina*,—*H. calva*; SCHMIERER (254) p. 573. *H. jardini*; WALFORD (291) p. 277. *H. nattheimensis*; SCHMIERER (254) pp. 584, 588.

†*Herklotzia* **n. g.** of *Cassidulidae* based on *Nucleolites minimus* Herklots, Tertiary of Java; LORIOL (176) p. 15: but the sp. is *N. minutus*, the name should be spelled *Herklotsia*, and the genus is syn. of *Catopygus*; LAMBERT in Review.

†*Heteraster texanus*; HILL (129) p. 226. Vide etiam sub *Enallaster*.

Heterobrissus compared with *Palaeopneustes*; OPPENHEIM (210) p. 222.

†*Heteroclypeus hemisphaericus*; SCHAFFER (250) pp. 20, 29.

†*Heterodiadema libycum*; MICHALET (203) p. 583.

†*Heterosalenia paquieri* **n. sp.**, Lower Aptian, Chateauneuf-du-Rhône (Drôme), type in Fac. Sci. Grenoble; SAVIN (247) p. 9, pl. iii.

Hipponoë depressa; CLARK (48) p. 526.

†*Holaster*,—*H. ananchytoides* Elbert, may = *H. placenta*; SCHLUETER (252) p. 321: is a *Pseudananchys*; LAMBERT in Review of ELBERT 1901. *H. aptiensis* **n. sp.**, Aptian near Barcelona; LAMBERT (161) p. 16, pl. iv. *H. australiae* Duncan 1876, type (p. 73), *H. comanchesi* Marcou 1858, type (p. 66); GEOL. SOC. LONDON (101). *H. completus*; HILL (129) p. 277. *H. cordatus*; LAMBERT (161) p. 16. *H. icaunensis*; GROSSOUVRE (116) p. 113). *H. indicus* Forbes 1845, type; GEOL. SOC. LONDON (101) p. 43. *H. laevis*, var. *planus*; BELL (20). *H. integer*; PERON (219) p. 520. *H. nodulosus*; FORTIN (82) p. 197. *H. planus*; HILL (130): MCPHERSON (186) p. 17: WOLLEMANN (298, 299, & 302): SEMENOW (258) p. 15: of Elbert not same as that of

Cotteau and Wright; LAMBERT in Review of ELBERT 1901: vel *Cardiaster ananchytis*; ABICH (1) p. 14, pl. i. *H. sennonensis* [sic], loc cit. *H. subconicus* **n. sp.**, Albian ?, Kanepan, Persia; GAUTHIER (96) p. 109, pl. xvii. *H. subglobosus*; WOLLEMANN (300). *H. suborbicularis*; FORTIN (82) p. 197: MICHALET (203) p. 583. *H.* cf. *suborbicularis*; SEMENOW (258) p. 14.

†*Holasteriopsis* is a *Pseudananchys*, and *H. credneriana* is a syn. of *Ananchytes latissima* F. A. Roemer, 1840; LAMBERT in Review of ELBERT 1901, and SCHLUETER (252) p. 321.

†*Holectypus*,—*H. charltoni*; HILL (129) p. 277. *H. corallinus*; SCHMIERER (254) p. 573. *H. depressus*; PETITCLERC (222) p. 122: SCHMIERER (254) p. 573: STRUEBIN (273) p. 75. *H. macropygus*; ABICH (1) p. 21, pl. iii: BOGDANOWITSCH (25) pp. 67, 68, 185, 186. *H. planatus*; HILL (129) pp. 206, 226.

Homolampas glauca; ALCOCK (5) p. 289 and fig.

†*Hybochinus spectabilis*, referred to *Lepidesthes*; KEYES (151) p. 184.

†*Hyboclypeus canaliculatus*; SCHLOSSER (251) p. 553.

†*Hypechinus*,—*H. patagonensis*, descr. (p. 52, pl. xi), *H. patagonicus*, v. Ihering 1897 is not *H. patagonensis*, but perhaps *Toxopneustes praecursor* (p. 53); ORTMANN (212).

†*Hypsaster*,—*H. convexus* **n. sp.**, Aptian ?, Kouh Valamtar, Persia (p. 112, pl. xvii), *H. douvillei* **n. sp.**, Albian or Cenomanian, Kanepan, Persia (p. 115, pl. xvii), *H. valamtarensis* **n. sp.**, Aptian ?, Kouh Valamtar, Persia (p. 113, pl. xvii); GAUTHIER (96).

†*Hypsopatagus* (vel *Hypsospatangus*), vide etiam *Fourtaunia* et *Mariania* et *Rovasendia*. *H. hispaniae* **n. sp.**, Eocene of Barcelona; LAMBERT (161) p. 53, pl. iv. *H. meneghini*; OPPENHEIM (211) p. 66. *H. peroni* Mazzetti 1894, may be good sp. but not this genus; OPPENHEIM (210) p. 162.

Iheringia (vel *Iheringiella*, vel *Iheringiana*, vel *Iheringina*) compared with *Echinarachnius*, *Scutella*, and *Monophora*, and regarded as syn. of *Scutella*; ORTMANN (212) p. 57.

†*Ilarionia*,—*I. beggiatoi* and *I. damesi*, relations to *Echinanthus wrighti*; OPPENHEIM (210) p. 201.

†*Inaster amygdala*; ABICH (1) p. 16, pl. i.

†*Infulaster excentricus*; HILL (130): WOLLEMANN (299 & 302).

Intermedii, v. sub *Clypeaster*.

†*Iraniaster* discussed and compared with *Lambertiaster* and *Stenonia*; GAUTHIER (96) p. 125. *Lambertiaster* "est un Hémiastérien paléostome," *Iraniaster* comes between *Stenonia* and *Menuthiaster* in group *Ovulasterinae* of *Oeropidae*; LAMBERT in Review. *I. douvillei*, further details (p. 126, pl. xviii), *I. nodulosus* **n. sp.**, Upper Senonian, Kanepan, Persia (p. 122, pl. xviii); GAUTHIER (96). *I.* (?) *recurvus*, vide *Hemiaster*.

†*Isomicraster*, **n. s.-g.** "ou simple section" to include *Epiaster renati* Gauth., *Micraster senonensis* & *M. meunieri* Lamb., and *I. stolleyi* **n. sp.** for *Epiaster gibbus* of Schlueter fr. Luneberg; LAMBERT in GROSSOUVRE (116) p. 959.

†*Isopneustes* Pomel, the sole species is *Micraster bourgeoisi* Cott. (p. 124), *Isopneustes* Munier-Chalmas, Seunes, Nicklès, Cotteau, Schlueter, distinct from *Isopneustes* Pomel, and is syn. of *Cyclaster* (p. 126); LAMBERT (163).

†*Laevispatangus* Noetling; LAMBERT in GROSSOUVRE (116) p. 960.

Laganum,—†*L. balestrai*; OPPENHEIM (210) p. 190. *L. depressum*; BELL (19) p. 232. †*L. fragile*; OPPENHEIM (210) p. 190.

Lambertechinus, vide sub *Actinophyma*.

Lambertiaster, v. sub *Iraniaster*.

Leiocidarinae, subfam. of *Cidaridæ* s. str., comprising *Microcidaris*,

Cidaris, *Goniocidaris*, *Leiocidaris*, *Temnocidaris*, *Tylocidaris*, *Stereocidaris*, *Typocidaris*, and *Phalacrocidaris*; LAMBERT (161) p. 27.

Leiocidaris adopted as genus for "*Stereocidarinae* pourvus de tubercules lisses et de pores reliés par un sillon. Le type est *L. cidaris* (L.)"; LAMBERT (161) p. 24, should perhaps be called *Phyllacanthus*; LAMBERT in Abstract. †*Leiocidaris*,—*L. almerai* **n. sp.**, Eocene near Barcelona; LAMBERT (161) p. 26, pl. i. *L. australiae* Duncan 1876, type; GEOL. SOC. LONDON (101) p. 73. *L. bofilli* **n. sp.**, Eocene of Montserrat; LAMBERT (161) p. 24, pl. ii. *L. hemigranosus*; HILL (129) p. 272. *L. itala*; DENINGER (66) p. 224: probably distinct from *Cidaris calamus* but incl. *C. striato-granosa*, descr., specimen figd. Oppenheim [see Zool. Rec. 1900] is not the traditional form; LAMBERT (161), p. 23, pls. i, ii (but v. *L. montserratensis*): of LAMBERT (161), doubted, = *L. montserratensis*; OPPENHEIM (211) p. 70. *L. montserratensis* **n. sp.**, Eocene of Montserrat, the species above referred to *L. itala*; LAMBERT in Abstract of LAMBERT (161). *L. scampicchioi* (Taramelli sub *Cidaris*) redescr.; LAMBERT (161) p. 25. *L. sismondai*; LOVISATO (177) p. 12. Vide etiam sub *Cidaris* et *Rhabdocidaris*.

†*Leiopedina*,—*L. samusi* (p. 184), *L. tallavignesi* (p. 183); OPPENHEIM (210): ambulacrals figd.; LAMBERT (161) p. 30.

†*Leiopleurus* **n. g.** of *Echininae Oligoporinae Pleurechinae*, between *Leiocyphus* and *Microcyphus*, (p. 37) with genotype *Psammechinus orbignyi* Cott.; LAMBERT (161) p. 38, pls. ii, iii.

†*Leiospatangus* Mayer, doubtful genus; LAMBERT in GROSSOUVRE (116) p. 960.

†*Lepidechinus*, distinction fr. *Archaeocidaris* doubted (p. 193), *L. imbricatus*, discussed, and *L. rarispinus*, descr. (p. 192), *L. squamosus*, descr. (p. 193); KEYES (151).

†*Lepidesthes*,—*L. colletti*, descr., *L. coreyi*, descr., *L. formosus* and *L. spectabilis*; KEYES (151) (p. 184).

†*Lepidocidaris*, syn. of *Lepidechinus* (p. 192), *L. squamosus*, referred to *Lepidechinus* (p. 193); KEYES (151).

†*Linthia*,—*L. arnauldi* (p. 240), *L. bathyolcos*, corrections of Dames' description (p. 231); OPPENHEIM (210). *L. capellinii*; MARIANI (190) p. 321. *L. hilarionis*; OPPENHEIM (210) p. 232. *L. laubei*; OPPENHEIM (211) p. 66. *L. montecchiana* **n. sp.**, Lower Oligocene near Montecchio maggiore; OPPENHEIM (210) p. 239 & fig. *L. nobilis*, redescr. (p. 237), *L. pentastoma* **n. sp.**, Middle Eocene, S. Giovanni Ilarione, assigned by Laube and Dames to *L. biarritzensis* Cott. and perhaps *Schizaster leymeriei* (p. 233 & fig.), *L. pseudoverticalis* (p. 239), *L. reinachii* **n. sp.**, Oligocene ?, N. Italy (p. 241, pl. viii), *L. scarabaeus* (p. 232), *L. scarantana* **n. sp.**, Priabona beds, based on *L. heberti* Dames non Cott. (p. 236), *L. trinitensis*, descr. (p. 241, pl. ix); OPPENHEIM (210).

Lobophora, vide sub *Amphiope*.

Locenia elongata; BELL (19) p. 232. †*L. forbesi* Woods & Duncan, figd. Duncan 1876; GEOL. SOC. LONDON (101) p. 73. *L. gregalis*; ALCOCK (5) p. 288 & fig. †*L. suessii*; OPPENHEIM (210) p. 268.

†*Macraster texanus*; HILL (129) p. 251.

†*Macropneustes*,—*M. brissoides*, distrib.; OPPENHEIM (210) p. 264. *M.* cf. *deshayesi*, descr.; CHECCHIA (40) p. 58. *M. integer*; OPPENHEIM (211) p. 66. *M. pulvinatus*, var. with superficial ambulacra; LAMBERT (161) p. 47.

†*Magnosia*,—*M. decorata* (pp. 582, 584, 588), *M. nodulosa* (p. 588), *M. punctata* (p. 573); SCHMIERER (254).

Maretia alta; BELL (19) p. 233. †*M. anomala* Duncan 1876, type; GEOL. SOC. LONDON (101) p. 73. †*M. barcinensis* **n. sp.**, Eocene of Barcelona; LAMBERT (161) p. 54, pl. iii. †*M. grignonensis*; RADKEWITSCH (230). *M. planulata*; BELL (19) p. 233.

†*Mariania* Airaghi, rejected, *M. chitinosus* is a *Spatangus*, and *M. marmorae* is a *Hypsospatangus*; CHECCHIA (39): Checchia's criticism confirmed; OPPENHEIM (211) p. 69: genus upheld; AIRAGHI (3) p. 387.

Mellita, arrangement of endoskeleton compared with *Scutella* and *Echinarachnius*; ORTMANN (212) p. 56. *M. stokesii*; CLARK (48) p. 527. *M. testudinata*, development; GRAVE (105).

†*Melonites*,—*M. crassus*, descr.; KEYES (151) p. 182. *M. danae*, v. sub *Oligoporus*. *M. irregularis*, syn. of *M. multipora*; KEYES (151) p. 181. *M. multiporus*, text-fig.; FRITEL (88): descr. (p. 181, pls. xix, xx), *M. stewartii*, syn. of *M. multipora* (p. 181); KEYES (151).

Mesospatanginae **n. subfam.** of *Brissidae*, comprising *Micrasterinae* and *Hemiasterinae*; LAMBERT in GROSSOUVRE (116) p. 969.

Metalia sternalis; VOELTZKOW (289) p. 565.

†*Micraster*, general distrib.; GROSSOUVRE (116) p. 931. *M. angula* d'Orb. Prodrome, err. pro *ungula* q. v. (p. 969), *M. archeri* (Ten.-Woods sub *Brissopsis*) fide Tate 1893, ? MS et syn. *Cyclaster lycoperdon* Bittn. (p. 960); LAMBERT in GROSSOUVRE (116). *M. arenatus*, descr. and referred to *Gibbaster*; loc. cit.: probably = *M. matheroni*, is purely Santonian; PERON (219) p. 519. *M. atacamensis* Philippi, probably *Schizaster*; LAMBERT in GROSSOUVRE (116) p. 960: is *Schizaster*; ORTMANN (212) p. 62. *M. bigibbus*; LAMBERT in GROSSOUVRE (116) p. 960. *M. borchardi* Hagenow MS. referred to *M. leskei* by Geinitz, this confirmed; loc. cit.: syn. of *M. leskei*; LAMBERT (163) p. 121. *M. bourgeoisi*, v. *Isopneustes*. *M. breviporus*; FORTIN (80) p. 295: GROSSOUVRE (116) p. 17: WOLLEMANN (298, 299, 302): of Ag., based on *M. decipiens* juv., or apud Rowe on *M. coranguinum* juv.; LAMBERT in GROSSOUVRE (116) p. 961: the type-cast M. 10 is a young *M. decipiens*, but the later cast R. 81 is quite different; LAMBERT (163) p. 127. *M. carentonensis*; LAMBERT in GROSSOUVRE (116) p. 961: (?); GROSSOUVRE (116) p. 444: compared with *M. maestrichtensis*; LAMBERT (163) p. 123. *M. chilensis* Philippi, is *Enallaster*; LAMBERT in GROSSOUVRE (116) p. 961. *M. ciplyensis* Schlueter; loc. cit.: distinguished from *M. maestrichtensis*; LAMBERT (163) p. 123. *M. consobrinus*; LAMBERT in GROSSOUVRE (116) p. 961. *M. coranguinum*; GROSSOUVRE (116) pp. 19, 29, 121, 491: MAKOWSKY (188): PERON (219) p. 517: WOLLEMANN (300): four varieties (p. 294), conical var. (pp. 291, 294); FORTIN (80): of Klein, specimens from Gravesend descr. (p. 961), of Rowe, discussed, his var. *latior* is the type of Klein & Leske (p. 962); LAMBERT in GROSSOUVRE (116). *M.* cf. *coranguinum*; SEMENOW (258) p. 15. *M. corbaricus*; GROSSOUVRE (116) p. 444: LAMBERT in GROSSOUVRE (116) p. 962: distrib.; LAMBERT (161) p. 22. *M. corbovis*, Rowe's conclusions accepted, distrib. in France (p. 962), *M. cordiformis* Desor, = *Cardiaster heberti* (p. 963), *M. cormarinum* (p. 963); LAMBERT in GROSSOUVRE (116). *M. cortestudinarium*; FORTIN (79): GROSSOUVRE (116) p. 490: MCPHERSON (186) p. 17: WOLLEMANN (298, 299, 302): (i.e. *decipiens*); GROSSOUVRE (116) pp. 19, 29: of Geinitz, 1872, fig. 2 alone = type, fig. 1 probably *M. leskei*, figg. 3, 4 not this sp., Rowe's interpretation disputed, his specimens = *M. decipiens*; LAMBERT in GROSSOUVRE (116) p. 964: "des géologues anglais correspond à *M. decipiens*. *M. cortestudinarium* Goldf. caractérise un niveau inférieur"; LAMBERT (162). *M. cuneatus* Hagenow, maintained; LAMBERT in GROSSOUVRE (116) p. 964. *M. decipiens*; GROSSOUVRE (116) pp. 121, 490, 542: (= *M. cor-testudinarium*); PERON (219) p. 517: compared with *M. maestrichtensis*; LAMBERT (163) p. 122. *M. fastigatus* Gauth., should probably incl. *M. gibbus* Roem., 1870, pl. xxxix, fig. 3; LAMBERT in GROSSOUVRE (116) p. 964: distinguished from *M. gibbus*; PERON (219) p. 532. *M. fortini*; LAMBERT in GROSSOUVRE (116) p. 965. *M. gibbus* (Lam.); loc. cit.: WOLLEMANN (300): of

Roem., v. *M. fastigatus*: of Stolley non Lam. = *M. fastigatus*; LAMBERT in GROSSOUVRE (116) p. 965: distinguished from *M. fastigatus*; PERON (219) p. 517: from Hainaut is doubtful; LAMBERT in GROSSOUVRE (116) p. 302. *M. glyphus*; WOLLEMANN (301): the French form probably var. of *M. brongniarti*; GROSSOUVRE (116) p. 19: of Stolley, 1891, does not = *M. glyphus* of either Cotteau or Schlueter, but approaches *M. schloenbachi*; LAMBERT in GROSSOUVRE (116) p. 965. *M. gottschei* Stolley, probably a large *M. schroderi*; op. cit. p. 966: of Font-de-Jarrier (Alpes-maritimes) incl. *M. brongniarti* var. *sismondae* Lamb., *M. pseudoglyphus* Grossouvre, and perhaps *M. schroederi* Stolley; PERON (219) p. 533. *M. haasi* Stolley, syn. of *M. brongniarti*; LAMBERT in GROSSOUVRE (116) p. 966. *M. icaunensis*; PERON (219) p. 517. *M. idae* maintained as a *Micraster*, not to be confounded with a *Brissopsis*; LAMBERT in GROSSOUVRE (116) p. 966: holotype in École des Mines, Paris, compared with *M. maestrichtensis*, distinguished from *Brissopsis cretacea* (= *Diplodetus cretaceus*); LAMBERT (163) p. 124. *M. integer* d'Orb. "une creation artificielle," therefore no constituent of *Isopneustes*; loc. cit. *M. laxoporus*; GROSSOUVRE (116) p. 17. *M.* cf. *laxoporus*; SEMENOW (258) p. 15, pl. i. *M. leskei*; HILL (130): PERON (219) pp. 508, 509: (Desm.) (= *M. breviporus* Auctt.) compared with *M. maestrichtensis* (p. 123), generally discussed (p. 126); LAMBERT (163): (Desm.) maintained against *M. breviporus* and Hebert's interpretation; LAMBERT in GROSSOUVRE (116) p. 966: of Hebert = *Brissopsis danicus*; loc. cit. & (163) p. 128: of Roem. 1870, does not agree with *leskei* Desm.; LAMBERT in GROSSOUVRE (116) p. 967: Rowe, 1892, agrees with Lambert's conclusions; loc. cit.: that quoted by d'Orbigny from Ciply, is really *M. maestrichtensis* not *M. ciplyensis*; LAMBERT (163) p. 123. *M.* (*Brissopneustes*) *maestrichtensis* **n. sp.**, Maestrichtian of Limbourg; LAMBERT (163) p. 122, pl. vi. *M. matheroni*; GROSSOUVRE (116) p. 444. *M. meunieri*, v. sub *Isomicraster*: also LAMBERT in GROSSOUVRE (116) p. 967. *M. michelini*; GROSSOUVRE (116) p. 17. *M. normanniæ*; FORTIN (79): compared with *M. maestrichtensis*; LAMBERT (163) p. 123: young quoted by Fallot must be *M. leskei*; PERON (219) p. 509. *M. praecursor* Rowe; HILL (130): SHEPPARD & STATHER (259): discussed as though it were supposed to be a species [although Rowe distinctly maintained that it was not a species—but then he gave it a specific name] and considered doubtful; LAMBERT in GROSSOUVRE (116) p. 967. *M. pseudoglyphus* Grossouvre **n. sp.**, syn. of *M. schroderi*; op. cit. p. 968. *M. rostratus*; FORTIN (82) p. 196. *M. schroderi* accepted; LAMBERT in GROSSOUVRE (116) p. 968. *M. senonensis*, v. sub *Isomicraster*. *M. sublacunosus* (Geinitz sub *Hemiaster*), not a *Micraster* at any rate, as Quenstedt thought; *M. ultimus* Mayer Eymar, probably a young *Linthia*; *M. ungula*, a *Hemiaster*: LAMBERT in GROSSOUVRE (116) p. 969. *M. valdivianus* Philippi is *Schizaster*; ORTMANN (212) p. 62.

Micrasterinae, a tribe of *Mesospatanginae*, = *Micraster* Auctt.; LAMBERT in GROSSOUVRE (116) p. 969: table showing characters of possible subgenera; LAMBERT (163) p. 125.

†*Microcidaris*, a genus of *Leiocidarinae*, Triassic; LAMBERT (161) p. 27.

†*Micropsis*, – *M. crucis* **n. sp.**, Middle Eocene, Croce grande (S. Giovanni Ilarione), with fig., *M.* (*Orthechinus*) *superba* (Dames sub *Cyphosoma*), discussed, *M.* (*Triplacidia*) *veronensis*; OPPENHEIM (210) p. 179.

Moera atropos, feeding; GRAVE (106).

Neospatanginae **n. subfam.** of *Brissidae*, comprising *Opissasterinae*, *Schizasterinae*, *Pericosminae*, *Brissopsinae*; LAMBERT in GROSSOUVRE (116) p. 969.

†*Nucleolites*,—*N. coravium* Ag. (sub *Nucleopygus*) distinguished fr. *N. minor* and *N. minimus* by LAMBERT; GROSSOUVRE (116) p. 288.

M. (!) *depressus*, perhaps young of *Cassidulus testudinarius*; OPPENHEIM (210) p. 196. *N.* (*Cassidulus*) *elatus* Forbes 1845, type; GEOL. SOC. LONDON (101) p. 43. *N. ovulum* Eichw. 1871, referred to *Cassidulus* (p. 12) and to *Micraster* (p. 16); SEMENOW (258). *N.* (*Pygorhynchus*) *planatus* and *N.* (*Pygorhynchus*) *testudo*, types of Forbes 1845; GEOL. SOC. LONDON (101) p. 43. *N. truncatulus* Eichw. 1871, referred to *Ceratomus*; SEMENOW (258) p. 11.

†*Offaster*,—*O.* sp.; ABICH (1) p. 16. *O. pilula*, op. cit. p. 15, pl. i: REID (232) p. 2, and figg. 1–3: SHERBORN (260): of English Marsupite Chalk is not *O. corculum* as supposed by Barrois; GROSSOUVRE (116) p. 276. *O. rostratus*; ABICH (1) p. 15, pl. i. *O. sphaericus* Schl., is an *Echinocorys*; LAMBERT in GROSSOUVRE (116) p. 971.

†*Oligoporus*,—*O. coreyi*, descr. (p. 183), *O. danae*, descr. (p. 182, pl. xx), *O. mutatus*, descr. (p. 183, pl. xviii), *O. nobilis*, descr. (p. 182), *O parvus*, descr. (p. 183); KEYES (151).

†*Oolaster maltensis* is an *Echinocorys*, allied to *Galeola pyrenaica*; LAMBERT in GROSSOUVRE (116) p. 971.

†*Oolopygus* discussed; SCHLUETER (252) p. 324: LAMBERT in SAVIN (247) p. 7. *O. savini* **n. sp.**, Turonian, Montagne des Cornes (Aude), type in Coll. Savin; LAMBERT, op. cit. p. 6, pl. iii.

†*Opissaster* discussed; GAUTHIER (96) p. 143: LAMBERT in Review. *O. douvillei* **n. sp.**, Senonian, Kanepan, Persia; GAUTHIER (96) p. 141, pl. xx. *O. fourtaui* **n. sp.** for specimens from Gebel Haridi, refd. by Fourtau to *Ditremaster nux*; LAMBERT (161) p. 41. *O. morgani*, large size, 4 genital pores; GAUTHIER (96) p. 142, pl. xx. Vide etiam sub *Ditremaster* or *Hemiaster*.

†*Oppenheimia gardinalei*; OPPENHEIM (210) p. 268.

†*Orthechinus cotteaui* **n. sp.**, Upper Senonian, Teng-è-Hiana, Persia; GAUTHIER (96) p. 152, pl. xx. Vide etiam sub *Micropsis*.

†*Orthopsis*,—*O. miliaris*, descr. (p. 52, pl. v), *O. perlata*, var., p. 56, pl. v; KOSSMAT (159). *O. repellini*, small specimen, distrib.; LAMBERT (161) p. 12.

†*Oviclypeus lorioli*; OPPENHEIM (210) p. 188.

†*Palaechinus*,—*P. burlingtonensis* and *P. gracilis*, descr.; KEYES (151) p. 180. *P. sphaericus*; HIND (131) pp. 426, 427.

Palaeopneustes,—†*P.* (?) *conicus*, generic reference discussed; OPPENHEIM (210) p. 221. *P. hemingi*, resemblance to *P. cristatus*; ALCOCK (5) p. 168 and fig.

†*Parabrissus pseudoprenaster*; OPPENHEIM (210) p. 262.

Parapygus Pomel, syn. of *Bothriopygus*; GAUTHIER (96) p. 144.

†*Peltastes*,—*P. acanthoïdes*; MICHALET (203) p. 579. *P. archiaci*; LAMBERT (161) p. 13.

†*Pericosmus*,—*P. bastennensis*, apical system figd,; CHECCHIA (41). *P. douvillei* **n. sp.**, Upper Eocene, Mollah Ghiavan, Persia; GAUTHIER (96) p. 169, pl. xxii. *P. montevialensis*, descr., incl. specimen referred to *P. spatangoides* by Airaghi (4) Zool. Rec. 1899; AIRAGHI (3) p. 384: distinguished from *P. spatangoides*, perhaps incl. *P. marianii* Airaghi, *P. callosus* Manz., and *Periaster capellinii* Laube; OPPENHEIM (210) p. 255. *P. nicaisei* **n. var.** *excelsa*, Upper Eocene, Mollah Ghiavan, Persia; GAUTHIER (96) p. 167, pl. xxiii. *P. spalatinus* **n. sp.**, Eocene, Botticelle, Dalmatia; MARTELLI (193) p. 94, pl. vii. *P. spatangoides*, descr.; CHECCHIA (40) p. 68, incl. *Spatangus suborbicularis* Quenst and *Macropneustes schweinfurthi* May.-Eym.; OPPENHEIM (210) p. 254, pl. vii.

†*Perischodomus illinoisensis*, discussed, genus doubtful; KEYES (151) p. 191.

Phalacrocidaris **n. g.** of *Leiocidarinae*, with genotype *Stereocidaris japonica* Doed., and comprising *P. grandis* (Doed.), *P. sceptriferoides*

(Doed.), *P. atropha* (Gauth.), *P. reussi* (Geinitz), *P. punctillum* (Sorig.), *P. silesiaca* (Schluet.), *P. subhercynica* (Schluet.), *P. darupensis* (Schluet.), *P. nummulitica* (Sism.), and †*P. gauthieri* **n. sp.**, Eocene of Montserrat; LAMBERT (161) p. 27, pl. i.

†*Phaleropygus*, **n. g.** allied to *Echinanthus* and *Ilarionia* (p. 15), with genotype *P. oppenheimi* **n. sp.**, Burdigalian near Mus (Gard); LORIOL (176) p. 16, pl. iii.

†*Pholidocidaris irregularis*, descr.; KEYES (151) p. 180.

Phormosoma placenta; ALBERT (4) p. 962: RICHARD (238) pp. 82, 89.

†*Phyllobrissus* used as a generic name although distinctly regarded as a subgenus of *Catopygus* (p. 15), *P. gresslyi*, slight variation (p. 15), *P. kiliani* **n. sp.**, Aptian, Barcelona (p. 14, pl. i); LAMBERT (161).

†*Phymosoma*,—*P. almerai* **n. sp.**, Eocene of Barcelona, passage form to *Lambertechinus* (p. 36, pl. ii), *P. loryi*, distrib. (p. 13); LAMBERT (161). *P. nummuliticum* D'Archiac & Haime 1853, type; GEOL. SOC. LONDON (101) p. 44. *P. radiatum*; FORTIN (80) p. 294. Vide etiam *Cyphosoma*.

†*Pironaster roemeri*, distinguished from *P. abbreviatus* and *P. vulgaris*; SCHLUETER (252) p. 326. Vide etiam sub *Galerites*.

†*Plegiocidaris blumenbachi*; LAMBERT (161) p. 5.

†*Plesiaster*, discussed; LAMBERT in GROSSOUVRE (116) p. 969.

†*Plesiospatangus cotteaui*, apical system figd.; CHECCHIA (41).

Porocidaris Desor, should not include the recent deep-sea forms referred to it by Wyville-Thomson, Al. Agassiz et alii; OPPENHEIM (210) p. 174. *P. purpurata*; RICHARD (238) p. 83. †*P. ruinae* **n. sp.** Lower Eocene, Spilecco horizon near Bassano (p. 173, pl. viii), †*P. schmideli* (p. 173); OPPENHEIM (210).

†*Prenaster*,—*P. alpinus* and *P. bericus*; OPPENHEIM (210) p. 263. *P. excentricus* Wright, figd. Wright 1866; GEOL. SOC. LONDON (101) p. 32.

Prospatangidae **n. fam.** Lamb. = *Spatangidae* Cott.; LAMBERT in GROSSOUVRE (116) p. 969.

Prospatangus **n. g.** = "*Spatangus* tel qu'on le comprend depuis Gray"; LAMBERT (161) p. 55.

Psammechinus,—†*P.* sp.; DEYDIER (68) pp. 321, 326. †*P. biarritzensis* (Cott. sub *Micropsis*); OPPENHEIM (210) p. 183. †*P. calarensis*; LOVISATO (177) p. 13. †*P. hispaniae* **n. sp.**, Eocene of Barcelona; LAMBERT (161) p. 37, pl. ii. *P. miliaris*; GADEAU DE KERVILLE (91) p. 178.

†*Pseudananchys*, —*P. latissima*, vide sub *Holasteriopsis*. *P. persica*, probably Aptian; GAUTHIER (96) p. 111. Vide etiam sub *Holaster*.

†*Pseudholaster* Pomel, rejected; GAUTHIER (96) p. 111.

†*Pseudocidaris*,—*P. punctatissima*, spine descr.; BROILI (33) p. 605, pl. i: see also UHLIG'S Abstract. *P. quenstedtii*; SCHMIERER (254) p. 573.

†*Pseudodiadema*,—*P. aequale* and *P.* ? *caliculum* (p. 573), *P. complanatum* (p. 582); SCHMIERER (254). *P. depressa*; STRUEBIN (273) p. 73. *P. guerangeri*; MICHALET (203) p. 583. *P. lobatum*; REYNOLDS & VAUGHAN (236) p. 720. *P.* (*Diplopodia*) *marticense*; KOSSMAT (159) p. 53, pl. v. *P. octoceps*; SCHLOSSER (251) p. 531. *P. rotulare*; ABICH (1) p. 21, pl. iii. *P. rotulare*; BOGDANOWITSCH (25) p. 67. *P. subangulare*; SCHMIERER (254) pp. 573, 588. *P. texanum*; HILL (129) p. 226, pl. xxvii. *P. versipora*; REYNOLDS & VAUGHAN (236) p. 749.

†*Pseudoepiaster* Seunes, rejected; LAMBERT (163) p. 126: syn. of *Epiaster*; LAMBERT in GROSSOUVRE (116) p. 970.

†*Pseudosalenia aspera*; SCHMIERER (254) p. 584.

†*Pygaster speciosus*; SCHMIERER (254) p. 588.

†*Pygaulus*,—*P.* sp.; SEMENOW (258) p. 11. *P. desmoulini*, variations from

Barremian of Savoy (p. 4, pl. i), *P. numidicus*, from Barremian of Savoy (p. 5, pl. i); LORIOL (176).

†*Pygorhynchus mayeri*; OPPENHEIM (210) p. 197. Vide etiam sub *Nucleolites*.

†*Pyguropsis* **n. g.**, to receive *Pygurus noetlingi*; LORIOL (176) p. 32.

†*Pygurus*, —*P. libanensis* **n. sp.**, Cenomanian of Lebanon; LORIOL (176) p. 31, pl. iv: referred to s.g. *Astrolampas*; LAMBERT in Review. *P. loryi*, redescr. and now first figd.; SAVIN (247) p. 8, pls. ii, iii. *P. noetlingi*, vide *Pyguropsis*.

†*Pyrina*,—*P. ataxensis*; LAMBERT (161) p. 22: St Sirac, Pyrenees, wrongly referred by Cotteau, 1887, to *P. ovulum*; GROSSOUVRE (116) p. 430. *P. ilarionensis*; OPPENHEIM (210) p. 194. *P. incisa*; ABICH (1) p. 21, pl. iii. *P. orbignyana*; SEMENOW (258) p. 11. *P. ovulum*, 6 rays; SEGUIN (257). *P. petrocoriensis*, specimen so quoted by Cotteau, 1887, from St Sirac, Pyrenees, is doubtfully this sp.; GROSSOUVRE (116) p. 430.

†*Rhabdocidaris*,—*R. delgadoi*, discussed (p. 15), *R. gevreyi* **n. sp.**, Valanginian of Malleval (Isère), type in coll. Gevrey, radioles only (p. 17, pl. iv); SAVIN (247). *R.* (*Leiocidaris*) *granulata* **n. sp.**, Mid Eocene, Soh, between Kachan and Ispahan; GAUTHIER (96) p. 183, pl. xxiii. *R. horrida*; STRUEBIN (273) p. 64. *R. maxima*; SCHLOSSER (251) p. 553. *R. mespilum*=*Cidaris pseudoserrata*; OPPENHEIM (210) p. 173. *R. mitrata*; SCHMIERER (254) pp. 582, 584, 588. *R.* (*Leiocidaris*) *morgani* **n. sp.**, Louristan; GAUTHIER (96) p. 145, pl. xx. *R. nobilis* (pp. 573, 582, 584, 588), *R. orbignyana* (p. 573); SCHMIERER (254). *R. pavimentatus*, radiole descr. (p. 13, pl. iii), *R. petitclerci* **n. sp.**, Valanginian of Malleval (Isère), type in coll. Savin, radioles only (p. 18, pls. i, iv), *R. salvoe* [sic passim] Nicklès 1892, radioles discussed (p. 16, pls. iii, iv); SAVIN (247). *R. tirsiger*, radiole from Les Angles (Gard) descr.; LORIOL (176) p. 10, pl. iv. *R. triaculeata*, *R. tricarinata*, *R. triptera*, and *R. trispinata*; SCHMIERER (254) p. 573. Vide etiam sub *Cidaris*.

Rhynchopygus,—†*R. disasteroides* Duncan 1876, type; GEOL. SOC. LONDON (101) p. 73. †*R. gauthieri* **n. sp.**, based on *R. marmini* Cott., 'Ech. Sarthe,' pl. lxiv, figg. 8–15, non Desm., Senonian, *Marsupites* zone Villedieu (p. 345), †*R. marmini* (p. 78); GROSSOUVRE (116). *R. pacificus*; CLARK (48) p. 527.

†*Rocasendia* rejected, syn. of *Hypsospatangus*; CHECCHIA (39): Checchia's criticism confirmed; OPPENHEIM (211) p. 69: genus maintained; AIRAGHI (3) p. 388.

†*Salenia*, —*S. areolata* incl. *S. loveni*, the type of *Trisalenia*, which therefore falls; SCHLUETER (252) p. 309. *S. cossiaea*, high test; GAUTHIER (96) p. 149, pl. xviii. *S. granulosa*; WOLLEMANN (302). *S. obnupta*; WOLLEMANN (300). *S. prestensis*; LAMBERT (161) p. 13. *S. tertiaria* Tate 1877, type; GEOL. SOC. LONDON (101) p. 74.

Salenidae, degenerate from irregular ancestors; JAEKEL (134) p. 1085.

Salmacis bicolor, commensal gastropod; BELL (19) p. 231.

†*Sarsella*, —*S.* cf. *anteroalta*; SCHAFFER (250) pp. 23, 28. *S. lorioli* **n. sp.**, Eocene of Barcelona, allied to *Lovenia* and *Tuberaster*; LAMBERT (161) p. 56, pl. iv. '*S. tuberosa* Fraas' of FOURTAU (119) Zool. Rec. 1901, probably=*Maretia fuchsi* Oppenh.; BLANCKENHORN in Review.

Schizaster, the type is the form with ambulacral pores simple, unpaired; LAMBERT in GROSSOUVRE (116) p. 970.

†*Schizaster*, —*S.* sp.; DEYDIER (68) p. 326: MARTELLI (193), p. 94, pl. vii: SCHAFFER (250) p. 29. *S. airaghii* **n. sp.**, Middle Oligocene, Mt. Trapolino di Verlaldo, figd. by Airaghi as *S. studeri* (p. 253), *S. ajkaensis* **n. sp.**, Middle Eocene of Ajka in Bakony (p. 251 & fig.); OPPENHEIM (210). *S. ameghinoi*, redescr.; ORTMANN (212) p. 62,

pl. xiii: the figures do not belong to the same sp., and neither is this sp.; LAMBERT in Review. *S. ambulacrum*, descr., distinguished fr. *S. africanus*; CHECCHIA (40) p. 64, pl. ii: differs from the form in the Biarritz Oligocene, and is probably *S. lucidus*; LAMBERT in Review: distinguished fr. *S. archiaci*; OPPENHEIM (210) p. 245. *S. archiaci* probably incl. *S. rana* Mazz., discussed; op. cit. p. 243: descr.; CHECCHIA (40) p. 59, pl. ii: differs from the St. Palais form; LAMBERT in Review. *S. beloutchistanensis* D'Archiac & Haime 1853, type; GEOL. SOC. LONDON (101) p. 45. *S. bouziguensis* **n. sp.**, Helvetian of Hérault; LORIOL (176) p. 26, pl. iv. *S. canaliculatus*, incl. both *S. antiquus* and *Hemiaster canaliculatus* of Upper Garumnian; GAUTHIER in GROSSOUVRE (116) p. 421.

Schizaster fragilis, large specimen measured; GRIEG (113) p. 32.

†*Schizaster*,—*S. globulus*, discussed, probably incl. *Spatangus oblongus italicus* Quenst.; OPPENHEIM (210) p. 244. *S.* cf. *karreri*; SCHAFFER (250) pp. 23, 28. *S. leymeriei*, slight differences from type; LAMBERT (161) p. 45. *S. lucidus*; op. cit. p. 46: OPPENHEIM (210) p. 252. *S. montserratensis* **n. sp.**, Eocene of Montserrat; LAMBERT (161) p. 42, pl. iii. *S. newboldi* D'Archiac & Haime 1853, type; GEOL. SOC. LONDON (101) p. 45. *S.* cf. *parkinsoni*; SCHAFFER (250) pp. 23, 24, 28. *S. persicus* **n. sp.**, Mid Eocene, Louristan; GAUTHIER (96) p. 176, pl. xxii. *S. postalensis* (p. 253), *S. princeps* (p. 243); OPPENHEIM (210). *S. pyrenaicus*, and *S. rimosus*; LAMBERT (161) p. 44: probably not this sp.; LAMBERT in Abstract: redescr.; GAUTHIER (96) p. 174, pl. xxiii. *S. roemeri* discussed; SCHLUETER (252) p. 328. *S. santae-manzae*; SCHAFFER (250) pp. 23, 28. *S. spado* **n. sp.**, Eocene of Catalonia, based on a specimen with only one genital pore; LAMBERT (161) p. 46, pl. iv. *S. studeri*, distinguished fr. *S. rimosus*, and fr. *S. africanus*; OPPENHEIM (210) p. 246: descr., distinguished fr. *S. africanus*; CHECCHIA (40) p. 61, pl. ii: agrees with Agassiz' type, but not with Sismonda's; LAMBERT in Review: of CHECCHIA (40) probably is *S. archiaci*; OPPENHEIM (211) p. 71. *S. vicinalis*, descr.; CHECCHIA (40) p. 66: redescr., 4 genital pores; GAUTHIER (96) p. 172, pl. xxiii: discussed, specimen from Ajka referred to *S. ajkaensis*; OPPENHEIM (210) p. 250. *S.* aff. *vicinalis*; SCHAFFER (250) pp. 23, 28. *S. vidali* **n. sp.**, Eocene of Barcelona; LAMBERT (161) p. 43, pl. iii.

†*Scutella* not to be distinguished from *Echinarachnius*; ORTMANN (212). *S. agassizi* **n. sp.** for *S. striatula* Ag. non Serres, Middle Oligocene, Asterias limest. of Gironde; OPPENHEIM (211) p. 68. *S. bonali* **n. sp.** ex Tournouer MS., Aquitanian of Pindères (Lot-et-Garonne); LORIOL (176). p. 20, pl. iii. *S circularis* may be ♀ *S. faujasi*; ORTMANN (212) p. 59. *S. faujasi*; DEYDIER (68) p. 326: LEBESCONTE (164) p. 279. *S. geometrica* Bravard [but probably **n. sp.**] Tertiary, Punta de las Ninfas, Rio Chubut, Patagonia; PHILIPPI (223) p. 15, pl. ii f. 5. *S. jacquemeti* **n. sp.**, Helvetian near Lespignan (Hérault); LORIOL (176) p. 17, pl. ii: is this not the true *S. striatula* Serres?; LAMBERT in Review. *S.* cf. *jacquemeli* [sic]; DEYDIER (68) p. 321. *S. leognanensis* **n. sp.** based on *S. subrotunda* from Bordeaux; LAMBERT in Review of AIRAGHI (3). *S. lovisatoi* Lambert MS.; LOVISATO (177) p. 13. *S. melitensis* **n. sp.**, Miocene, Malta, form hitherto referred to *S. subrotunda* or *S. striatula*, distinguished from them and from *S. faujasi*, *S. propinqua*, and *S. paronai*; AIRAGHI (3) p. 377, pl. xv: but the name is not new, and the form is the type of *S. subrotunda*; LAMBERT in Review. *S. patagonensis* descr., incl. *Echinarachnius juliensis* Desor, should not form type of separate genus *Iheringina*, modes *alatus* and *rotundatus* discussed, movement of anus with growth; ORTMANN (212) p. 55, pl. xi. *S. paulensis* (p. 321), *S.* cf. *paulensis* (p. 314); DEYDIER (68). *S. striatula* discussed; AIRAGHI (3) p. 377: what is

it? "eine grundlegende und kritische Sichtung des bereits bekannten Materials nötiger wäre als die zahlreichen Neuschöpfungen von in ihrer Existenz sehr zweifelhaften Formen.....ich werde daher [!] die letztere [*S. striatula* Ag.] als *S. agassizi mihi* bezeichnen"; OPPENHEIM (211) p. 68. *S. subrotunda*; DEYDIER (68) pp. 321, 326: discussed; AIRAGHI (3) p. 377. *S. subrotundaeformis*, descr.; op. cit. p. 375, pl. XV: distinguished from *S. subrotunda*, measurements of ambulacra; OPPENHEIM (210) p. 192. *S. subtetragona*; DOUVILLÉ (71) p. 31. *S. tenera*; PATRINI (213): incl. *S. cavipetala*; OPPENHEIM (210) p. 192. *S. vindobonensis*; ROTH v. TELEGD (242) p. 99.

†*Sismondia*,—*S. ombonii* **n. sp.**, Middle to Upper Eocene near Verona, cotypes in Univ. Padua (p. 189, pl. ix), *S. rosacea* (p. 189); OPPENHEIM (210). *S. saemanni* **var. nov.** *minor*; FOURTAU (83).

Spatangoidea, divided into 6 famm.:—*Ananchitidae*, *Pourtalesiadae*, *Oeropidae*, *Toxasteridae*, *Brissidae*, *Prospatangidae*; LAMBERT in GROSSOUVRE (116) p. 969.

Spatangus ascribed to Klein 1734, or at least to Leske 1778, and the genotype said to be "le plus anciennement connu des Spatangues vivants, celui de la Méditerranée", and distinguished from n. g. *Prospatangus* (q. v.); LAMBERT (161) p. 54: vide etiam *Mariania*. †*S. acuminatus* Goldf., figd. Grant 1840; GEOL. SOC. LONDON (101) p. 36. †*S. almerai* **n. sp.**, Eocene of Barcelona; LAMBERT (161) p. 54, pl. iii. †*S. britannus*; LEBESCONTE (164) p. 279: PICQUENARD (224). *S. canavarii*; MARIANI (190) p. 321. †*S.* cf. *deydieri*; DEYDIER (68) p. 314. †*S. elongatus* Grant 1840, type; GEOL. SOC. LONDON (101) p. 36. †*S. euglyphus*, descr.; AIRAGHI (3) p. 386: formerly referred by author to *Euspatangus ornatus*, perhaps incl. "*S. purpureus* Müll." Mazzetti; OPPENHEIM (210) p. 272. †*S. excentricus*; LENEY (167) p. 227. †*S. hieroglyphicus*, probably syn. of *Micraster leskei*; LAMBERT in GROSSOUVRE (116) p. 970. †*S. lacunosus* Goldf. = *Hemiaster amplus* Desor, is perhaps *Opissaster*; GAUTHIER (96) p. 143. †*S. leskei* Desm. v. *Micraster leskei*. †*S. loncophorus*; OPPENHEIM (210) p. 273. †*S. obliquatus* Grant 1840, type; GEOL. SOC. LONDON (101) p. 36. *S. purpureus*; GRIEG (113) p. 33: commensal, habitat, food for fish; PEARCEY (218) p. 317. †*S. pustulosus* Wright 1866, type; GEOL. SOC. LONDON (101) p. 32. *S. raschi*, distrib.; GRIEG (113) p. 33. †*S. ungula* Morton, is a *Hemiaster*; LAMBERT in GROSSOUVRE (116) p. 970.

Sperosoma grimaldii; ALBERT (4) pp. 962 & 963: RICHARD (238) pp. 83, 88, 89.

Sphaerechinus granularis, movement of spermatozoa; BULLER (38) p. 151: fertilisation; DUNGERN (75): larva; STEINBRÜCK (267): II, F, viii; FREDERICQ (85).

†*Stenonia morgani* **n. sp.**, Aptian?, Kouh Valamtar, Persia; GAUTHIER (96) p. 123, pl. xviii: is rather a *Jeronia*; LAMBERT in Review.

†*Stereocidaris*,—*S. reussi*; WOLLEMANN (302). *S. subhercynica*; WOLLEMANN (299 & 302).

Stigmatopygus, vide *Cyrtoma*.

†*Stomechinus perlatus*; SCHMIERER (254) pp. 573, 585.

Stricte-infundibulati, v. sub *Clypeaster*.

Strongylocentrotus droebachiensis; PEARCEY (218) p. 316: incl. *S. pallidus* as var.; GRIEG (113) p. 32: arsenic; BERTRAND (21): habitat, general account, locomotion, digestive fluids, food; SCOTT (256). *S. erythrogrammus*; SAYCE (248) p. 150. *S. gibbosus*; CLARK (48) p. 526. *S. lividus*; GOURRET (104): II, C, vii; PRZIBRAM (228): movement of spermatozoa; BULLER (38) p. 151: fertilisation; DUNGERN (75): see II, F, iv; GALEOTTI (92): larva; STEINBRÜCK (267): see II, F, viii; BOVERI (29) p. 72: CUENOT (53) p. 115;

DELAGE (59): GIARDINA (102): WASSILIEFF (293). †*S. purpuratus*; ARNOLD (13) pp. 126, 130, 134.

†*Temnechinus lineatus* Duncan 1876, type; GEOL. SOC. LONDON (101) p. 73.

Temnopleurus,—†*T. costatus* (p. 45), †*T. hookeri* (p. 44), †*T. rousseaui* (p. 45): types of D'Archiac & Haime 1853; GEOL. SOC. LONDON (101). *T. toreumaticus*; BELL (19) p. 231. †*T. valenciennesi* D'Archiac & Haime 1853, type; GEOL. SOC. LONDON (101).

†*Tetragramma* Ag., probably incl. *Diplopodia* M'Coy (q. v.); LAMBERT (161) p. 6.

Tholaster, vide sub *Gibbaster*.

†*Thylechinus*, incl. *Gagaria*, subgen. of *Micropsidia*; op. cit. p. 38.

†*Tiarechinus*, not ancestral, but degenerate from *Lepidocentridae*; BATHER (14A) p. 619: existence of 3 interambulacrals not atavistic but metakinetic; JAEKEL (134) p. 1104.

†*Toxaster*,—*T. collegnoi* and its variations discussed; LAMBERT (161) p. 17. *T. complanatus*=*Spatangus retusus*; DEYDIER (68) p. 307. *T.* cf. *complanatus*; BOGDANOWITSCH (25) p. 67. *T. dieneri*, not to be separated from the genus; LAMBERT (161) p. 18. *T. granosus*, var. *lata*; GENTIL (100). *T. kiliani*, introduced as "Lambert, 1895" but apparently **n. sp.**, Valanginian near Moustiers (Alpes maritimes), formerly referred to *T. granosus*; SAVIN (247) p. 4, pls. i, ii. *T. retusus* (Lam.)=*T. cordiformis* Auctt., name preferred to *T. complanatus* Gmelin, which is not a *Toxaster*; LAMBERT (161) p. 18.

Toxasteridae **n. fam.** Lamb.=*Echinospatangidae* Cott.; LAMBERT in GROSSOUVRE (116) p. 969.

†*Toxobrissus*,—*T. lonigensis* (p. 263), *T. lorioli* (p. 264), *T. schaurothi* **n. sp.** based on "*Brissopsis elegans* D'Arch." Schauroth, horizon uncertain (p. 263); OPPENHEIM (210).

Toxopneustes pileolus?, 1200 at single haul in 35 fms., variation with depth; RITTER (241) p. 61. †*T. praecursor*, descr., perhaps incl. *Hypechinus patagonicus* v. Ihering; ORTMANN (212) p. 53: not a true *Toxopneustes*, but *Anapesus* and therefore no precursor; LAMBERT in Review. *T. semituberculatus*; CLARK (48) p. 526.

†*Trachypatagus*,—*T. hantkeni* (Pavay sub *Macropneustes*) incl. *Hypospatangus peroni* Mazz.; OPPENHEIM (210) p. 267. *T. meneghinii* (Desor); OPPENHEIM (209) p. 276: **n. var.** *humilis*, Middle Oligocene, Castelgomberto; OPPENHEIM (210) p. 265, pl. vii.

Tretodiscus, vide sub *Amphiope*.

Triplacidia, vide sub *Micropsis*.

Tripneustes angulosa; BELL (19) p. 231.

Trisalenia, based on a mistaken figure of Cotteau's, vide sub *Salenia*; SCHLUETER (252) p. 309.

†*Tylocidaris*,—*T. clavigera*; PERON (219) p. 509. *T. strombecki*, spine, incl. *C. dixoni*; LAMBERT (161) p. 6.

(D.)—ASTEROIDEA.

Acanthaster echinites; BELL (19) p. 226. *A. ellisi*; CLARK (48) p. 524.

†*Arthraster senonensis* **n. sp.**, Senonian, zone of *Offaster pilula*, Sens, coll. Valette; VALETTE (283) p. 23 & fig.

†*Aspidosoma petaloides*, text-fig.; FRITEL (87).

Asterias, key to Japanese spp.; DOEDERLEIN (70) p. 331. *A. antarctica*; BELL (17) p. 215. *A. calamaria* **n. var.** *japonica*, 20 metres; DOEDERLEIN (70) p. 332. †*A.* (!) *digitata*; SCHMIERER (254) pp. 572, 587. *A. forbesi*, II, F, viii; LOEB (172). *A. glacialis*; GOURRET (104): GRIEG (113) p. 29: movement of spermatozoa; BULLER (38) p. 151: fertilisation; DUNGERN (75): experiments and abnormalities; DELAGE

(65): II, F, viii; GREELEY (109): LOEB & LEWIS (173): FREDERICQ (85): see also II, F, iii. *A. hispida*, food of fish; PEARCEY (218) p. 311. *A. japonica* incl. *A. torquata*, redescr., colour in life; DOEDERLEIN (70) p. 335. *A. lincki*, distrib., measurements; GRIEG (113) p. 29. †*A. lunatus*; LENEY (167) p. 227. *A. muelleri*; GRIEG (113) p. 29: brooding; MASTERMAN (195) p. 374. *A. murrayi*; PEARCEY (218) p. 311. *A. neglecta*; BELL (17) p. 215. *A. nipon* **n. sp.**, Japan (p. 334 no fig.), *A. rollestoni* incl. *A. amurensis* and ?*A. versicolor*, redescr., colour in life (p. 333); DOEDERLEIN (70). *A. rubens*; GRIEG (113) p. 30: PEARCEY (218) p. 311: FORTIN (81): pigment; DUBOIS (73): var. *attenuata*, food of fish; PEARCEY (218) p. 311. *A. satsumana* **n. sp.**, 20 metres, Japan (p. 334, no fig.), *A. volsatella* **n. var.** *sakurana*, 40 metres, Japan (p. 332); DOEDERLEIN (70).

Asterina cepheus; BELL (19) p. 227. *A. gibbosa*; GADEAU DE KERVILLE (91) p. 177: GOURRET (104). *A. pectinifera*, colour in life; DOEDERLEIN (70) p. 330.

Astrogonium pretiosum **n. sp.**, 20–30 metres, Japan; DOEDERLEIN (70) p. 326, no fig.

Astropecten, key to Japanese spp.; DOEDERLEIN (70) p. 327. *A. aurantiacus*, histology; SCHNEIDER (255) pp. 643–661: fertilisation; DUNGERN (75): II, C, vii; PRZIBRAM (228). *A. erinaceus*?, variation; RITTER (241) p. 61. *A. indicus*; BELL (19) p. 228. *A. irregularis*; GRIEG (113) p. 20: food of fish; PEARCEY (218) p. 307. *A. kagoshimensis*, redescr. with **n. var.** *kochiana*, 100 metres, Kochi in Shikoku (p. 329), *A. latespinosus*, redescr. (p. 330), *A. ludwigi*, incl. *A. japonicus* Ives, redescr. (p. 328); DOEDERLEIN (70). †*A. nodotianus*, text-fig.; FRITEL (87). *A. polyacanthus*; BELL (19) p. 228: incl. *A. armatus*; DOEDERLEIN (70) p. 329. †*A. priscus*; SCHLOSSER (251) p. 553. †*A. rectus*, text-fig.; FRITEL (87). *A. scoparius*, incl. "*A. japonicus* M. & T." Sladen, redescr.; DOEDERLEIN (70) p. 328.

Brisinga sp.; ALCOCK (5) p. 285. *B. coronata*, distrib., colour in life (p. 30), *B. endecacnemos* (p. 31); GRIEG (113).

Choriaster sp. parasite; KÜKENTHAL (160).

†*Coelaster couloni*, text-fig.; FRITEL (87).

Cribrella oculata, development; MASTERMAN (195). *C. sanguinolenta*; GADEAU DE KERVILLE (91) p. 177: PEARCEY (218) p. 310 (sub *Henricia*): incl. *Echinaster scrobiculatus*; GRIEG (113) p. 28: incl. *C. densispina* Slad.; DOEDERLEIN (70) p. 331.

Ctenodiscus crispatus; GRIEG (113) p. 19.

Culcita schmideliana; CLARK (48) p. 524.

Cycethra simplex, incl. *C. electilis*, *C. nitida*, and *C. pinguis* of Sladen, and *C. elongata*, *C. media*, *C. asterina*, *C. subelectilis*, *C. calva*, *C. regularis*, and *C. asteriscus* of Perrier; BELL (17) p. 215.

Echinaster scrobiculatus is young of *Cribrella sanguinolenta*; GRIEG (113) p. 28. *E. sepositus*, histology; SCHNEIDER (255) p. 652: movement of spermatozoa; BULLER (38) p. 151.

Fromia milleporella; BELL (19) p. 227.

†*Goniaster*,—*G. jurensis*; SCHMIERER (254) pp. 573, 588. *G. radians*, text-fig.; FRITEL (87).

†*Goniodiscus parkinsoni*, text-fig.; FRITEL (87): descr.; VALETTE (283) p. 7 & fig.

Gymnasterias valvulata Perr., perhaps young *G. carinifera* or *Nidorellia*; CLARK (48) p. 524.

Heliaster cumingi (p. 523), *H. multiradiata* (p. 524); CLARK (48).

Henricia, vide sub *Cribrella*.

Hippasteria phrygiana, distrib., local varr.; GRIEG (113) p. 21: 4 rayed; PEARCEY (218) p. 308.

Hyphalaster sp., 3890 metres; ALBERT (4) p. 963. *H. parfaiti*, 6035

metres; ALBERT (4) p. 962: 7000 metres, C. Verde; RICHARD (238) p. 86.

Lasiaster hispidus, distrib., measurements, variations, colour in life, perh. incl. *Poraniomorpha borealis* Verrill; GRIEG (113) p. 22, pl.

Leptoptychaster arcticus; GRIEG (113) p. 19.

Linckia guildingii; VERRILL (285) p. 36. *L. laevigata*; BELL (19) p. 226. *L. miliaris*, parasite; KÜKENTHAL (160). *L. multiforis*; BELL (19) p. 226.

Luidia bellonae; CLARK (48) p. 522. *L. ciliaris*; PEARCEY (218) p. 308. *L. clathrata*; VERRILL (285) p. 36. *L. columbiae*, specimens agreeing with *L. tesselata*, which ap. Sladen is syn. of this sp.; CLARK (48) p. 522. *L. maculata*; BELL (19) p. 228: measured; DOEDERLEIN (70) p. 330. *L. quinaria*, incl. *L. limbata* Slad.; loc. cit. *L. sarsi*; PEARCEY (218) p. 308.

Metopaster Slad., syn. of *Goniodiscus*; VALETTE (283) p. 7.

Milteliphaster woodmasoni; ALCOCK (5) p. 287.

Mithrodia clavigera; BELL (19) p. 227.

†*Mitraster hunteri*, descr.; VALETTE (283) p. 13 & fig.

Nardoa semiregularis var. *japonica*, colour in life; DOEDERLEIN (70) p. 331.

Nidorellia armata; CLARK (48) p. 523.

Nymphaster florifer; ALCOCK (5) p. 285 & fig.

Odontaster meridionalis; BELL (17) p. 216.

Ophidiaster cylindricus; BELL (19) pp. 226, 227: pigment; MACMUNN (185) p. 189. *O. pustulatus*; VOELTZKOW (289) p. 565.

Oreaster, vide sub *Pentaceros*.

†*Palaeaster*,—*P. clarkanus* (p. 79), *P. dubius* (p. 62), *P. dyeri* (p. 79); NICKLES (207). *P. eucharis*; SHIMER (262) p. 184. *P. exculptus* [sic] (p. 91), *P. finei* (p. 70), *P. granulosus* (p. 79), *P. harrisi* (p. 91), *P. incomptus* (p. 84), *P. jamesi* (p. 79), *P. longibrachiatus*, *P. magnificus*, *P. miamiensis* (p. 91), *P. shafferi* (p. 79), *P. simplex* (p. 91), *P. spinulosus* (p. 84); NICKLES (207).

†*Palaeasterina*,—*P. approximata* and *P. speciosa*; NICKLES (207) p. 91.

Palmipes placenta; PEARCEY (218) p. 309.

Paulia horrida; CLARK (48) p. 523.

Pedicellaster atratus; ALCOCK (5) p. 287. *P. sexradiatus*, arsenic; BERTRAND (21). *P. typicus*; GRIEG (113) p. 28.

Pentaceros ascribed to Linck. 1733, and therefore has priority over *Pentaceros* Cuvier and Val. 1829, and therefore is preferred to *Oreaster* M. and Tr. 1842; VALETTE (283) p. 17 [*Pentaceros* stands, not on account of any pre-Linnean usage, but because used by Schulze, 1760.] †*P. bulbiferus*, isolated plates descr., perhaps this should be a new genus; VALETTE (283) p. 20 & fig. *P. occidentalis*; CLARK (48) p. 523. †*P. ocellatus*; MCPHERSON (186) p. 17 (sub *Oreaster*). *P. primaevus*; SCHMIERER (254) p. 588. †*P. senonensis* **n. sp.**, Senonian, zone of *Offaster pilula*, Sens, coll. Valette; VALETTE (283) p. 17 & fig.

Pentagonaster,—†*P.* sp.; HALL (118) p. 81, pl. xi. *P.* sp. juv.; BELL (19) p. 227. *P. aurata*, measurements, compared with "a twelve-plated shield starfish" from Port Phillip; SAYCE (248) p. 153. *P. granularis*, distrib.; GRIEG (113) p. 20. †*P. lunatus?*, descr., perhaps to this sp. belongs Dixon. Geol. Sussex pl. xxi, fig. 3; VALETTE (283) p. 11 & fig.

Phataria unifascialis; CLARK (48) p. 523.

Pharia pyramidata; CLARK (48) p. 523.

Plutonaster parelii, distrib., measurements; GRIEG (113) p. 19.

Pontaster hispidus; ALCOCK (5) p. 285 & fig. *P. tenuispinus*, distrib.; GRIEG (113) p. 18.

Porania pulvillus; PEARCEY (218) p. 309.
Poraniomorpha borealis, v. *Lasiaster hispidus*. *P. rosea*, distrib., measurements, variations, colour in life; GRIEG (113) p. 21, pl.
Psilaster andromeda, distrib., variation of *r : R.*, food; GRIEG (113) p. 20.
Pteraster militaris, distrib., measurements (pp. 27, 34), *P. obscurus*, distrib., measurements (p. 26), *P. pulvillus* (p. 27); GRIEG (113).
Ptychogaster formosus; RICHARD (238) p. 90.
†*Pycnaster* Slad. 1891, non Pomel. *P. angustatus*, one marginal; VALETTE (283) p. 26.
Retaster sp. juv.; BELL (19) p. 227. *R. multipes*, distrib., specimen recorded from N. Norway was really a *Pteraster militaris*; GRIEG (113) pp. 28, 34.
Scytaster novae-caledoniae and *S. variolatus*; BELL (19) p. 226.
Solaster affinis Dan. & Kor. is a var. of *S. papposus* found in deep and cold water, =var. *squamata* Doederl., and probably var. *septentrionalis* Slad.; GRIEG (114). *S. endeca*; GRIEG (113) p. 24: PEARCEY (218) p. 310. *S. furcifer*, distrib.; GRIEG (113) p. 26. *S. papposus*; GADEAU DE KERVILLE (91) p. 177: GRIEG (113) p. 24: PEARCEY (218) p. 310: the type is a warm and shallow water form, v. *S. affinis*; GRIEG (114). *S. syrtensis*, distrib., measurements, compared with *S. endeca*; GRIEG (113) p. 24.
†*Sphaeraster*,—*S. punctatus* and *S. pustulatus* (p. 573), *S. stelliferus* (pp. 573, 588), *S. tabulatus* (p. 573); SCHMIERER (254).
Stellaster incei; BELL (19) p. 227. †*S. quinqueloba*; SEMENOW (258) p. 8.
Stichaster arcticus; GRIEG (113) p. 29. *S. roseus*; loc. cit.: PEARCEY (218) p. 309.
†*Taeniaster*,—*T. elegans* (p. 91), *T. fimbriatus* (p. 70), *T. flexuosus* (p. 70), *T. granuliferus* (p. 79), *T. miamiensis* (p. 91); NICKLES (207).
†*Urasterella grandis*; NICKLES (207) p. 91.
Zoroaster zea; ALCOCK (5) p. 285 & fig.

(E.)—OPHIUROIDEA.

Amphilepis norvegica, distrib., distinguished fr. *A. florifera*; GRIEG (113) p. 11.
Amphiura aster **n. sp.**, Timaru, N. Z.; FARQUHAR (77). *A. borealis*; GRIEG (113) p. 11. *A. chiajii*, food for fish; PEARCEY (218) p. 314. *A. elegans*; ALLEN & TODD (6) p. 317: GADEAU DE KERVILLE (91) p. 177: PEARCEY (218) p. 312: distrib.; GRIEG (113) p. 11. *A. filiformis*, food for fish; PEARCEY (218) p. 314: Koehler's quotation of this from Spitzbergen, 1901, doubted; GRIEG (113) p. 13. *A. florifera* Forbes, is not *Amphilepis norwegica*; GRIEG (113) p. 11. †*A. pratti* Forbes 1844, type; GEOL. SOC. LONDON (101) p. 14. *A. securigera*; GRIEG (113) p. 11. *A. squamata*; GOURRET (104). *A. verticillata*; CLARK (48) p. 525.
Astroceras pergamena, with myzostomes; CLARK (47).
Astronyx (vel *Asteronyx*) *loveni*, distrib.; GRIEG (113) pp. 13, 17: food for fish; PEARCEY (218) p. 313.
Astrophyton clavatum; BELL (19) p. 230. *A. coniferum* **n. sp.**, 30 metres, Japan (p. 325, no fig.), *A. globiferum* **n. sp.**, Japan (p. 324, no fig.), *A. pardalis* **n. sp.**, Japan (p. 323, no fig.); DOEDERLEIN (69).
Astroporpa affinis; VERRILL (285) pp. 35, 36.
†*Ophiopsilla symmetricum*, views of Andrusov and Szajnocha accepted; LOMNICKI (174).
Euryalidae, key to Japanese spp.; DOEDERLEIN (69).
Gorgonocephalus agassizi; GRIEG (113) p. 17. *G. eucnemis*, distrib.; loc. cit. *G. japonicus* **n. sp.**, 200 metres, Japan; DOEDERLEIN (69) p. 321,

no fig. *G. lamarcki*, distrib. (p. 17), *G. lincki*, distrib. (p. 18); GRIEG (113). *G. sagaminus* **n. sp.**, Japan (p. 321, no fig.), *G. tuberosus* **n. sp.**, 240 metres, Japan (p. 322, no fig.); DOEDERLEIN (69).

†*Lapworthura miltoni*; SOLLAS (263).

Ophiacantha abyssicola (p. 14), *O. anomala*, distrib. (p. 16), *O. bidentata*, distrib., colour in life (p. 13), *O. spectabilis*, distrib., type figd., Koehler's specimen from B. of Biscay, 1896, probably not this sp. (p. 14); GRIEG (113).

Ophiactis abyssicola; GRIEG (113) p. 12. *O. balli*; PEARCEY (218) p. 312: quoted by Koehler 1901, near Beeren Eiland, probably *O. abyssicola*; GRIEG (113) p. 12.

Ophioaethiops unicolor; BELL (19) p. 229.

Ophiocoma aethiops; CLARK (48) p. 525. *O. brevipes*; BELL (19) p. 228: VOELTZKOW (289) p. 565. *O. erinaceus*; BELL (19) p. 228. *O. nigra*; PEARCEY (218) p. 312. *O. scolopendrina*; VOELTZKOW (289) p. 565: should incl. *O. erinaceus*; BELL (19) p. 228. *O. valenciae*; loc. cit.: VOELTZKOW (289) p. 565.

Ophiocreas sp. on *Chrysogorgia*; ALBERT (4) p. 963: with Myzostomes; CLARK (47).

Ophiocten sericeum [sic]; GRIEG (113) p. 10.

Ophioderma longicauda, movement of spermatozoa; BULLER (38) p. 151.

Ophioglypha abdita **n. sp.**, 6035 metres, 12° 7′ N., 35° 53′ W., allied to *O. convexa*; KOEHLER (155) p. 225, figg. 3–5: 7000 metres, C. Verde; RICHARD (238) p. 86: 6035 metres; ALBERT (4) p. 962. *O. albida*; GADEAU DE KERVILLE (91) p. 177. *O. concreta* **n. sp.**, 2478 metres, 14° 47′ N., 26° 52′ W., allied to *O. involuta*; KOEHLER (155) p. 228, figg. 6–8: ALBERT (4) p. 963: RICHARD (238) p. 86. *O. inermis*; op. cit. p. 84. *O. lacertosa*, movement of spermatozoa; BULLER (38) p. 151: see also II, F, iii. *O. tessellata*; RICHARD (238) p. 86. *O. thouleti*, supplementary radial comb; KOEHLER (155) p. 230.

Ophiolepis paucispina, fig. only; VERRILL (285) pl. ii.

Ophiomastix annulosa and *O. venosa*; BELL (19) p. 229.

Ophiomusium lymani; RICHARD (238) p. 89.

Ophionereis albomaculata (p. 524), *O. annulata* & *O. nuda* (p. 525); CLARK (48). *O. porrecta*; BELL (19) p. 229.

Ophionotus victoriae **n. g.** et **sp.**, 10–27 fms., C. Adare and Franklin Id., allied to *Ophioglypha*, type in Brit. Mus.; BELL (17) p. 219, pl. xxviii.

Ophiopholis aculeata; GRIEG (113) p. 13: habitat, food of fish; PEARCEY (218) p. 312.

Ophiophragma wurdmanni, feeding; GRAVE (106).

Ophiophycis **n. g.**, with genotype *O. mirabilis* **n. sp.**, 1165 metres, 38° 27′ N., 28° 51′ W., allied to *Ophiomusium*; KOEHLER (155) p. 222, figg. 1–2: reminds one of *Astrophiura*; LUDWIG in Abstract.

Ophiopteron elegans; BELL (19) p. 229.

Ophiopus arcticus; GRIEG (113) p. 13.

Ophioscolex glacialis, distrib.; colour in life, and *O. purpureus*, distrib.; GRIEG (113) p. 16.

Ophiosteira antarctica **n. g.** et **sp.**, 20–26 fms., C. Adare, allied to *Ophioglypha*, variations of disc., type in Brit. Mus.; BELL (17) p. 218, pls. xxvi, xxvii.

Ophiothrix alopecurus; GOURRET (104). *O. aspidota*; BELL (19) p. 229. *O. fragilis*; ALLEN & TODD (6) p. 317: distrib.; GRIEG (113) p. 16: food for fish; PEARCEY (218) p. 313: and var. *pentaphyllum*; GADEAU DE KERVILLE (91) p. 178. *O. galapagensis* Lütk. & Mortens. is probably young *O. spiculata*; CLARK (48) p. 526. *O. longipeda*, habitat; ALCOCK (5) p. 139. *O. magnifica*; CLARK (48) p. 526. *O. nereidina*; BELL (19) p. 229. *O. spiculata*; CLARK (48) p. 525.

Ophiotypa simplex; ALCOCK (5) p. 288 & fig.

Ophiozona inermis **n. sp.**, 26 fms., C. Adare; BELL (17) p. 217.
Ophiura affinis, distrib.; GRIEG (113) p. 10. *O. albida*, distrib.; op. cit. p. 9: food for fish; PEARCEY (218) p. 314. *O. carnea*, distrib.; GRIEG (113) p. 10. *O. ciliaris*; op. cit. pp. 9, 13: food for fish; PEARCEY (218) p. 313. †*O.* ? *cunliffei* Forbes 1845, type; GEOL. SOC. LONDON (101) p. 43. †*O. egertoni*; SOLLAS (263). †*O. fitchi*; LENEY (167) p. 227. †*O. gagnebini*, history of holotype; GREPPIN (112) p. 29. *O. laevis*, see II, f, iii, *O. robusta*; GRIEG (113) p. 10: food for fish; PEARCEY (218) p. 314. *O. sarsi*; GRIEG (113) p. 10. †*O. serrata* Röm, specimen figd. Forbes 1844; GEOL. SOC. LONDON (101) p. 14. *O. teres*; CLARK (48) p. 524.
†*Sigsbeia* ? sp.; HALL (118) p. 82, pl. xi.

F. CRINOIDEA*.

Key to Famm. of "Crinoïdes Articulés"; FRITEL (86).
†*Crinoidea* indett., specimens figd. Salter in Bain 1856; GEOL. SOC. LONDON (101) p. 61.
Acrochordocrinus, vide *Cyclocrinus*.
Actinometra fimbriata, specimens both bi- and tri- distichate; BELL (19) p. 225. *A. iowensis* **n. sp.**, ½ fm., Dry Tortugas, Florida; SPRINGER (265). *A. maculata*, *A. multiradiata*, *A. sentosa*, and *A. typica*; BELL (19) p. 225.
†*Agaricocrinus praecursor* **n. sp.**, Chouteau beds, St Louis co., Mo.; ROWLEY (244) p. 304, pl. xviii.
†*Ancyrocrinus bulbosus*; SHIMER (262) p. 185.
†*Anisocrinus* referred to *Ichthyocrinidae*; SPRINGER (266) p. 94.
†*Anomalocrinus*,—*A. caponiformis* (p. 83), *A. incurvus* (p. 79); NICKLES (207).
Antedon,—†*A. almerai*; LAMBERT (161) p. 22. *A. bifida*, vide *A. rosacea*. †*A. costata* (pp. 572, 587), †*A. gresslyi* (p. 587); SCHMIERER (254). *A. indica*; BELL (19) p. 224. †*A. italicus*; OPPENHEIM (210) p. 281. †*A. koprivnicensis* **n. sp.**, Tithonian of Nesselsdorf (Kopřivnice); REMES (234) p. 207, pl. xx. *A. laevissima*; BELL (19) p. 224. †*A. lorioli* **n. sp.**, Tithonian of Nesselsdorf; REMES (234) p. 208, pl. xx. *A. milberti*, and *A. palmata*; BELL (19) p. 224. *A. pumila*; SAYCE (248) p. 153. *A. rosacea* [i.e. *bifida*]; GADEAU DE KERVILLE (91) p. 178: ♂ gonopores; MARSHALL (191): histology; SCHNEIDER (255) pp. 661–665: movement of spermatozoa; BULLER (38) p. 151. *A.* aff. *rosacea*, California; RITTER (241). *A. tenella*, distrib.; GRIEG (113) p. 9. *A. variipinna*; BELL (19) p. 224.
†*Apiocrinus*,—*A.* ? sp.; LEVI (168) p. 398. *A. amalthei*; SCHLOSSER (251) p. 531. *A. magnificus*, and *A. roissyanus*, text-figg.; FRITEL (86).
†*Aristocrinus*, probably syn. of *Dactylocr.*; SPRINGER (266) p. 95. *A. concavus*; KEYES (153) p. 285.
†*Arthracantha*,—*A. depressa*; LUTHER (179) p. 624. *A. punctobrachiata*; SHIMER (262) p. 184.
†*Atelecrinus belgicus* **n. sp.**, aus der oberen Kreide von Maastricht [no description]; JAEKEL (134) fig. 15B.
†*Austinocrinus* vide sub *Pentacr.*
†*Baerocrinus*, relations to *Hybocystis* (p. 1085), *B. parvus* **n. sp.** Vaginatenkalk, St. Petersburg [no description] (fig. 16); JAEKEL (134).
†*Balanocrinus*,—*B.* sp. cf. *B. africanus*; WANNER (292) p. 106. *B. pentagonalis*; STRUEBIN (273) p. 80. *B. subbasaltiformis*; JOHNSON (139).

---

* Names that are sometimes given the termination *-ites* (e.g. *Pentacrinites*) are here treated as always ending in *-us*.

B. subteres; STRUEBIN (273) p. 83: columnals; REMEŠ (234) p. 207, pl. xx. Vide etiam sub *Pentacrinus*.

†*Botryocrinus crassus*; SHIMER (262) p. 185.

†*Bourgueticrinus*, — *B.* sp.; SEMENOW (258) p. 7: from Margate, Rowe, pl. viii, fig. 6, appears same as a n. sp. descr. by Loriol from Sens; LAMBERT (162). *B. ellipticus*; CORNET (50) p. 40: GROSSOUVRE (116) pp. 305, 315, 340, 547, 571. *B. granulosus*; op. cit. p. 130. *B. thorenti*; DOUVILLÉ (71) p. 31.

†*Cainocrinus* [i.e. *Isocr.*] *andreae*; STRUEBIN (273) p. 73.

†*Calcocrinidae* "als Ausgangspunkt der Heterocriniden"; JAEKEL (134) p. 1099.

†*Calceocrinus*; JAEKEL (134) p. 1099 & fig.

†*Calcidocrinus*, prophetic of *Pentacrinidae*, but really allied to *Iocrinus* and *Prodromocrinus*; JAEKEL (134) p. 1075.

†*Calpiocrinus*, referred to *Ichthyocrinidae* (p. 94), *C.* sp., Wenlock Limest., Dudley, identified as *C. ovatus*, but apparently different, perhaps a new genus, *Leiocr.* (p. 95); SPRINGER (266).

†*Calycanthocrinus*, evolution; JAEKEL (134) p. 1101 & fig.

†*Catillocrinus*, evolution; JAEKEL (134) p. 1101 & fig.

†*Ceriocrinus*, *C. craigi*; BEEDE (16) p. 170. *C. harshbargeri* **n. sp.**, Coal Measures, Topeka, Kan., type in Washburn College; BEEDE (15) p. 147, pl. v: and (16) p. 170. *C. hemisphericus* (p. 170), *C. monticulatus* (p. 172); BEEDE (16).

†*Cicrocrinus*, a reversion to Heterocrinid arm-structure; JAEKEL (134) p. 1101 & fig.

†*Cleiocrinus*, referred to *Ichthyocrinidae*; SPRINGER (266) p. 94.

†*Clidochirus*, referred to *Ichthyocrinidae*; loc. cit.

Comatulidae [apparently = *Antedonidae*, *Atelecrinidae*, *Actinometridae*, et aliae], relations of BB.; JAEKEL (134) p. 1083.

†*Compsocrinus*, — *C. harrisi* and *C. miamiensis*; NICKLES (207) p. 91.

†*Conocrinus* (= *Rhizocr.*), — *C. didymus*, *C. pyriformis*, and *C. suessi* (pl. ix); OPPENHEIM (210) p. 280.

†*Cotylederma lineati*; SCHLOSSER (251) p. 531.

†*Crotalocrinus*, — *C.* sp.; GARDINER & REYNOLDS (94) p. 245. *C. americanus*, syn. of *C. cora*, and *C. cora* (Hall, sub *Cyathocr.*), descr. and figd.; WELLER (295).

†*Ctenocrinus*, evolution of arms; JAEKEL (134) p. 1067 & fig.

†*Cupressocrinus*, descended from *Heterocrinidae*, its apparent pinnules, madreporite; JAEKEL (134) p. 1102 & fig.

†*Cyathocrinus*, — *C. cora* Hall, referred to *Crotalocr.*; WELLER (295). *C. granulosus* **n. sp.**, Keokuk group, near Wayland, Mo., and *C. snivelyi* **n. sp.**, Keokuk Limest., Fox river, Clark co., Mo.; ROWLEY (244) p. 305, pl. xviii. *C. vanhorni*, probably *Crotalocr.*; WELLER (295).

†*Cyclocrinus* [i.e. *Acrochordocr.*] sp.; STRUEBIN (273) p. 57.

†*Cylicocrinus canaliculatus*, is a *Barrandeocr.*; SPRINGER (266) p. 88.

†*Cyrtidocrinus*, referred to *Ichthyocrinidae*; op. cit. p. 94.

†*Cyrtocrinus* [i.e. *Torynocr.*] (p. 197), *C. granulatus* from Nesselsdorf (p. 198), *C. marginatus* **n. sp.**, Tithonian of Nesselsdorf (p. 199), *C. thersites*, some deformities due to parasites (p. 198), young individuals (p. 200); REMEŠ (234) pl. xviii. Vide etiam sub *Eugeniacr.* (*Hemicr.*).

†*Dactylocrinus*, referred to *Taxocrinidae*; SPRINGER (266) p. 95.

†*Dendrocrinus*, — *D. caducus* (p. 91), *D. casei* (p. 91), *D. cincinnatiensis* (p. 79), *D. dyeri* (p. 62), *D. erraticus* (p. 91), *D. navigiolus* (p. 62), *D. polydactylus* (p. 94), *D. posticus* (p. 83); NICKLES (207).

†*Dolatocrinus*, — *D.* sp., *D. canadensis*, and *D. subaculeatus*; SHIMER (262) p. 184.

†*Eetenocrinus*, — *E. grandis* (pp. 68, 79), *E. simplex* (p. 68); NICKLES (207).

†*Encrinus*, — *E.* sp.; HAAG (117): LEYDIG (169) p. 67. *E. andegavensis*

Trom. & Lebesc.; KERFORNE (148): BEZIER & LEBESCONTE (22) p. 277. *E. liliiformis*; STRUEBIN (273) p. 17: text-fig.; FRITEL (86): does not occur in Lower Muschelkalk, but there is *E. spinosus*; Abstract of MICHAEL (201).

†*Entrochus*,—"Crinoidal stems" figd. Sowerby in Grant 1840; GEOL. SOC. LONDON (101) p. 35. *E. pentagonalis* Quenst.; HOYER (133) p. 112. *E. primus*; ZELIZKO (305).

†*Eretmocrinus*,—*E. brevis* **n. sp.**, Upper Burlington Limest., White Ledge, Mo. (p. 309), *E.* ? *parvus* **n. sp.**, Lower Burlington Limest., Louisiana, Mo. (p. 308); ROWLEY (244) pl. xviii.

†*Erisocrinus megalobrachius*; BEEDE (16) p. 172.

†*Eucalyptocrinus*,—*E. caelatus* (p. 174), *E. crassus* (p. 175); CUMINGS (55). *E.* cf. *crassus*; KINDLE (154).

†*Eugeniacrinus*,—*E.* (*Hemicr.*) *astieri*; MATTE (197) pp. 148, 153. *E. caryophyllatus*; STRUEBIN (273) p. 83. *E. cupuliformis* **n. sp.**, Tithonian of Nesselsdorf; REMES (234) p. 203, pl. xix. *E.* (*Hemicr.*) *gevreyi*; MATTE (197) p. 153. *E. granulatus* **n. sp.**, Tithonian of Nesselsdorf; REMES (234) p. 203, pl. xix. *E. heberti*; MATTE (197) p. 131. *E. hoferi*; SCHMIERER (254) p. 572. *E. holopiformis* **n. sp.** with deformities (pp. 203, 205, pl. xix), *E. tithonius* **n. sp.** (p. 204, pl. xix), *E. zitteli*, axillaria, deformities due to parasites (pp. 203, 204): Tithonian of Nesselsdorf; REMES (234).

†*Extracrinus*, vide sub *Pentacrinus*.

†*Flexibilia Impinnata* discussed; SPRINGER (266) p. 97.

†*Forbesiocrinus*, discussed (p. 90) and maintained with genotype *F. nobilis* de Kon. & Le Hon non Phill., and referred to *Taxocrinidae* (p. 95); SPRINGER (266).

†*Gammarocrinus*, vide *Sclerocrinus*.

†*Gaurocrinus*, *G. cognatus*, *G. nealli*, *G. magnificus*; NICKLES (207) p. 91.

†*Gennaeocrinus arkonensis*; SHIMER (262) p. 184.

Gephyrocrinus grimaldii **n. g.** et **sp.**, 1786 metres, 20° 14′ W. 27° 41′ N., i.e. near Hierro in Canaries, not Azores as stated in paper, allied to *Hyocrinus*; KOEHLER & BATHER (156): (sub nomen *Hyocrinus*), 1786 metres near Hierro, Canaries; ALBERT (4) p. 963.

†*Gilbertsocrinus spinigerus*; SHIMER (262) p. 184.

†*Glyptocrinus*,—*G. decadactylus* (p. 79), *G. dyeri* (p. 83), *G. dyeri-sublaevis* (p. 83), *G.* ? *fornshelli* (p. 91), *G. pattersoni* (p. 70), *G. richardsoni* (p. 91), *G. subglobosus* (p. 83); NICKLES (207).

†*Gnorimocrinus*, referred to *Taxocrinidae* (p. 95) a sp. recorded from Tennessee (pp. 88 & 96); SPRINGER (266).

†*Haplocrinus*, relations to *Cupressocr.*, hydropore; JAEKEL (134) p. 1102, fig. *H. boitardi* Rouault; KERFORNE (147).

†*Hemicrinus*, vide sub *Cyrtocr.* et *Eugeniacr.*

Heterocrinidae [sens. lat. incl. *Calceocrinidae*, *Pisocrinidae*, *Catillocrinidae*] evolution with degeneration; JAEKEL (134) p. 1099 & figg.

†*Heterocrinus*,—*H. exilis* (p. 70), *H. geniculatus* (p. 70), *H. heterodactylus* (pp. 68, 75), *H. heterodactylus-propinquus* (p. 68), *H. juvenis* (p. 91), *H. pentagonus* (p. 83); NICKLES (207).

Hexacrinidae, the origin of the anal; JAEKEL (134) p. 1082.

†*Holopus spileccensis*; OPPENHEIM (210) p. 281.

†*Homalocrinus*, referred to *Ichthyocrinidae*; SPRINGER (266) p. 94.

†*Hoplocrinus*, relations to *Hybocystis*; JAEKEL (134) p. 1085, fig. 18.

†*Hybocrinus*, relations to *Hybocystis*; JAEKEL (134) p. 1085, fig. 19.

Hyocrinidae rediagnosed, to include *Gephyrocr.*; KOEHLER & BATHER (156) p. 78.

Hyocrinus [i.e. *Gephyrocr.* q.v.] sp.; ALBERT (4): RICHARD (238) p. 84.

†*Ichthyocrinidae*, key to genera; SPRINGER (266) p. 94.

†*Ichthyocrinus*; SPRINGER (266) p. 94.

†*Iocrinus subcrassus*; NICKLES (207) pp. 62, 65, 68, 75, 89
Isocrinus, vide *Cainocr.* et sub *Pentacr.*
†*Lecanocrinus*, referred to *Ichthyocrinidae*; SPRINGER (266) p. 94.
†*Leiocrinus*, possible **n. g.** of *Taxocrinidae*, vide *Calpiocr.*; SPRINGER (266) p. 95.
†*Lichenocrinus*,—*L. affinis* (p. 91), *L. crateriformis* (p. 68), *L. dubius* (p. 72), *L. dyeri* (p. 84), *L. pattersoni* (p. 62), *L. tuberculatus* (p. 94); NICKLES (207).
†*Lithocrinus*, referred to *Taxocrinidae*; SPRINGER (266) p. 95.
†*Lobocrinus*,—*L.*? *dubius* **n. sp.** (p. 306) with var. *pustulosus* **n. var.** (p. 307), near Louisiana, Mo. *L.*? *insolitus* **n. sp.** White Ledge, Mo. (p. 307): Lower Burlington Limest.; ROWLEY (244) pl. xviii.
†*Lyriocrinus melissa*; CUMINGS (55) p. 175.
†*Mariacrinus*, evolution of arms; JAEKEL (134) p. 1067 & fig.
†*Marsupites*, BB. & IBB., relations to *Uintacr.* and "Comatulidae"; JAEKEL (134) p. 1084: general distrib. (p. 799), in Hanover and Brunswick (p. 695), in Dept. de l'Yonne (p. 115 & table I), near Dieppe (p. 125), in Villedieu chalk (p. 345); GROSSOUVRE (116). *M.* sp.; JANET (136) p. 911. *M. ornatus* [i.e. *testudinarius*]; WOLLEMANN (300). *M. testudinarius*, locc. near Brighton, and measurements; MCPHERSON (186) p. 14: partly silicified plates; JUKES-BROWNE (142).
†*Megistocrinus rugosus*; SHIMER (262) p. 184.
†*Melocrinidae*, evolution of arms, bears no relation to specific characters; JAEKEL (134) p. 1067.
†*Melocrinus*, evolution of arms; JAEKEL (134) p. 1069 & fig. *M. gregeri* and *M. lyelli*; KEYES (153) p. 285. *M. verrucosus*; LEBESCONTE (164) p. 168.
†*Merocrinus*,—*M. curtus* (p. 70), *M. typus* (p. 62); NICKLES (207).
†*Mespilocrinus*, referred to *Ichthyocrinidae*; SPRINGER (266) p. 94.
†*Metabolocrinus rossicus* **n. g.** et **sp.**, Ordovician near Reval, a Heterocrinid [diagram, no complete description]; JAEKEL (134) p. 1101, fig. 28G.
†*Millericrinus*,—*M. echinatus* (p. 569), *M. escheri*, *M. horridus*, *M. mespiliformis*, and *M. milleri* (pp. 573, 588), *M.* (?) *oxynotus*, and *M. platynotus* (p. 573), *M. rosaceus* (pp. 569, 573, 588); SCHMIERER (254).
†*Mycocrinus*, evolution; JAEKEL (134) p. 1101 & fig.
†*Nipterocrinus*, referred to *Taxocrinidae*; SPRINGER (266) p. 95.
†*Ohiocrinus*,—*O. compactus* (p. 84), *O. constrictus* (p. 84), *O. laxus* (p. 79), *O. oehanus* (pp. 79, 91); NICKLES (207).
†*Oligocrinus* **n. g.** of *Taxocrinidae* with genotype *Forbesiocr.* vel *Onychocr. asteriaeformis*; SPRINGER (266) p. 95.
†*Onychocrinus*, referred to *Taxocrinidae*; loc. cit.
†*Ophiocrinus stangeri* Salter in Bain 1856, type; GEOL. SOC. LONDON (101) p. 61.
†*Parichthyocrinus* **n. g.** of *Ichthyocrinidae*, with genotype *Ichthyocr. nobilis* W. & Sp.; SPRINGER (266) p. 96.
†*Pentacrinus* (including *Balanocr.*, *Extracr.* [i.e. *Pentacr.* s. str.] and *Isocr.* [i.e. *Pentacr.* neontologorum] syn. *Cainocr.*). *P.* sp.; STRUEBIN (273) pp. 67, 73, 83. *P.* sp. nondescr. [=*Austinocr.*]; ABICH (1) p. 16, pl. i. *P. bajociensis*; STRUEBIN (273) p. 97. *P. basaltiformis*; SCHLOSSER (251) pp. 523, 531: columnal; REMES (234) p. 207, pl. xx. *P. bollensis* (p. 536), *P. briareus* (p. 535); SCHLOSSER (251). *P. cinctus*; SCHMIERER (254) p. 573. *P. cingulatus*; SCHLOSSER (251) p. 530: columnals; REMES (234) p. 207, pl. xx. *P. cristagalli*; SCHLOSSER (251) p. 553: STRUEBIN (273) p. 57. *P. dargniesi*; op. cit. p. 73. *P. diaboli*, relations to *P. didactylus* d'Orb., and *P. spileccensis* Mun.-Chalm. discussed; OPPENHEIM (210) p. 281. *P. didactylus*; DOUVILLÉ (71) p. 31. *P. fasciculosus*; SCHLOSSER (251) p. 536. *P. jurensis*; JANENSCH (135) p. 16: SCHLOSSER (251) p. 538: WALFORD (291)

p. 277. *P. guiscardii*; OPPENHEIM (210) p. 282. *P. hiemeri*; SCHLOSSER (251) p. 536. *P.* cf. *lanceolatus*; SEMENOW (258) p. 8. *P. milleri*, III, B, iii, d; THOMPSON (278). *P. neocomiensis*; ABICH (1) p. 35, pl. iii. *P. nodosus* (p. 553), *P. quenstedti* (p. 536); SCHLOSSER (251). *P. pelegrinii*; OPPENHEIM (210) p. 282. *P.* cf. *P. peroni*; WANNER (292) p. 106. *P. propinquus*; ROTHPLETZ (243) p. 17. *P. psilonoti*; STRUEBIN (273) p. 38, and (274) pp. 598, 599. *P. punctiferus*; SCHLOSSER (251) p. 523. *P. scalaris*; HOYER (132) p. 36: SCHLOSSER (251) p. 519. *P. sigmaringensis*; SCHMIERER (254) pp. 573, 582, 584, 588. *P. subangularis*; HOYER (132) p. 38, and (133) pp. 123, 124; SCHLOSSER (251) p. 523. *P. subsulcatus*, loc. cit. *P. subteroides*; SCHLOSSER (251) p. 531. *P. sulcifer*; SEMENOW (258) p. 8. *P. tuberculatus*; REPOSSI (235) p. 162: SCHLOSSER (251) p. 518: STRUEBIN (273) pp. 40, 94 and (274) p. 601. *P. württembergicus*; STRUEBIN (273) p. 50. Vide etiam sub *Balanocr.*

Pentacrinus wyville-thomsoni; ALBERT (4) p. 963: colour in life; RICHARD (238) pp. 84, 90.

†*Pentacrinus zollerianus*: SCHLOSSER (251) p. 550.

†*Perittocrinus* **n. g.** [diagram of cup, but no genotype] Lower Ordovician, allied to *Porocrinus* and regarded as a transition from *Cladocrinoidea* Jkl. to *Pentacrinoidea* Jkl.; JAEKEL (134) p. 1093 and fig.

†*Phyllocrinus*,—*P. cyclamen* **n. sp.**, Tithonian of Nesselsdorf (p. 205, pl. xx), *P. hoheneggeri* (p. 204), *P. intermedius*, brachials (p. 205); REMES (234).

†*Pisocrinus*, evolution, *P.* sp. juv. with cup-structure of *Heterocrinus*; JAEKEL (134) p. 1101, fig. 28.

†*Platycrinidae* [sens. lat. = *Adunata*] principles of evolution; JAEKEL (134) p. 1077.

†*Plicatocrinus*,—*P.* sp.? pinnules; REMES (234) p. 206, pl. xix. *P. fraasi*, text-fig.; FRITEL (86).

†*Porocrinus*, derived from *Perittocr.*, origin of folded triangles in cup; JAEKEL (134) p. 1093 & fig.

†*Poteriocrinus*,—*P.* sp.; YANÏSHEVSKIÏ (304) p. 98. *P. crassus*; CHURCHILL (43). *P.* cf. crassus; FLAMAND (78).

†*Prodromocrinus* **nom. nud.**, apparently a genus of *Heterocrinidae* in Ordovician of Russia; JAEKEL (134) p. 1075.

†*Promelocrinus anglicus* **n. g.** et **sp.**, Wenlock Limestone, Dudley; JAEKEL (134) p. 1068, fig. 8.

†*Ptychocrinus parvus*; NICKLES (207) p. 79.

†*Pycnosaccus*, referred to *Ichthyocrinidae*; SPRINGER (266) p. 94.

†*Rhaphanocrinus sculptus*; NICKLES (207) p. 91.

Rhizocrinus lofotensis, distrib.; GRIEG (113) p. 9. Vide etiam sub *Conocrinus*.

†*Rhodocrinus*,—*R. verus*?; YANÏSHEVSKIÏ (304) p. 99. *R.* of group *R. verus*; FLAMAND (78).

†*Rhopalocrinus*, referred to *Taxocrinidae*; SPRINGER (266) p. 95.

†*Saccocoma pectinata*, text-fig.; FRITEL (86).

†*Sagenocrinus*, generic position (p. 89), referred to *Taxocrinidae* (p. 94), *S.* sp. from Dudley, distinct from *S. expansus* and perhaps not this genus (p. 89), *S. americanus* **n. sp.**, Niagara shales, Waldron, Ind. (p. 88 & fig.); SPRINGER (266).

†*Scaphiocrinus washburni*; BEEDE (16) p. 172.

†*Schizocrinus nodosus*; CUMINGS (54) p. 455.

†*Sclerocrinus* [i.e. *Gammarocrinus*] (p. 201), *S. batheri* **n. sp.** (p. 202, pl. xviii), *S.* cf. *compressus*, descr. (p. 201, pl. xviii), *S. pyriformis* **n. sp.** (p. 202, pl. xix), *S. strambergensis*, with var. *pentagona*, deformities (p. 201), *S. tenuis* **n. sp.** (p. 202, pl. xix): Tithonian of Nesselsdorf; REMES (234).

†*Stephanocrinus* sp.; CUMINGS (55) p. 176.
†*Synerocrinus* referred to *Taxocrinidae*; SPRINGER (266) p. 95.
†*Talarocrinus simplex* figd., also abnormal, see II, B, ii, e; GREENE (111) p. 91, pl. xxix.
†*Tanaocrinus typus*; NICKLES (207) p. 91.
†*Taxocrinidae*, key to genera; SPRINGER (266) p. 94: [incl. *Dactylocrinidae*] evolution of arms; JAEKEL (134) p. 1070 & fig.
†*Taxocrinus*, discussed (p. 90), defined (p. 95), *T.* sp. regeneration (p. 97), *T. egertoni* (p. 91); SPRINGER (266). *T. lobatus*; SHIMER (262) p. 185. *T. macrodactylus*; SPRINGER (266) p. 91. *T.* (?) *polydactylus* (?); FLAMAND (78). *T. tuberculatus* descr. and made type of *Temnocr.*; SPRINGER (266) p. 92.
†*Temnocrinus* n. g. of *Taxocrinidae*, with genotype *Taxocr. tuberculatus* Phill.; SPRINGER (266) p. 94.
†*Tetracrinus*,—*T.* cf. *langenhani*, brachials, and *T.* cf. *moniliformis* from Nesselsdorf; REMES (234) p. 206, pl. xx.
Thaumatocrinus regarded as a true "Comatulid" with atavistic orals and anals; JAEKEL (134) p. 1081.
†*Tormocrinus veronensis*; OPPENHEIM (210) p. 281.
Torynocrinus, vide *Cyrtocrinus*.
†*Uintacrinus*, BB and IBB, relations to "Comatulidae"; JAEKEL (134) p. 1083. *U.* sp., MCPHERSON (186) p. 16. *U. socialis*; JESUP (138) p. 16 & plate.
†*Ulocrinus nuciformis*; HIND (131) p. 464.
†*Wachsmuthicrinus* n. g. of *Taxocrinidae*, with genotype *Forbesiocr. thiemei*; SPRINGER (266) p. 96.
†*Xenocrinus*,—*X. baeri* and *X. penicillus*; NICKLES (207) p. 91.
†*Zeacrinus*,—*Z. acanthophorus* & *Z. mucrospinus*; BEEDE (16) p. 167.

†G. CYSTIDEA*

(including EDRIOASTEROIDEA).

Anomalocystis balanoides; NICKLES (207) p. 83.
Aristocystis, morphology, and fig. of *A. bohemicus*; BATHER (14A) p. 622. *A.* (?) sp.; KERFORNE (149) pp. 20, 29, 108, 201.
Caryocrinidae, movement of anus; JAEKEL (134) p. 1072 & fig.
Chirocrinus alter, reconstructed fig.; BATHER (14A) p. 623.
Craterina sp.; KERFORNE (149) p. 202.
Cyclocystoides bellulus (p. 79), *C. cincinnatiensis* (p. 83), *C. magnus*, *C. minus*, and *C. mundulus* (p. 91), *C. nitidus* (p. 83), *C. parvus* (p. 91); NICKLES (207).
Cystaster granulatus; NICKLES (207) p. 79.
Cystoblastus as source of *Blastoidea*; JAEKEL (134) p. 1103.
Echinosphaera sp.; KERFORNE (148) p. 174.
Edrioaster, morphology and homologies, with figg. of *E. bigsbyi* and *E. buchianus*; BATHER (14A) pp. 620, 623.
Fungocystis rarissima, reconstructed fig.; BATHER (14A) p. 622.
Hemicystis stellatus; NICKLES (207) p. 79.
Hybocystis, reduction of arms; JAEKEL (134) p. 1085, fig. 17.
Lepadocrinus moorei; NICKLES (207) p. 94.
Lepidodiscus cincinnatiensis (p. 75), *L. faberi* (p. 94), *L. holbrooki*, *L. pileus*, and *L. warrenensis* (p. 83); NICKLES (207).
Streptaster ? *septembrachiatus* (p. 91), *S.* ? *vorticellatus* (pp. 79, 84); NICKLES (207).

---

† All extinct.
* Names that are sometimes given the termination *-ites* (e.g. *Anomalocystites*) are here treated as always ending in *-us*, *-a*, or *-is*, as the case may be.

†H. BLASTOIDEA.

Belocrinus [i.e. *Metablastus*] *cottaldi*; KERFORNE (146).

Codaster sp.? (p. 95), *C. attenuatus* (pp. 94, 95), **n. var.** *robustus*, Upper Devonian, Clark co. cement quarry, Ind., type in Greene coll. (p. 94); GREENE (111) pl. xxx. *C. canadensis*; SHIMER (262) p. 184. *C. pyramidatus*; GREENE (111) p. 95, pl. xxx.

Eleutherocrinus cassedayi; SHIMER (262) p. 184: redescr.; GREENE (111) p. 91, pl. xxx.

Granatocrinus [i.e. *Orbitremites*, but probably is *Pentremitidea*] *leda*; SHIMER (262) p. 184.

Metablastus bipyramidalis?, descr.; GREENE (111) p. 96, pl. xxx: vide etiam sub *Tricoelocr.* *M. cottaldi*, v. sub *Belocr.* *M. wortheni*, v. sub *Tricoelocr.*

Nucleocrinus angularis (p. 82, pl. xxvii), *N. cucullatus* **n. sp.**, Mid. Devon., Falls of Ohio (p. 77, pl. xxvi); GREENE (110). *N. elegans*; SHIMER (262) p. 184. *N. greenei* (p. 83, pl. xxvii), *N. imitator* **n. sp.** (p. 84, pl. xxvii), *N. stichteri* **n. sp.** (p. 83, pl. xxvii), both Upper Devonian near Charlestown, Ind., *N. venustus* (p. 82, pl. xxvii), *N. verneuili*, variations (p. 79, pls. xxvi, xxvii), **n. var.** *inflatus*, Mid. Devon., Falls of Ohio (p. 78, pl. xxvi), var. *pomum* (?) (p. 79, pl. xxvi), **n. var.** *sulcatus*, Mid. Devon., Falls of Ohio (p. 78, pl. xxvi); GREENE (110).

Orbitremites grandis **n. sp.**, Keokuk group, Greene co., Ky., type in Greene coll. (p. 96, pl. xxx), *O. oppelti* **n. sp.**, Knobstone group, New Albany, Ind. (p. 86, pl. xxix); GREENE (111). Vide etiam sub *Granatocrinus* et *Pentremites*.

Pentremites conoideus, with **nn. varr.** *perlongus* (p. 87) et *amplus* (p. 88), Warsaw Limest., Lanesville, Ind., see II, B, i, h, *5*; GREENE (111) pl. xxix. *P.* [i.e. *Orbitremites*] *ellipticus*; LEBESCONTE (164) p. 175. *P. godoni* (pp. 89, 97, pls. xxix, xxx), *P. koninckanus* (p. 90, pl. xxix): see II, B, i, h, *5*; ii, d, *1*; GREENE (111). *P. lycorias*; SHIMER (262) p. 184. *P. pyriformis*, see II, B, ii, d, *1*, & D, vii (p. 89, pl. xxix), young with deltoids very small (p. 97, pl. xxx); GREENE (111).

Pentremitidea (!) *approximata* **n. sp.** (p. 93, pl. xxx), *P.* (?) *dubia* **n. sp.** (p. 92, pl. xxx): Upper Devonian, Charlestown, Ind., types in Greene coll.; GREENE (111). *P. filosa*; SHIMER (262) p. 184. *P. leda*? **n. var.** *magna*, Upper Devonian, Charlestown, Ind., type in Greene coll.; GREENE (111) p. 93, pl. xxx: vide etiam sub *Granatocr.*

Tricoelocrinus bipyramidalis and *T. wortheni* scarcely to be distinguished, and not to be removed to *Metablastus* (p. 91), *T. woodmani*, see II, B, i, h, *5* (p. 90, pl. xxix); GREENE (111).

Troostocrinus bipyramidalis et *T. wortheni* v. sub *Tricoelocr.*

K. INCERTAE SEDIS.

Monstrosity from Queen Charlotte Is., 1588 fms., *Ech.* or *Hol.*?, perhaps abnormal *Hol.* allied to *Sphaerothuria*; CLARK (45): the latter view confirmed by LUDWIG in Abstract.

†"Ferrocrinoids" [not echinodermal]; WALFORD (291).

†*Paropsonema cryptophya*; LUTHER (179) p. 623.

†*Problematicum*, with 5 thin arms issuing at somewhat unequal angles from a thicker central portion, Middle Cambrian of Bornholm [not referred to *Echinoderma* by author]; GRÖNWALL (115) p. 165.

---

† All extinct.

XV. VERMES.

BY

ALICE L. EMBLETON, B.Sc.

CONTENTS.

	Page
INTRODUCTION	2
I. TITLES	3
II. SUBJECT-INDEX.	
VERMES (general subject)	31
ANNELIDA	
Gephyrea	32
General Biology	32
Distribution	32
Systematic	33
Polychæta (incl. *Archiannellida* & *Myzostomida*)	34
General Biology	34
Distribution	35
Systematic	35
Oligochæta	38
General Biology	38
Distribution	39
Systematic	40
Hirudinea	42
General Biology	42
Distribution	43
Systematic	43
PLATYHELMINTHES	
Nemertina	44
General Biology	44
Distribution	44
Systematic	44
Turbellaria	46
General Biology	46
Distribution	46
Systematic	47
Cestoda	49
General Biology	49
Distribution	50
Systematic	51
Trematoda	54
General Biology	54
Distribution	55
Systematic	55
NEMATHELMINTHES	
Nematoda (incl. *Gordiacea*)	61
General Biology	62
Distribution	63
Systematic	63
Acanthocephala	67
General Biology	67
Distribution	67
Systematic	67
Chætognatha	68
ROTIFERA	68
General Biology	69
Distribution	69
Systematic	69
GASTROTRICHA	70
MESOZOA (vacant).	
HEMICHORDA (incl. *Phoronis*)	70
General Biology	71
Distribution	71
Systematic	71

INTRODUCTION.

During the year several monographs have been published among which may be mentioned Ribaucourt's (349), on the comparative anatomy and histology of *Lumbricidæ*, Sluiter's (396) monograph dealing with the Sipunculids and Echiurids collected in the Indian Archipelago on the "Siboga" expedition, and Bossuat (43) on *Cestoda*, *Nematoda*, and *Trematoda* of the liver.

Braun (50) has published a text-book on the parasites of man. Neveu-Lemaire (303) has brought out a book on animal parasitology, a great part of which is devoted to Vermes.

Buttel-Reepen (56) has published a paper on the group of *Trematoda* represented by *Distomum clavatum*. Looss (251) has contributed a very complete piece of work on the new and already known Trematodes of the turtle, including discussions of much systematic importance. Braun (49) describes 72 spp. of Trematodes inhabiting birds.

The first part of the Bergendal's studies (27, 28) on *Nemertina* deals with *Callinera bürgeri*, while the second part is devoted to the anatomy and histology of *Valencinura bahusiensis*, being a memoir on the anatomy and classification of the *Heteronemerteans*. His other papers (29–32) also supply fresh facts concerning various *Nemertina*.

Budington (53) has written upon the physiological characteristics of annelid muscle, while Bugge (54) has given a contribution on the excretory system of Cestodes and Trematodes.

Beddard (19–24) has added considerably to our knowledge of Earthworms, paying special attention to the reproductive organs; he describes several new forms. Cobb (80–85) has contributed several papers on injurious Nematodes from Australia.

Woltereck (469) has published a very complete work on the histology of the larvæ of *Polygordius* spp., including a discussion on the origin of *Polygordius* in the North Sea.

A monograph on general histology by Schneider (375) includes much matter on *Platyhelmia*, *Nemathelminthes*, *Nemertina*, *Archiannelida*, *Polychæta*, *Oligochæta*, *Hirudinea*, *Enteropneusta* and *Chætognatha* which must be noticed.

Bounhiol's (46) work on the respiration of *Polychæta* is very exhaustive, treating as it does of the physico-chemical conditions of the sea-water medium, and also the relations between respiration and the mode of life and habitat.

Jägerskiöld (190) contributes much useful information on the skin-glands of Nematodes. Grassi (154) has done additional work on the subject of filariasis and mosquitos.

Child (72) gives a treatise on the structure and movements of *Stenostoma* and the process of fission, with descriptions of typical cases of form-regulation in zooids separated from chains and a discussion of the theory of mechanical regulation.

The maturation of the egg, fertilization and development in some Trematodes, have been studied by Goldschmidt (145–147).

Many memoirs have appeared again this year on regeneration. Of these the chief is Morgan's (293) book on "Regeneration." It includes much work on Planarians and Annelids. Other memoirs on regeneration, too numerous to be here individually mentioned, will be found in the Subject-Indices.

There is an exhaustive treatise by Conte (98) on the Embryology of Nematodes, including the history of the subject, his methods of manipulation, genital apparatus and eggs, influence of the nutritive medium on development, segmentation and formation of the various organs, and anomalies of development; he deals also with the affinities of the group.

The development of *Phoronis* has been worked out in detail by SELYS LONGCHAMPS (246).

Many articles give information regarding filariasis. See GRASSI (154), GULLAND (166), PROUT (335), LOW (254, 255), BANCROFT (13), WARD (453), MARCHOUX (268).

Additions to the fauna of the Bermudas have been made by VERRILL (441 & 442).

JAMESON (191) has published the interesting results of his work on the origin of pearls; he claims that pearls are due to the presence of Trematode larvæ.

I. TITLES*.

1. ABEL, M. Beiträge zur Kenntnis der Regenerationsvorgänge bei den limicolen Oligochäten. Zeit. wiss. Zool. lxxiii, pp. 1–74, pls. i–iii, 2 text-figg.; also Zool. Anz. xxv, pp. 525–530.
Summary, Zool. Centrlbl. ix, p. 505.

2. *AGOSTINO, R. Un caso di cisticercosi cerebrale multipla. Gazzetta degli ospedali e delle cliniche, No. 84, 1901.
Title in Arch. parasit. v, p. 207.

3. ALLEN, B. M. The topography of organs in typical segments of *Hirudo*. Biol. Bull. iii, pp. 161–164, 1 text-fig.

4. *ANDRUSOV, N. Die südrussischen Neogenablagerungen. Verh. russ. miner. Ges. (2) xxxix, pp. 337–495, 1 pl., 1 fig. [n. spp. undescribed].

5. ANGLAS, J. & RIBAUCOURT, E. DE. Étude anatomique et histologique du *Distomum lanceolatum*. Ann. Sci. nat. xv, pp. 313–354, 38 figg.
Summary, Zool. Centrlbl. ix, p. 840.

6. APÁTHY, ST. VON. Die drei verschiedenen Formen von Lichtzellen bei Hirudineen. Mit Demonstration von Neurofibrillenpräparaten nach der Hämateïn-und der Nachvergoldungsmethode. Verh. Congr. Zool. Berlin 1901, pp. 707–728, 2 pls.

7. APSTEIN, C. Das Plankton der Ostsee. Abh. deutsch. Seefisch.-Ver. vii. [*Rotifera*, p. 119.]

8. ARIOLA, V. La métamérie et la théorie de la polyzoicité chez les Cestodes. Rev. gen. Sci. xiii, pp. 471–476, 4 figg.

9. ——. Contributo per una monografia die *Didymozoon*. 1 *Didymozoon* parassiti del Tonno. Arch. parasit. vi, pp. 99–108, 11 text-figg.

10. ARNOLD, J. Ueber die Fischnahrung in den Binnengewässern. Verh. Congr. Zool. Berlin 1901, pp. 553–556.

11. ASHWORTH, J. H. The anatomy of *Arenicola assimilis* Ehlers, and of a new variety of the species, with some observations on the post-larval stages. Quart. J. Micr. Sci. xlvi, pp. 737–785, pls. xxxvi & xxxvii.

12. ATTEMS, C. J. Beiträge zur Anatomie und Histologie von *Scolopendra fuliginosa* Clap. Arb. Inst. Wien xiv, pp. 173–210, 4 pls.

13. BANCROFT, T. L. Preliminary notes on the intermediary host of *Filaria immitis* Leidy. J. R. Soc. N. S. Wales xxxv, pp. 41–46.

---

* An asterisk prefixed to a title indicates that the Recorder has not seen the paper or work referred to.

14. Barbagallo, P. Sugli elminti parassiti dell' intestino del pollo. Boll. Acc. Gioen. fasc. 73, April 1902 (n.s.), pp. 5–7.

15. Bardeen, C. R. Embryonic and regenerative development in Planarians. Biol. Bull. iii, pp. 262–288, 12 text-figg.

16. Bartels, E. *Cysticercus fasciolaris.* Anatomie, Beiträge zur Entwickelung und Umwandlung in *Tænia crassicollis.* Zool. Jahrb. Anat. xvi, pp. 511–570, pls. xxxvii–xxxix, 2 text-figg.
Summary, Zool. Centrlbl. ix, p. 623.

17. Bastian, H. C. Sur la transformation, en trois ou quatre jours, du contenu entier de l'œuf de *Hydatina senta* en un gros infusoire cilié, du genre *Otostoma.* C.R. Ac. Sci. cxxxiv, p. 740. [Announcement only.]

18. Bavay, A. Note sur un distome parasite d'une méduse. Arch. parasit. v, pp. 199 & 200.

19. Beddard, F. E. On two new earthworms of the family *Megascolicidæ.* Ann. Nat. Hist. (7) ix, pp. 456–463.

20. ——. On some species of earthworms of the genus *Benhamia* from Tropical Africa. P. Zool. Soc. London 1901, ii, pp. 190–216, text-figg. 12–19. [6 n. spp.]

21. ——. On the spermatophores of the genus *Benhamia.* T. c. pp. 704–709, 3 text-figg.

22. ——. A note upon the gonad ducts and nephridia of Earthworms of the genus *Eudrilus.* Op. cit. 1902, ii, pp. 89–87, text-figg. 17–20.

23. ——. On a new cœlomic organ in an Earthworm. T. c. pp. 164–168, text-figg. 36–39.

24. ——. On some new species of Earthworms belonging to the genus *Polytoreutus*, and on the spermatophores of the genus. T. c. pp. 190–210, text-figg. 46–54.

25. ——. Leech. Encycl. Brit. xxx, pp. 181 & 182, 3 figg.

26. Bentley, C. A. On the causal relationship between "Ground itch" or "Pani-ghao" and the presence of the *Ankylostoma duodenale* in the soil. Brit. Med. J. 1902, pp. 190–193.
Summary, Zool. Centrlbl. ix, p. 504.

27. Bergendal, D. Studier öfver Nemertiner. I. *Callinera bürgeri* Bergendal, en representant för ett afvikande slägte bland Palaonemertinerna. [Summary in German.] Acta Univ. Lund. 1901, xxxvii, pp. 49–118, 25 text-figg.

28. ——. Studien über Nemertinen. II. *Valencinura bahusiensis* Bgdl. Ein Beitrag zur Anatomie und Systematik der Heteronemertinen. Op. cit. xxxviii, 3, pp. 1–104, 2 pls. and 18 text-figg.

29. ——. Zur Kenntnis der nordischen Nemertinen. 2. Eine der construierten Urnemertine entsprechende Palaeonemertine aus dem Meere der schwedischen Westküste. Zool. Anz. xxv, pp. 421–432, 5 text-figg.
Summary, Zool. Centrlbl. ix, p. 502.

30. ——. Zur Kenntniss der nordischen Nemertinen. Bergens Mus. Aarbog. 1902, 4, pp. 3–22, 1 pl.

31. ——. Einige Bemerkungen über *Carinoma armandi* Oudemans (sp. McInt.). Ofv. Ak. Forh. lix, pp. 13–18.
Summary, Zool. Centrlbl. ix, p. 503; also J. R. Micr. Soc. p. 309.

32. [Bergendal, D.] Ueber die Nemertinengattung *Callinera* Bgdl. Verh. Congr. Zool. Berlin 1901, pp. 63, 739–749, 2 pls.

33. ——. Ueber die Polycladengattung *Polypostia* Bgdl. T. c. pp. 63 & 750.

34. Bergmann, W. Untersuchungen über die Eibildung bei Anneliden und Cephalopoden. Zeitschr. wiss. Zool. lxxiii, pp. 278–301, pls. xvii–xix.

35. Boas, J. E. V. *Triplotœnia mirabilis.* Zool. Jahrb. Syst. xvii, pp. 329–334, pl. xii.

36. Böhmig, L. Turbellarien: Rhabdocœliden und Tricladiden. Ergebn. Hamburger Magalhæns. vi, pp. 3–30, 2 pls.

37. Bohn, G. Sur la locomotion des vers annelés (vers de terre et sangsues). Bull. Mus. Paris vii, 1901, pp. 404–411, 2 figg.

38. ——. Des ondes musculaires, respiratoires et locomotrices chez les Annélides et les Mollusques. Op. cit. viii, 1902, pp. 96–102.
Summary, Zool. Anz. xxvi, p. 101.

39. Bonnevie, Kristine. Abnormitäten in der Furchung von *Ascaris lumbricoides.* Jena. Zeitschr. xxx, pp. 83–104, pls. iv–vi, 1 text-fig.

40. Borradaile, L. A. On the spawn and young of a Polychæte worm of the genus *Marphysa.* P. Zool. Soc. London 1901, ii, pp. 714–720, pl. xxxix.

41. Bortolotti, C. Sviluppo e propagazione delle *Opalinine* parassite del lombrico. Monit. Zool. ital. xiii, pp. 195–204.

42. ——. Nota preventiva sulla funzione delle cellule cloragogene nei gen. *Lumbricus* ed *Allolobophora.* Rend. Acc. Lincei xi, pp. 449–451.

43. Bossuat, E. Les Helminthes dans le foie. Arch. parasit. vi, pp. 161–206, 13 text-figg.

44. [Bouin, P. Review of Rhumbler's paper; see Zool. Rec. xxxviii (311).] Annee biol. vi, p. 34.

45. [——. Review of Bonnevie's paper; see Zool. Rec. xxxviii (40).] T. c. p. 35.

46. Bounhiol, J. Recherches biologiques expérimentales sur la respiration des annélides polychètes. Thèse (Fac. d. Sc.). Paris, 1902, 8vo (pp. 1–131, 13 figg.); also in Ann. Sci. nat. xvi, pp. 1–80 [to be continued in Part ii], 7 figg.
Part i. i. État de la question.—Considérations générale. ii. Quelques considérations physico-chemiques sur l'eau de mer, milieu respirable des Annélides Polychètes. iii. Méthods et dispositifs expérimentaux.
Part ii. i. Préliminaires. ii. Influence générale de la taille sur la respiration des Annélides. iii. Influence de la complication et du développement plus ou moins grands des appareils respiratoire et circulatoire. iv. Modifications pendant la maturité sexuelle et les metamorphoses. v. Relations de l'activité respiratoire avec l'habitat et le genre de vie. vi. Relations de l'activité respiratoire avec quelques milieux respirables anormaux. [Incomplete.]
Summary, Zool. Anz. xxv, p. 581.

48. Braun, M. Ueber *Distoma goliath* P. J. v. Ben. 1858. Centrbl. Bakter. xxxii, pp. 800–803, 1 pl.
Summary, Zool. Centrlbl. ix, p. 841.

49. [Braun, M]. Fascioliden der Vögel. Zool. Jahrb. Syst. xvi, pp. 1–162, pls. i–viii.
Summary by Braun, Zool. Centrlbl. ix, pp. 442–444.

50. *——. Die thierischen Parasiten des Menschen, ein Handbuch für Studirende und Aerzte. 3. Würzburg, 1903, 360 pp., 272 text-figg.
Summary, Zool. Centrlbl. ix, p. 835.

51. Breazzano, A. Sul rostello delle *Davaineæ*. Contributo alla morfologia del rostello. Atti Acc. Napoli (2) xi, No. 3, 5 pp., 1 pl.
Summary, J. R. Micr. Soc. 1901, p. 538.

52. Bretscher, K. Beobachtungen über die Oligochäten der Schweiz. vi. Rev. Suisse Zool. x, pp. 1–29 (10 n. spp.).
Summary, Zool. Centrlbl. ix, p. 626.

53. Budington, R. A. Some physiological characteristics of Annelid muscle. Amer. J. Physiol. vii, pp. 155–179.
Summary, Zool. Anz. xxv, p. 364.

54. Bugge, G. Zur Kenntniss des Exkretionsgefässsystems der Cestoden und Trematoden. Zool. Jahrb. Anat. xvi, pp. 177–234, pls. xxi–xxiv.
Summary by Braun, Zool. Centrlbl. ix, pp. 440–442.

55. Bürger, O. Weitere Beiträge zur Entwicklungsgeschichte der Hirudineen. Zur Embryologie von *Clepsine*. Zeitschr. wiss. Zool. lxxii, pp. 525–544, pls. xxx–xxxii.

56. Buttel-Reepen, H. von. Zur Kenntniss der Gruppe des *Distomum clavatum*, insbesondere des *D. ampullaceum* und des *D. siemersi*. Zool. Jahrb. Syst. xvii, pp. 165–236, pls. vi–x, 8 text-figg.

57. *Calamida, D. Ulteriori ricerche sul veleno delle tenie. Riforma med. An. xvii (iii), pp. 364 & 365.
Zool. Anz. xxv, p. 359.

58. Calkins, G. N. [Review of Lankester's "Treatise on Zoology, iv", see Zool. Rec. xxxviii (25).] Science xv, pp. 267 & 268.

59. Calman, W. T. On the occurrence of terrestrial Planarians in Scotland. Ann. Scott. Nat. Hist. 1902, pp. 231–233.

60. Camerano, L. Gordii raccolti dalla spedizione "Skeat" nella penisola Malese 1899–1900. Boll. Mus. Torino xvi, No. 408, 2 pp.

61. ——. Gordii raccolti dal Dottor Filippo Silvestri nella Repubblica Argentina e nel Paraguay. Op. cit. No. 410, 2 pp.

62. ——. Viaggio del Dr A. Borelli nel Matto Grosso e nel Paraguay. Op. cit. No. 411, 2 pp.

63. ——. Gordii di Madagascar e delle isole Sandwich. Op. cit. No. 412, 2 pp.

64. ——. Nuova specie di *Chordodes* del Sudan. Op. cit. xvii, No. 416, 3 pp.

65. ——. Descrizione di una nuova specie di *Chordodes* del Congo. Op. cit. No. 426, 2 pp.

Cantrill, T. C. [See Strahan & Cantrill (423).]

66. Car, L. Planktonproben aus dem Adriatischen Meere und einigen süssen und brakischen Gewässern Dalmatiens. Zool. Anz. xxv, pp. 601–605. [*Rotifera* and *Sagitta*, unimportant.]

67. *Cattie, T. Kleiner Beitrag zur Kenntniss der Älchenkrankheit der Farnkräuter [*Aphelenchus olesistus*]. Zeit. Pflanz. Sorauer. xi, p. 34.
Summary, Zool. Anz. xxv, p. 489.

68. Caullery, M. & Mesnil, F. Sur les *Fecampia* Giard, Turbellairés endoparasites. C.R. Ac. Sci. cxxxiv, pp. 911–913 and C.R. Soc. Biol. liv, pp. 439–441.
Summary, Zool. Centrlbl. ix, pp. 496–498.

69. Cecconi, J. De la sporulation de la *Monocystis agilis* Stein. Arch. anat. micr. v, pp. 122–140, pl. v.
Occurring in various worms, unimportant.

70. Cerruti, A. Di un tenioide dell' *Alauda arvensis*, con riguardo speciale ad un organo parauterino. Atti. Acc. Napoli (2) xi, No. 6, 8 pp., 1 pl.

71. Chapman, T. A. *Gordius* in a butterfly. Entomologist xxxv, p. 42.

72. Child, C. M. Studies on regulation. I. Fission and regulation in *Stenostoma*. i. The structure and movements of *Stenostoma* and the process of fission, pp. 187–214. ii. The theory of mechanical regulation, pp. 214–237. iii. The regulation of zooids or groups of zooids, pp. 355–420, pls. v, vi, vii. Arch. Entwickmech. xv.

73. ——. An experimental study of regulation in *Stenostoma*. Science xv, p. 527.

74. ——. The habits and natural history of *Stichostemma*. Amer. Natural. xxxv, pp. 975–1006.

75. ——. Abnormalities in the Cestode *Moniezia expansa*. III. Biol. Bull. iii, pp. 143–160, 74 text-figg.

76. ——. [Segmentation of *Arenicola cristata*]. Table. Arch. Zool. exp. (3) x, No. 4, pl. xl.

77. Clark, H. L. A new host for Myzostomes. Zool. Anz. xxv, pp. 670 & 671.

78. Clerc, W. Contribution à l'étude de la faune helminthologique de l'Oural. (Communication préliminaire I.) T. c. pp. 569–575, 5 text-figg. II. pp. 658–664, 5 text-figg.
Summary, Zool. Centrlbl. ix, p. 775.

79. Cleve, P. T. The plankton of the North Sea and the Skagerak in 1900. Svenska Ak. Handl. xxxv, pp. 1–49. [Unimportant, merely mentions *Sagitta*.]

80. Cobb, N. A. A report on the parasites of stock. Agric. Gaz. N.S.W. ix, 1898, pp. 296–321, 419–454, figg.
Summary, Zool. Centrlbl. ix, p. 626.

81. ——. Root-Gall. Op. cit. xii, pp. 1041–1052, 8 figg. [*Nematoda*.]

82. ——. A new Eel-worm infesting the roots of passion-vine. T. c. pp. 1115–1117, 1 fig. [*Nematoda*.]

83. ——. Probable occurrence of the Tape-worm (*Tænia ovilla*) in Australian sheep. Op. cit. xiii, p. 796.

84. ——. Nematode formula. T. c. pp. 1023–1030.

85. ——. Internal structure of the gall-worm. T. c. pp. 1031–1033.

86. Coe, W. R. The genus *Carcinonemertes*. Zool. Anz. xxv, pp. 409–414, 2 figg.

87. [Coe, W. R.] The Nemertean parasites of Crabs. Amer. Natural. xxxvi, pp. 431–450, 9 text-figg.

88. ——. [Review of paper by Thompson, C. B. Zool. Rec. xxxviii (363).] T. c. pp. 758–760.

89. Cognetti, L. Viaggio del Dr. A. Borelli nel Chaco boliviano e nella Repubblica Argentina. xvii. Terricoli boliviani ed argentini. Boll. Mus. Torino xvii, No. 420, pp. 1–11, 1 pl.

90. ——. Un nuovo genere della fam. "*Glossoscolecidæ*." Atti Acc. Torino xxxvii, pp. 432–446, 1 pl.

91. *——. Contributo alla conoscenza degli Oligocheti cavernicoli. Atti Soc. Modena (4) v, 10 pp.
Volume not yet arrived. Title only recorded. Summary, Zool. Anz. xxv, p. 488.

92. Cohn, L. Zwei neue Distomen. Centrbl. Bakter. xxxii, pp. 877–882, 5 text-figg.

93. ——. Helminthologische Mittheilungen. Arch. Naturg. lxix, pp. 47–68, pl. iii.

94. ——. Protozoen als Parasiten in Rotatorien. Zool. Anz. xxv, pp. 497–502.

95. ——. Mittheilungen über Trematoden. T. c. pp. 712–718, 9 figg.
Summary, Zool. Centrlbl. ix, p. 842.

96. Coles, A. C. The blood in cases affected with filariasis and *Bilharzia*, Brit. Med. J. 1902, p. 1137.

97. Collin, A. Bericht über die Rotatorien- und Gastrotrichen- Litteratur im Jahre 1894. Arch. Naturg. lxi, pp. 299–320.

98. Conte, A. Contributions a l'embryologie des Nématodes. Ann. Univ. Lyon, Fascicule 8, pp. 1–133, 137 figg.
Summary in Rev. gen. Sci. xiii, p. 891.

99. ——. [Reviews of papers on regeneration by Morgan, Stevens, see Zool. Rec. xxxviii (253) (349).] Annee biol. vi, pp. 175 & 176.

——. [See also Vaney & Conte (438).]

100. —— & Vaney, C. Contributions à l'étude anatomique du *Rhabdopleura normani* Allm. C.R. Ac. Sci. cxxxv, pp. 63–65.

101. Cori, C. J. Mittheilungen aus der k. k. Zoologischen Station in Triest. 3. Über das Vorkommen des *Polygordius* und *Balanoglossus* (*Ptychodera*) im Triester Golfe. Zool. Anz. xxv, pp. 361–365.

102. Corti, E. Di un nuovo Nematode parasita in larva di *Chironomus*. Rend. Ist. Lombardo (2) xxxv, pp. 105–113.
Brief summary, Zool. Centrlbl. ix, p. 118.

103. Crampton, —. [Occurrence of *Balanoglossus* at Long Island.] Ann. N. York Ac. xiv, p. 138.

104. Cuénot, L. Organes agglutinants et organes cilio-phagocytaires. Arch. Zool. exp. (3) x, No. 1, pp. 79–97, 5 text-figg.

105. ——. [Review of Meyer's paper, see Zool. Rec. xxxviii (240).] Annee biol. vi, p. 245.

105a. Curtis, W. C. The life history, the normal fission, and the reproductive organs of *Planaria maculata*. P. Boston Soc. xxx, pp. 515–559, pls. ix–xix.

106. Daday, E. Mikroskopische Süsswasserthiere aus Patagonien, gesammelt von Dr. Filippo Silvestri [im Jahre 1899 und 1900]. Termes. Fuzetek xxv, pp. 201–310, pls. ii–xv, 3 text-figg.
Summary, Zool. Centrlbl. ix, pp. 337–338.

107. Dampel, N. [Sur les vers ronds parasites de la *Tænia pusilla* Goeze.] Trudui Kharkov. Univ. xxxv, pp. xxxvii–xliii, figg. 1 & 2 (Russian and German).
Brief summary, Zool. Centrlbl. ix, p. 118.

108. Darr, A. Ueber zwei Fasciolidengattungen. Zeitschr. wiss. Zool. lxxi, pp. 644–701, pls. xxxiii–xxxv (and Inaug.-Diss. Halle, 1902).
Summary, Zool. Centrlbl. ix, p. 735.

109. Dawydoff, C. Ueber die Regeneration der Eichel bei den Enteropneusten. Zool. Anz. xxv, pp. 551–556.
Summary, Zool. Centrlbl. ix, p. 847.

110. *Deecke, W. Neue Materialien zur Geologie von Pommern. Mt. Ver. Neu-Vorpomm. xxxiii, pp. 65–131. [Refers to *Serpula*.]

111. Delage, Y. Les théories de la fécondation. Verh. Congr. Zool. v, Berlin, pp. 121–140.
Occasional references to *Ascaris*.

112. ——. [Review of Loeb's paper on artificial parthenogenesis in *Chætopterus*, see Zool. Rec. xxxviii (206).] Annee biol. vi, p. 120.

113. Dévé, F. Sur l'évolution kystique du scolex Échinococcique. Arch. parasit. vi, pp. 54–81, 11 text-figg.

114. Dixon-Nuttall, F. R. & Freeman, R. On *Diglena rostrata*: a new Rotifer. J. Quekett Club (2) viii, pp. 215 & 216, pl. ix.

115. Doncaster, L. On the development of *Sagitta*; with notes on the anatomy of the adult. Quart. J. Micr. Sci. xlvi, pp. 351–398, pls. xix–xxi.

116. ——. *Chætognatha* with a note on the variation and distribution of the group. Fauna and Geography of the Maldive and Laccadive Archipelagoes i, 2, pp. 209–218, pl. xiii, text-figg. 39 & 40.

117. Dorner, G. Über die Turbellarienfauna Ostpreussens. Zool. Anz. xxv, pp. 491–493. [7 n. spp.]
Summary, Zool. Centrlbl. ix, p. 499.

118. *Drixelius, R. Echinokokken-Statistik aus den Sections-Befunden des pathologischen Instituts zu Kiel. Inaug.-Diss. Kiel (8 Sept) 1900, 8° (13 pp.).
Zool. Anz. xxv, p. 217.

119. Duboscq, O. *Alma zebanguii* n. sp. et les *Alminæ* Oligochetes de la famille des *Glossoscolecidæ* Mich. Arch. zool. exp. Notes (3) x, pp. xcvii–cvi, 3 text-figg.

120. Durme, P. van. Quelques notes sur les embryons de *Strongyloïdes intestinalis* et leur pénétration par la peau. Thompson Yates Lab. iv, 2, pp. 471–474, pl. vii.

121. Eisig, H. [Segmentation of *Capitella capitata*.] Table. Arch. Zool. exp. (3) x, No. 4, pl. xxxix.

——. [See also Pintner & Eisig (332).]

122. *Elbert, J. Das untere Angoumien in der Osningbergketten des Teutoburger Waldes. Verh. Ver. Rheinland lviii, pp. 77–167, 4 pls. 12 figg. [*Annelida*.]

123. Fauvel, P. Les otocystes des Annélides Polychètes. C.R. Ac. Sci. cxxxv, pp. 1362–1365.

124. *——. [Annélides polychètes de la Casamance rapportées par M. Aug. Chevalier. Bull. Soc. Normand. (5) v, pp. 59–105.] [12 (7 n.) spp.]
Volume not yet arrived. Title only recorded. Summary, Zool. Anz. xxv, p. 364.

125. Fédorov, Nathalie. L'anémie bothriocéphalique. Arch. parasit. vi, pp. 207–244.

126. Fischer, M. H. Further experiments on artificial parthenogenesis in Annelids. Amer. J. Physiol. vii, pp. 301–314, 8 text-figg.
Summary, Zool. Anz. xxv, p. 488.

127. Florentin, R. [Review of Noel, "La nielle des blés (*Anguillula tritici*)," Naturaliste xxiii, pp. 165 & 166.] Annee biol. vi, p. 289.

128. Foot, Katharine & Strobell, Ella C. Further notes on the cocoons of *Allolobophora fœtida*. Biol. Bull. iii, pp. 206–213, 3 text-figg.

129. —— & ——. The spermatozoa of *Allolobophora fœtida*. Amer. J. Anat. i, pp. 321–327, 1 pl.

130. Forel, F.-A. Le Léman, monographie limnologique. III. Lausanne, 1902. [*Vermes*, pp. 111–127, figg. 190–194.]

131. F[owler], G. H. *Hemichorda*. Encycl. Brit. xxix, pp. 249–252, 7 figg.

132. Fox, H. On the distribution of fossils on the north coast of Cornwall, south of the Camel. Tr. geol. Soc. Cornwall xii, pp. 535–545.
Lists of spp. found, unimportant for *Vermes*.

Frankland, W. A. [See Stiles & Frankland (415).]

Freeman, R. [See Dixon-Nuttall & Freeman (114).]

133. Frič, A. & Vavra, V. Untersuchungen über die Fauna der Gewässer Böhmens. v. Untersuchungen des Elbeflusses und seiner Altwässer durchgeführt auf der übertragbaren zoologischen Station. Arch. Landesdf. Bohmen. ii, 3, 1901, 156 pp., 119 text-figg.
Summary, Zool. Centrlbl. ix, p. 730.

134. Friend, H. Studies in Irish *Enchytræids*. Irish Natural. xi, pp. 110–115.

135. Fuhrmann, O. Die Anoplocephaliden der Vögel. Centrbl. Bakter. xxxii, pp. 122–147, 25 text-figg.
Summary, Zool. Centrlbl. ix, p. 694.

136. ——. Sur un nouveau Bothriocéphalide d'oiseau (*Ptychobothrium armatum*). Arch. parasit. v, pp. 440–448, 6 text-figg.
Summary, Zool. Centrlbl. ix, p. 445.

137. ——. Sur deux nouveaux genres de Cestodes d'oiseaux. (Note préliminaire.) Zool. Anz. xxv, pp. 357–360, 2 text-figg.
Summary, Zool. Centrlbl. ix, p. 444.

138. ——. Sur plusieurs singuliers ténias d'oiseaux. Arch. Sci. nat. (4) xii, pp. 505 & 506.

139. ——. Sur la copulation et la fécondation chez les Cestodes. Op. cit. (4) xiii, pp. 516 & 517.
Summary, Zool. Anz. xxv, p. 484.

140. Galli-Valerio, B. *Bothriocephalus latus* chez le chat. Centrbl. Bakter. xxxii, pp. 285–287.

141. G[amble], F. W. Planarians. Encycl. Brit. xxxi, pp. 792–794.

142. Gardiner, C. I. & Reynolds, S. H. The fossiliferous Silurian beds and associated igneous rocks of the Clogher Head district (Co. Kerry). Quart. J. Geol. Soc. lviii, pp. 226–266, 1 map.

143. Gemmill, J. F. & Linstow, O. von. *Ichthyonema grayi* Gemmill und v. Linstow. Arch. Naturg. lxvii, ii, pp. 113–118, pl. viii.
Summary, Zool. Centrlbl. ix, p. 448.

144. Gineste, —. Quelques particularités anatomiques des *Sipunculides*. Pr.-verb. Soc. Bordeaux lvi, pp. clxiii–clxv.
Summary, Zool. Anz. xxv, p. 365.

145. Goldschmidt, R. Ueber Bau und Embryonalentwickelung von *Zoogonus mirus* Lss. Centrbl. Bakter. xxxii, pp. 870–876, 6 text-figg.

146. ——. Untersuchungen über die Eireifung, Befruchtung und Zellteilung bei *Polystomum integerrimum* Rud. Zeitschr. wiss. Zool. lxxi, pp. 397–444, pls. xxii–xxiv.
Summary, Zool. Centrlbl. ix, p. 398.

147. ——. Bemerkungen zur Entwickelungsgeschichte des *Polystomum integerrimum* Rud. Op. cit. lxxii, pp. 180–189, 11 text-figg.
Summary, Zool. Centrlbl. ix, p. 736.

148. Goldsmith, M. [Review of Kovalevsky, "Étude biologique de l'*Haementeria costata*." Mem. Ac. St. Petersb. (8) xi, i, pp. 1–77, 10 pls. 1900.] Annee biol. vi, p. 108. [Also review of Lillie's paper, see Zool. Rec. xxxviii (198)], t. c, p. 273. [Also of Golowin's paper, Zool. Rec. xxxviii (138)], t. c. p. 319.

149. Golowin, E. P. Beobachtungen an Nematoden. ii. Excretorischer Apparat. Kasan, 1902, 120 pp., 21 figg., 3 pls. (Russian).
Summary by Linstow, Zool. Centrlbl. ix, p. 449.

150. G[oodrich], E. S. Worm. Encycl. Brit. xxxiii, pp. 878–885, 10 figg.

151. Gourret, P. Sur quelques annélides sédentaires (gen. *Hydroides*, *Pomatoceros* et *Hermella*) du golfe de Marseille. C.R. Ass. franc. 1901 (2), pp. 685–691, 4 text-figg.

Grabau, A. W. [See Shimer & Grabau (386).]

152. Graff, L. von. Vorläufige Mittheilungen über Rhabdocœliden. Zool. Anz. xxvi, pp. 39–41.

153. ——. Vorläufige Mittheilungen über Rhabdocœliden. ii. Die Acœlen von Puerto Orotava, Bergen und Alexandrowsk. T. c. pp. 110–112, 121–123.

154. Grassi, G. B. Das Malariaproblem vom zoologischen Standpunkte. Verh. Zool. Congr. v, Berlin 1901, pp. 99–115.

155. Gravier, C. Sur les Annélides polychètes d'eau douce. C.R. Ac. Sci. cxxxv, pp. 984–986.

156. ——. Sur trois nouveaux Polychètes d'eau douce. Bull Soc. Autun. xiv, pp. 353–371.
[Cf. Gravier (162).]

157. ——. Sur le genre *Lycastis* Savigny (Audouin et M.-Edwards rev.). T. c. pp. 373–379.

158. [Gravier, C.] Contribution à l'étude des Annélids Polychètes de la Mer Rouge. Arch. Mus. Paris (4) iii, pp. 147–268, text-figg. 160–285, pls. vii–x. [Continuation, cf. Zool. Rec. xxxviii (152).]

159. ——. Sur les collections d'Invertébrés rapportées de la Guyane française par M. F. Geay. Bull. Mus. Paris vii, pp. 226 & 227.
Several worms named; unimportant.

160. ——. Sur la classification des Néréidiens de Quatrefages (*Lycoridiens* Grube). T. c. pp. 350–357.

161. ——. Sur deux nouvelles espèces du genre *Lycastis* Savigny, Aud. et Edw. rev., de la Guyane française. T. c. pp. 397–402.

162. ——. Sur un Capitellien d'eau douce (*Eisigella* n. gen. *ouanaryensis* n. sp.). T. c. pp. 402–404.

163. ——. Sur les Annélides Polychètes d'eau douce. Bull. Mus. Paris viii, pp. 25–30; & in Bull. Soc. Autun xiv, pp. 381–388.

——. [Cf. Perrier & Gravier (325).]

164. Graybill, H. W. Some points in the structure of the *Acanthocephala*. Tr. Amer. Micr. Soc. xxiii, pp. 191–200, 1 pl.; & Stud. Lab. Nebraska, No. 49, pp. 191–200, 1 pl.

165. Green, E. E. Note on a species of *Gordius* parasitic in the body of a *Mantis*. J. Bombay Soc. xiv, p. 610.

166. Gulland, G. L. The condition of the blood in filariasis. Brit. Med. J. 1902, pp. 831 & 832.

167. Häcker, V. Ueber des Schicksal der elterlichen und grosselterlichen Kernanteile. Morphologische Beiträge zum Ausbau der Vererbungslehre. Jena. Zeitschr. xxx, pp. 297–400. [*Vermes*, pp. 356–359.]

168. Hall, T. S. New or little-known fossils from the Tertiaries of Victoria. P. Soc. Victoria xv, pt. i, pp. 80–85, pl. xi.

169. Hansson, C. A. Anteckningar om Skandinaviens Glattmaskar, Iglas m. m. Ofv. Ak. Forh. lviii, pp. 729–737. [*Lumbricidæ*, *Hirudinea*, *Trematoda*.]
Abstract, Zool. Anz. xxv, p. 359.

Hassall, A. [See Stiles & Hassall (416, 417).]

170. Haswell, W. A. On a Cestode from *Cestracion*. Quart. J. Micr. Sci. xlvi, pp. 399–415, pls. xxii–xxiv.

171. ——. On a *Gyrocotyle* from *Chimæra ogilbyi* and on *Gyrocotyle* in general. P. Linn. Soc. N. S. Wales xxvii, pp. 48–54, pl. vii.
Summary, Zool. Anz. xxvi, p. 98.

172. Heath, H. The anatomy of *Epidella squamula*, sp. nov. Contributions to Biology from the Hopkins seaside laboratory of the Leland Stanford Jr. University, xxviii. P. Calif. Ac. iii, pp. 109–136, pls. xv & xvi.

173. Henneguy, L.-F. Sur la formation de l'œuf, la maturation et la fécondation de l'oocyte chez le *Distomum hepaticum*. C.R. Ac. Sci. cxxxiv, pp. 1235–1238.

174. Herdman, W. A. Fifteenth annual report of the Liverpool Marine Biology Committee and their Biological station at Port Erin. P. Liverp. biol. Soc. xvi, pp. 27–66.

175. ——. Guide to the Port Erin Aquarium. T. c. [*Vermes*, pp. 72–75, 2 figg.]

176. Hérubel, M. A. Sur certains éléments péritonéaux du Phascolosome (*Phascolosoma vulgare* de Blainville). Bull. Soc. zool. France xxvii, pp. 105–114, 4 text-figg.

177. ——. Sur le cerveau du Phascolosome. C.R. Ac. Sci. cxxxiv, pp. 1603–1605.

178. Hesse, R. Zur Kenntnis der Geschlechtsorgane von *Lumbriculus variegatus*. Zool. Anz. xxv, pp. 620–622, 2 text-figg.

179. *Hofer, J. Nematodenkrankheit bei Topfpflanzen [*Aphelenchus olesistus*]. Zeit. Pflanz. Sorauer. xi, p. 34.
Zool. Anz. xxv, p. 489.

180. Hollack, J. Zur Kenntnis der sexuellen Amphitypie bei Dicrocœliinen. Centrbl. Bakter. xxxii, pp. 867–869.

181. Horst, R. New species of the genus *Euphrosyne* from the Siboga-expedition, with a table of the species hitherto known. Notes Leyden Mus. xxiii, pp. 213–222.

182. Hoyer, —. Die geologischen Verhältnisse der Umgegend von Sehnde. Zeitschr. Deutsch. geol. Ges. liv, pp. 84–143 (unimportant for *Vermes*).

183. Hübner, O. Neue Versuche aus dem Gebiet der Regeneration und ihre Beziehungen zu Anpassungserscheinungen. Zool. Jahrb. Syst. xv, pp. 461–498, pls. xxviii & xxix.
Summary, Zool. Centrlbl. ix, p. 427.

184. Ihering, H. v. Die Helminthen als Hilfsmittel der zoogeographischen Forschung. Zool. Anz. xxvi, pp. 42–51.
Summary, Zool. Centrlbl. ix, pp. 836.

185. Ikeda, I. On the occurrence of *Phoronis australis* Haswell, near Misaki. Annot. zool. Japon. iv, pp. 115–118.

186. Issel, R. Studi sulla fauna termale euganea (Nota preventiva). Boll. Mus. Genova 1901, No. 108, 5 pp.

187. Izuka, A. On two new species of the family *Maldanidæ* from the Sagami Bay. Annot. zool. Japon. iv, pp. 109–114, pl. iii.

188. *Jacobi, A. Die Rüben- und Hafernematoden (*Heterodera schachtii*) und ihre Bekämpfung. A. Naturgeschichte des Schädlings. 12 figg. Kais. Gesundheits. Biol. Abth. Land. Forstw. Flugbl. xi, pp. 1–4.
From Zool. Anz. xxv, Bibl. p. 77.

189. Jägerskiöld, L. A. *Tocotrema expansum* (Crepl.) (=*Monostomum expansum* Crepl.), eine genitalnapftragende Distomide. Centrbl. Bakter. xxx, pp. 979–983, 1 fig.
Summary, Zool. Centrlbl. ix, p. 356.

190. ——. Weitere Beiträge zur Kenntniss der Nematoden. Svenska Ak. Handl. xxxv, pp. 1–80, pls. i–vi.
Summary, Zool. Centrlbl. ix, p. 119.

191. Jameson, H. L. On the origin of pearls. P. Zool. Soc. London 1902, i, pp. 140–166, pls. xiv–xvii, text-figg. 22–24. [Due to Trematode larvæ.]

192. Janda, V. Bemerkungen zu M. Brace's Arbeit "Notes on *Aeolosoma tenebrarum*." Zool. Anz. xxv, pp. 172–174.

193. ——. Ueber die Regeneration des centr. Nervensystems und Mesoblastes bei *Rhynchelmis*. SB. Bohmisch. Ges. 1902, pp. 1–59, 3 pls. 6 text-figg.
Summary, Zool. Anz. xxv, 488.

194. Janensch, W. Die Jurensisschichten des Elsass. Abh. geol. Karte Elsass. v [*Vermes*, pp. 128 & 129].

195. Janicki, C. von. Ueber zwei neue Arten des Genus *Davainea* aus celebensischen Säugern. Arch. parasit. vi, pp. 257–292, 18 text-figg.
Summary, Zool. Centrlbl. ix, p. 844.

196. Jennings, H. S. Asymmetry in the *Rattulidæ*, and the biological significance of asymmetry in some lower organisms. Science xv, p. 524.

197. ——. [Review of the paper on the "Development, Structure and Metamorphosis of Actinotrocha," by Ikeda, vide Zool. Rec. xxxviii (166).] Amer. Natural. xxxvi, pp. 499 & 500.

198. Johnson, Sarah W. The course of the blood flow in *Lumbricus*. Science xv, p. 577. [Amer. Morph. Soc.]

——. [See also Johnston & Johnson (200).]

199. Johnson, H. P. Collateral budding in Annelids of the genus *Trypanosyllis*. Amer. Natural. xxxvi, pp. 295–315, 17 text-figg.
Summary, Zool. Centrlbl. ix, p. 506.

200. Johnston, J. B. & Johnson, Sarah W. The course of the blood-flow in *Lumbricus*. T. c. pp. 317–328, 3 text-figg.

201. Joseph, H. Untersuchungen über die Stützsubstanzen des Nervensystems, nebst Erörterungen über deren histogenetische und phylogenetische Deutung. Arb. Inst. Wien xiii, pp. 335–400, 4 pls, 2 figg.

202. Joubin, L. Némertiens. Expeditions scientifiques du "Travailleur" et du "Talisman." Paris, 4to, 1902, pp. 181–220, pl. viii.

203. Kamensky, S. (Notices helminthologiques 1. Sur l'*Opisthorchis tenuicollis* = *Distomum felineum* Riv.) Trudui Kharkov. Univ. xxxv, pp. iii–xxiii. [Summary in French.]

204. Karakasch, J. Note sur le Crétacé Inférieur de Biassala (Crimée). Trav. Lab. geol. Grenoble vi, pp. 93–107, 1 pl. [Unimportant for *Vermes*.]

205. Kašparek, T. Ueber eine Taubenepizootie verursacht durch Invasion von *Heterakis perspicillum*. Centrbl. Bakter xxxi, pp. 245–247.

206. Khitrow, M. S. (Sur la présence de la *Cotugnia digonopora* (Pasq.) à Kharkow et de son parasite ver rond.) Trudui Kharkov. Univ. xxxv, pp. xxvii–xxxiv, figg. 1 & 2. [In Russian, summary in French.]

207. Kholodkovsky, N. Contributions à la connaissance des Ténias des ruminants. Arch. parasit. vi, pp. 145–148, 1 text-fig., 1 pl. [in Russian]. Trudui St. Petersb. Obshch. xxxiii, pp. 60–64, 1 fig.
Summary, Zool. Anz. xxv, p. 359.

208. Klunzinger, C. B. Ueber *Ptychodera erythræa* Spengel aus dem Rothen Meere. Verh. Deutsch. zool. Ges. 1902, xii, pp. 195–202, 4 figg.
Summary, Zool. Centrlbl. ix, p. 783.

209. Kolb, R. Ueber den Befund von auf dem Peritoneum des Cavum Douglasii angewachsenen Oxyuriden. Centrbl. Bakter. xxxi, pp. 268–272.

210. Korotneff, A. Fauna Oligochaet' Bajkala. 50 jähriges Jubilaum der ost-sibirischen Abteilung der Kaiserl. Russischen Geographischen Ges., Jubiläums-Festschrift, Kiew 1901, pp. 67–76.
Same as the German version by Michaelsen (283).

211. Kostanecki, C. Über die Reifung und Befruchtung des Eies von *Cerebratulus marginatus*. Bull. Ac. Cracovie 1902, 5, pp. 270–277.
Summary, Zool. Anz. xxv, p. 486.

212. ——. Ueber abnorme Richtungskörpermitosen in befruchteten Eiern von *Cerebratulus marginatus*. T. c. pp. 278–289.

213. *Kowalewski, M. [Verzeichnis der parasitischen Würmer, die in den Jahren 1894–1901 im Geflügel zu Dublany aufgefunden wurden.] (Odbitka z "Przegladu weterynarskiego") Lwów, 1902, 8vo (2 pp.).
From Zool. Anz. xxv, Bibl., p. 359.

214. *——. Spis robaków pasorzytnych znalezionych w ptactwie domewem, w Dublanach, w ciagu lat 1894–1901. Przegladu weterynarskiego, i, 2 pp.
Brief summary, Zool. Centrlbl. ix, p. 837.

215. *——. Materyaly do fauny helmintologicznej pasorzytniczej polskiej. III. Sprawozd. Kom. Krajo. xxxvi, 12 pp.
Summary, Zool. Centrlbl. ix, p. 837.

216. ——. (Phénomènes de la fécondation chez *Hæmenteria costata* Müller). Mem. Ac. St Petersb. (8) xi, pp. 1–13. [Summary in French, pp. 14–19.]

217. *——. Studya helmintologiczne. VI. O czterech gatunkach rodz. *Trichosoma* Rud. Rospr. Ak. Krakow xxxviii, pp. 268–285, 1 pl.
Zool. Anz. xxv, p. 359.

——. [See Goldsmith (148).]

218. Kükenthal, W. Leitfaden für das zoologische Praktikum. Jena, 1901. [*Vermes*, pp. 76–121, text figg.-64–87.]

219. Kurlow, M. von. *Anguillula intestinalis* als Ursache akuter bluttiger Durchfälle beim Menschen. Centrbl. Bakter. xxxi, Orig. pp. 614–628, 9 text-figg.

220. Kuwano, H. On a new Enteropneust from Misaki, *Balanoglossus misakiensis*, n. sp. Annot. zool. Japon. iv, pp. 77–84, 6 figg.
Summary, Zool. Centrlbl. ix, p. 784.

221. Labbé, A. [Review of Halkin's paper, see Zool. Rec. xxxviii (156).] Annee biol. vi, p. 110. [Also of Ferroniere's paper, Zool. Rec. xxxviii (114)] Annee biol. vi, pp. 352–354.

222. Laidlaw, F. F. Notes on some marine *Turbellaria* from Torres Straits and the Pacific, with a description of new species. Mem. Manchester Soc. xlvii, ii, pp. 1–12.

223. ——. *Typhlorhynchus nanus*: a new Rhabdocœle. Quart. J. Micr. Sci. xlv, pp. 637–652, pl. xxxv.
Summary, Zool. Centrlbl. ix, p. 499–501.

224. *Lambinet, J. Recherches sur la résistance des œufs et des larves d'Ankylostomes aux agents physicochimiques. Bull. Ac. Med. Belgique (5) xv, pp. 397–401, Mai 25, 1901.
Title from Arch. parasit. v, p. 207.

225. Lang, —. [Segmentation of *Discocœlis tigrina*.] Table. Arch. Zool. exp. (3) x, No. 4, pl. xlii.

226. Lavergne, G. La anguilula en Sud-America. Comunicacion presentada al Congreso Cientifico Latino-Americano de Montevideo. Revist. chilena v, pp. 85–91, 3 figg.

227. LEIPER, R. T. On an acœlous Turbellarian inhabiting the common heart-urchin. Rep. Brit. Ass. 1902, p. 652.

LEMAIRE, NEVEU. [See NEVEU-LEMAIRE (303).]

228. LEVANDER, K. M. Über die Artberechtigung von *Anuræa eichwaldi*. Medd. Soc. Faun. Fenn. xxvii, pp. 51–55, 2 figg.

229. LILLIE, R. S. On the effects of various solutions on ciliary and muscular movement in the larvæ of *Arenicola* and *Polygordius*. II. Amer. J. Physiol. vii, pp. 25–55.
Summary, Zool. Anz. xxv, p. 364.

230. LILLIE, F. R. Notes on regeneration and regulation in Planarians. II. Op. cit. vi, pp. 129–141, 7 figg.

231. ——. Differentiation without cleavage in the egg of the Annelid *Chætopterus pergamentaceus*. Arch. Entwickmech. xiv, pp. 477–499, pls. xxvii & xxviii and Science xv, pp. 521–523.
Summary, Zool. Centrlbl. ix, p. 779.

232. LINSTOW, O. VON. On *Tetrabothrium torulosum* and *Tetrabothrium auriculatum*. P. R. Soc. Edinb. xxiii, pp. 158–160.

233. ——. *Filaria cingula*, n. sp. Zool. Anz. xxv, pp. 634 & 635, 1 fig.
Summary, Zool. Centrlbl. ix, p. 695.

234. ——. *Echinococcus alveolaris* und *Plerocercus lachesis*. Op. cit. xxvi, pp. 162–167, 14 text-figg.

235. ——. *Atractis cruciata* und *Oxyuris monhystera*, zwei neue Nematoden aus *Metapoceros cornutus*. Centrbl. Bakter. xxxi, pp. 28–32, 1 pl.
Brief summary in Zool. Centrlbl. ix, p. 74.

236. ——. Zwei neue Parasiten des Menschen. T. c. pp. 768–771, 4 figg.
Brief summary, Zool. Centrlbl. ix, p. 449.

237. ——. Eine neue *Cysticercus*-Form, *Cysticercus tæniæ brauni* Setti. Op. cit. xxxii, pp. 882–886, 4 text-figg.

238. ——. Beobachtungen an neuen und bekannten Nemathelminthen. Arch. mikr. Anat. lx, pp. 217–232, pl. xiii.

239. ——. Bericht über die wissenschaftlichen Leistungen in der Naturgeschichte der *Helminthen* im Jahre 1894–1896. Arch. Naturg. lxi, 2, pp. 1–136.

240. ——. *Dorylaimus atratus*, n. sp. Boll. Mus. Genova 1901, No. 109, 2 pp., 4 figg.
Brief summary in Zool. Centrlbl. ix, p. p. 74.

241. *——. Entozoa des zoologischen Museums der Kaiserl. Akad. Wissensch. St Petersburg. Bull. Ac. St Petersb. xv, No. 3, 1901, pp. 271–291, pls. i & ii.
Brief summary in Zool. Centrlbl. ix, pp. 74 & 349.

——. [See also GEMMILL & LINSTOW (143).]

242. *LINTON, E. Parasites of fishes of the Woods Holl region. Bull. U. S. Fish Comm. for 1899 (1901) xix, pp. 405–492 and 267–304, pls. i–xxxvi.
Summary, Zool. Centrlbl. ix, pp. 449 & 495.

243. LINVILLE, —. [Habits of *Amphitrite ornata* and *Diopatra cuprea*.] Ann. N. York. Ac. xiv, p. 160, and in Science xv, p. 192.

244. LIVANOW, N. Die Hirudineen-Gattung *Hemiclepsis* Vejd. Zool. Jahrb. Syst. xvii, pp. 339–362, pl. xiii.

245. Loeb, J. Ueber Methoden und Fehlerquellen der Versuche über künstliche Parthenogenese. Arch. Entwickmech. xiii, pp. 481–486.
Summary, Zool. Centrlbl. ix, p. 753.

246. Longchamps, M. de Selys. Development of *Phoronis*. Arch. Biol. xviii (1901), pp. 495–597, 3 pls.
Summary, J. R. Micr. Soc., p. 435.

247. Looss, A. Ueber die Giltigkeit des Gattungsnamens *Ankylostomum* Dubini. Centrbl. Bakter. xxxi, pp. 422–426.

248. ——. Zur Kenntnis der Trematodenfauna des Triester Hafens. I. Ueber die Gattung *Orophocotyle*, n. g. T. c. pp. 637–644, 4 figg.

249. ——. Notizen zur Helminthologie Egyptens. .v. Eine Revision der Fasciolidengattung *Heterophyes* Cobb. Op. cit. xxxii, pp. 887–891. [4 n. spp.]

250. ——. Zur Kenntnis der Trematodenfauna des Triester Hafens. II. Ueber *Monorchis* Montic. und *Haplosplanchnus* n. g. T. c. pp. 115–122, 4 text-figg.

251. ——. Ueber neue und bekannte Trematoden aus Seeschildkröten. Zool. Jahrb. Syst. xvi, pp. 411–894, pls. xxi–xxxii, 2 text-figg.

252. ——. Die Distomenunterfamilie der *Haploporinæ*. Arch. parasit. vi, pp. 129–143, 14 text-figg. [4 n. gen.].

253. *——. The *Sclerostomidæ* of horses and donkeys in Egypt. Rec. Egyptian Gov. School Med. Cairo 1901, pp. 27–139, pls. i–xiii.
Summary, Zool. Centrlbl. ix, p. 450.

254. Low, G. C. Notes on *Filaria demarquaii*. Brit. Med. J. 1902, pp. 196 & 197.
Summary, Zool. Centrlbl. ix, p. 504.

255. ——. Malarial and filarial diseases in Barbadoes, West Indies. T. c. pp. 1472 & 1473.

256. ——. The sleeping sickness. T. c. p. 1964.

257. Lozeron, H. Arbeiten aus dem botanischen Museum des eidg. Polytechnikums. VIII. Sur la répartition verticale du plancton dans le lac de Zurich, de décembre 1900 à décembre 1901. Vierteljahrschr. Ges. Zurich xlvii, pp. 115–198, pls. ii–vi. (*Rotifera*, pp. 178–180.)
Summary, Zool. Centrlbl. ix, p. 600.

258. Lühe, M. Revision meines Bothriocephalidensystemes. Centrbl. Bakter. xxxi, pp. 318–331, 9 text-figg.
Summary, Zool. Centrlbl. ix, p. 409.

259. ——. Bemerkungen über die Cestoden aus *Centrolophus pompilius*. I. Zur Synonymie der *Centrolophus*-Cestoden. T. c. pp. 629–637, 3 figg.
Summary, Zool. Centrlbl. ix, p. 445.

260. ——. *Urogonoporus armatus*, ein eigentümlicher Cestode aus *Acanthias*, mit anschliessenden Bemerkungen über die sogenannten Cestodarier. Arch. parasit. v, pp. 209–250, 1 pl.
Summary, Zool. Centrlbl. ix, pp. 407–409.

261. ——. Ueber die Fixierung der Helminthen an der Darmwandung ihrer Wirte und die dadurch verursachten pathologisch-anatomischen Veränderungen des Wirtsdarmes. Verh. Congr. Zool. Berlin (1901), pp. 698–707.
Summary, Zool. Centrlbl. ix, p. 732.

262. LYMAN, R. A. Studies on the genus *Cittotænia*. Tr. Amer. micr. Soc. xxiii, pp. 173–190, 2 pls.; see also Stud. Lab. Nebraska, No. 48, pp. 173–190, 2 pls.

263. MACCALLUM, W. G. *Heronimus chelydræ*, n. g., n. sp. A new monostome parasite of the American snapping-turtle. Centrbl. Bakter. xxxii, pp. 632–636, 2 figg.
Summary, Zool. Centrlbl. ix, p. 843.

264. MACK, H. v. Das Centralnervensystem von *Sipunculus nudus* L. (Bauchstrang). Mit besonderer Berücksichtigung des Stützgewebes. Arb. Inst. Wien xiii, pp. 237–334, pls. xiii–xvii, 17 text-figg.
Summary by CORI, Zool. Centrlbl. ix, pp. 455–460; in J. R. Micr. Soc. p. 309.

265. MAGGI, L. La tachigenesi e gli studi universitari. Rend. Ist. Lombardo (2) xxxv, pp. 823–834. [Refers to *Polygordius*.]

266. MAITLAND, J. The operative treatment of lymphangiectasis of filarial origin. Brit. Med. J. 1902, pp. 188 & 189.

267. MANSON, P. Report of a case of *Bilharzia* from the West Indies. T. c. ii, p. 1894.

268. *MARCHOUX, —. Du mode de transmission du Dragonneau (*Filaria medinensis*). XIII. Congr. Internat. Med. Paris 1900. Sect. Bacter. Parasit. p. 95.
Summary, Zool. Anz. xxv, p. 77.

269. MARENZELLER, E. VON. Südjapanische Anneliden. Anz. Ak. Wiss. viii, pp. 86–88.
Summary, Zool. Anz. xxv, p. 364.

270. ——. Über die während der 3 und 4 Tiefsee-Expedition im östlichen Mittelmeere und in der Adria 1893, 1894, gesammelten Polychæten des Grundes. Anz. Ak. Wiss. xxxviii & xxxix, p. 294.
N. spp. not named, in this communication. Summary of Zool. Anz. xxv, p. 221.

271. MARTELLI, A. Il Devoniano superiore dello Schensi (Cina). Boll. Soc. geol. Ital. xxi. [*Vermes*, p. 369.]

272. ——. I fossili dei Terreni Eocenici di Spalato. Palæontogr. ital. viii, pp. 43–97. [Unimportant for *Vermes*.]

273. MARVAL, L. DE. Étude sur quelques Echinorhynques d'oiseaux. Arch. parasit. v, pp. 412–439, 14 text-figg.

274. MASTERMAN, A. J. Review of Mr. Iwaji Ikeda's observations on the development, structure and metamorphosis of *Actinotrocha*. Quart. J. Micr. Sci. xlv, pp. 485–492.

275. ——. On the Diplochorda. iv. On the central complex of *Cephalodiscus dodecalophus* McI. Op. cit. xlvi, pp. 715–727, pls. xxxii & xxxiii.

276. MAURIZI, A. A proposito di un nuovo caso di Ascaridi nel fegato; Monografia dell' Ascariasi con speciale riguardo alle migrazioni dell' *Ascaris lumbricoides* ed alla parte interressante l' ottalmologia. Boll. Soc. zool. Ital xi (2) iii, fasc. iv–vi, pp, 198–223.

277. MAYER, A. G. The Atlantic Palolo (*Eunice fucata*). Bull. Brooklyn Mus. i, pp. 93–103, 1 pl.

278. MEAD, —. [Segmentation of *Amphitrite ornata*.] Table. Arch. Zool. exp. (3) x, No. 4, pl. xxxviii.

279. *Meisenheimer, J. Der Palolowurm. Ein Sammelreferat. Naturw. Wochenschr. xvii, pp. 225 & 226. (*Eunice viridis.*)
From Zool. Anz. xxv, Bibl., p. 221.

280. Menon, K. R. Notes on *Actinotrocha*. Quart. J. Micr. Sci. xlv, pp. 473–484, pl. xxvi.

Mesnil, F. [See Caullery & Mesnil (68).]

281. Messineo, G. Sul veleno contenuto in alcune Tenie dell' Uomo: richerche sperimentali. Atti Acc. Gioen. lxxviii, No. 6, xiv, 36 pp. 71 experiments described.
Summary, Boll. Soc. zool. Ital. xi, p. 130.

282. Michaelsen, W. Die Lumbriciden-Fauna Norwegens und ihre Beziehungen. Verh. Ver. Hamburg naturw. (3) ix, pp. 1–13.

283. ——. Die Oligochæten-Fauna des Baikal-Sees. T. c. pp. 43–60.

284. ——. Der Einfluss der Eiszeit auf die Verbreitung der Regenwürmer. T. c. pp. lxii–lxv.

285. *——. Oligochæten der Zoologischen Museum zu St Petersburg und Kiew. Bull. Ac. St Petersb. (5) xv, pp. 137–215.
This paper has not yet been received; the names of two new genera are recorded from the summary in Zool. Anz. xxv, p. 220. The 15 n. spp. should be recorded when the paper comes to hand.

286. Michel, A. Sur des formes nouvelles ou peu connues de *Rhabditis*. C.R. Ac. Sci. cxxxv, pp. 907–910.

287. M'Intosh, W. C. Notes from the Gatty Marine Laboratory, St Andrews. xxii. Ann. Nat. Hist. (7) ix, pp. 291–308.
1. [Fishes.] 2. On the British *Syllidæ*. 3. On the *Syllidæ* of the "Porcupine" Expedition. 4. On the Norwegian *Syllidæ* collected by Canon Norman. 5. On the boring of *Polydora* in Australian Oysters.

288. ——. Notes from the Gatty Marine Laboratory, St Andrews. xxiii. Op. cit. (7) x, pp. 252–260, pl. vi.
1, 2, 3. [Fishes.] 4. On British *Nereidæ* and *Staurocephalidæ*. 5. On the *Nereidæ* of the "Porcupine" Expedition. 6. On Canadian *Nereidæ* dredged by Dr Whiteaves in the Gulf of St Lawrence. 7. On the Norwegian *Nereidæ* collected by Canon Norman.

289. Miura, K. & Nishiuchi, N. Über befruchtete und unbefruchtete Ascarideneier im menschlichen Kote. Centrbl. Bakter. xxxii, pp. 637–641, 2 figg.
Zool. Anz. xxvi, p. 107.

290. Monaco, A. de. Sur la troisième campagne de la Princesse Alice II. C.R. Ac. Sci. cxxxiv, pp. 961–964. [Unimportant—merely mentions *Gephyrea*.]

291. Monroe, C. E. Notes on a collection of Hamilton fossils, from the town of Bethany, Genesee Co. N. Y. Bull. Wisconsin Soc. ii, pp. 57–67.

292. Montgomery, T. H. A study of the chromosomes of the germ cells of Metazoa. Tr. Amer. phil. Soc. xx, pp. 154–236, pls. iv–viii.
Unimportant—merely mentions *Ascaris megalocephala*. Summary, Zool. Centrlbl. ix, pp. 245–247.

293. Morgan, T. H. Regeneration. Columbia University Biological Series, vii. New York, 1901, xii + 316 pp., 67 figg., 8vo.
Reviews: Science xv, pp. 620–623; Zool. Anz. xxv, p. 465; Arch. Entwickmech. xiv, pp. 625–627.

294. [Morgan, T. H.] Experimental studies of the internal factors of regeneration in the Earthworm. Arch. Entwickmech. xiv, pp. 562–591, pls. xxix & xxx.

295. Moore, P. J. Some Bermuda *Oligochæta*, with a description of a new species. [*Enchytræus marinus* n. sp.] P. Ac. Philad. liv, pp. 80–84, 2 figg.
Summary, Zool. Anz. xxv, pp. 363–582.

296. ——. Descriptions of some new Polynoïdæ, with a list of other *Polychæta* from North Greenland waters. T. c. pp. 258–278, pls. xiii & xiv.

296a. ——. Descriptions of two new leeches from Porto Rico. Contr. Lab. Pennsylv. Extracted from Bull. U. S. Fish Comm. for 1900, ii, pp. 211—222, pls. xii, xiii.

297. M[ ], H. S. A key to the Rotifera, for the amateur. Amer. Micr. J. xxiii, pp. 89–114.

298. Mrázek, A. Über das Vorkommen einer frei lebenden Süsswassernemertine [*Stichostemma græcense*] in Böhmen. SB. Bohmisch. Ges. 1902, No. 36, 7 pp.
Summary, Zool. Anz. xxvi, p. 100.

299. ——. Ein Beitrag zur Kenntniss der Fauna der Warmhäuser. T. c. No. 37, pp. 1–21.

——. [See also Vejdovsky, F. & Mrázek, A. (440).]

300. Müller, J. Ein Beitrag zur Kenntnis der Bipaliiden. Zeitschr. wiss. Zool. lxxiii, pp. 75–114, pls. iv–vi, 3 text-figg.

301. Munthe, H. Stratigrafiska studier öfver Gotlands silurlager. Geol. Foren. Stockholm Forh. xxiv, pp. 221–273. [Unimportant for *Vermes*.]

302. Murray, J. Some Scottish Rotifers, with descriptions of new species. Ann. Scott. Nat. Hist. 1902, pp. 162–167, pls. ii & iii [7 n. spp.].

303. *Neveu-Lemaire, M. Parasitologie animale à l'usage des candidats au troisième examen de doctorat (2 partie); préface par le prof. R. Blanchard. 131 figg. Paris, Soc. d'et. Sci. 1902, iii, 217 pp.
Zool. Anz. xxv, p. 72.

304. Nickerson, W. S. *Cotylogaster occidentalis* n. sp. and a revision of the family Aspidobothridæ. Zool. Jahrb. Syst. xv, pp. 597–624, pls. xxxii & xxxiii, 1 text-fig.
Summary, Zool. Centrlbl. ix, p. 737.

305. Nickles, J. M. The Geology of Cincinnati. J. Cincinnati Soc. xx, pp. 49–100.
List of spp. found in various localities.

Nishiuchi, N. [See Miura & Nishiuchi (289).]

306. Noel, P. Cousins ou moustiques et la filariose. Natural. xxiv, pp. 161–163.

——. [See also Florentin (127).]

307. Nusbaum, J. Zur Kenntnis der Regenerationserscheinungen bei den Enchytræiden. Biol. Centrbl. xxii, pp. 292–298.
Summary, Zool. Centrlbl. ix, p. 506.

308. Odhner, T. Trematoden aus Reptilien nebst allgemeinen systematischen Bemerkungen. Ofv. Ak. Forh. lix, pp. 19–45, 3 figg.
Summary, Zool. Centrlbl. ix, pp. 402 & 403.

309. [ODHNER, T.] Mittheilungen zur Kenntniss der *Distomum*, I. 1. Ueber die Gattung *Zoogonus* Lss. 2. Zur Kenntnis der Harnblasedistomen der Fische. Centrbl. Bakter. xxxi, pp. 58–69, 3 figg.
Summary, Zool. Centrlbl. ix, p. 401.

310. ——. Mittheilungen sur Kenntnis der Distomen. II. 1. Drei neue Distomen aus der Gallenblase von Nilfischen. 2. *Deropristis* n. g 3. *Helicometra* n. g. Allocreadiinarum. T. c. pp. 152–162, 3 text-figg.

311. ——. *Fasciolopsis buski* (Lank.) [=*Distomum crassum* Cobb], ein bisher wenig bekannter Parasit der Menschen in Ostasien. T. c. pp. 573–581, 1 pl.
Summary, Zool. Centrlbl. ix, p. 404.

312. OEFELE, F. VON. Studien zur mittelniederdeutschen Parasitologie. Arch. parasit. v, pp. 67–94.

313. ——. Studien über die altägyptische Parasitologie. II. Innere Parasiten. T. c. pp. 461–503.

314. OKA, A. Ueber das Blutgefässsystem der Hirudineen. Annot. zool. Japon. iv, pp. 49–60, 5 text-figg.
Summary, Zool. Centrlbl. ix, p. 518.

315. OPPENHEIMER, ADÈLE. Certain sense organs of the proboscis of the polychaetous Annelid *Rhynchobolus dibranchiatus*. P. Amer. Ac. xxxvii, pp. 553–562, 6 pls.

316. OSAWA, K. Ueber die japanischen Palolo. Verh. Congr. Zool. Berlin 1901, pp. 751–755, 1 pl.

317. OSBORN, H. L. Notes on the Trematodes of Lake Chautauqua. Science xv, p. 573. [Amer. Morph. Soc.]

318. *OSTERWALD, A. Nematoden als Feinde des Gartenbaues. Gartenflora l, pp. 337–346.
Abstract Naturwiss. Rundschau xvii, pp. 268 & 269. Zool. Anz. xxv, p. 487.

319. *PARONA, C. Altro caso di pseudoparassitismo di Gordio nell' Uomo (*Parachordodes pustulosus* Baird). Clinica medica, No. 10, 1901.

320. ——. Catalogo di elminti raccolti in Vertebrati dell' isola d' Elba. Boll. Mus. Genova 1902, No. 113, 20 pp., and in Atti Soc. Ligustica xiii, pp. 10–29.
Brief summary, Zool. Centrlbl. ix, p. 393.

321. — & STOSSICH, M. *Œsophagostomum tuberculatum* n. sp., parassita dei *Dasypus*. Op. cit. 1901, No. 110, pp. 1–3, figg. 1–5, and in T. c. pp. 7–9, 5 figg.
Summary, Zool. Centrlbl. ix, p. 253.

322. PEARL, R. The movements and reactions of fresh-water Planarians: a study in animal behaviour. Quart. J. Micr. Sci. xlvi, pp. 509–714.

323. PERRIER, E. Sur l'origine des formations stoloniales chez les Vers annelés. C.R. Ac. Sci. cxxxiv, pp. 453–456.

324. ——. La Tachygénèse. Verh. Congr. Zool. Berlin v, pp. 996–1000.

325. —— & GRAVIER, C. La tachygénèse ou accélération embryogénique, son importance dans les modifications des phénomènes embryogéniques; son rôle dans la transformation des organismes. Ann. Sci. nat. xvi, pp. 133–371, 119 text-figg.

326. Perroncito, E. Sur le développement de nouveaux kystes aux dépens des scolex contenus dans les kystes hydatiques. Bull. Soc. zool. France xxvii, p. 150, 1 fig.
Summary, Zool. Anz. xxv, p. 484.

327. *——. I parassiti dell' uomo e degli animali utili, delle più comuni malattie da essi prodotte. Milano, Vallardi, 1901. [In corso di pubblicazione.]
Summary, Zool. Anz. xxv, p. 483.

328. Piana, G. B. Notices biographiques. xii. Gian Battista Ercolani. Arch. parasit. v, pp. 505–550.

329. Pierantoni, U. Due nuovi generi di Oligocheti marini rinvenuti nel golfo di Napoli. [*Phallodrilus* and *Heterodrilus*.] Boll. Soc. Napoli xvi, pp. 113–117, 3 text-figg.
Zool. Anz. xxv, p. 363.

330. ——. L' ovidutto e la emissione delle uova nei Tubificidi (contributo alla biologia degli oligocheti marini. Arch. zool. Ital. i, pp. 108–119, pl. v.

331. Pieri, G. Sul modo di trasmissione dell' *Anchilostoma duodenale*. Rend. Acc. Lincei xi, pp. 217–220.

332. Pintner, T. & Eisig, H. Vermes. Zool. Jahresber. 1901, 70 pp.
Summary, Zool. Anz. xxv, p. 576.

333. Poppius, B. R. Förekomsten af *Acanthobdella* i våra lappmarker. Medd. Soc. Faun. Fenn. xxiv, pp. 40 & 41.
Summary, Zool. Anz. xxv, p. 363.

334. Pratt, H. S. Synopses of North-American Invertebrates. xii. The Trematodes. Part ii. The Aspidocotylea and the Malacocotylea, or Digenetic forms. Amer. Natural. xxxvi, pp. 887–910 [illustrations in Part iii.].

335. Prout, W. T. Filariasis in Sierra Leone. Brit. Med. J. 1902, ii, pp. 879–881.

336. Pruvot, G. Sur les modifications et le rôle des organes segmentaires des Syllidiens, à l'époque de la reproduction. C.R. Ac. Sci. cxxxiv, pp. 242–245.

337. ——. Sur l'évolution des formations stoloniales chez les Syllidiens. T. c. pp. 433–436.

338. Punnett, R. C. On some Arctic Nemerteans [5 n. spp.]. P. Zool. Soc. London 1901, ii, pp. 90–107, pls. vi & vii, 6 text-figg.
Summary, Zool. Centrlbl. ix, p. 199.

339. ——. Observations on some Nemerteans from Singapore. P. R. Soc. Edinb. xxiii, pp. 91 & 92. [Cf. Zool. Rec. xxxvii (250).]

340. *Rabes, O. Verwachsungsversuche mit Regenwürmern. Naturw. Wochenschr. xvii, pp. 412–415.
Zool. Anz. xxv, p. 488.

341. Racovitza, E. G. Le faune du pôle Sud. Rev. Scient. (4) xvi, 1901, pp. 1–10, 2 figg.
Unimportant—only mentions one or two Rotifera and Nematoda. Brief Summary, Zool. Centrlbl. ix, p. 72.

342. Railliet, A. Nouveau type de larve de Cestode. Verh. Congr. Zool. Berlin 1901, p. 794.

343. Ransom, B. H. On *Hymenolepis carioca* (Magalhaes) and *H. megalops* (Nitzsch) with remarks on the classification of the group. Tr. Amer. micr. Soc. xxiii, pp. 151–172, 3 pls., also in Stud. Lab. Nebraska, No. 47, pp. 151–172, 3 pls.

344. Raspail, X. Deuxième note sur une *Planaire* sp.? Bull. Soc. zool. France xxvii, pp. 119–123.
Summary, J. R. Micr. Soc. p. 434.

Reepen, B. H. von. [See Buttel-Reepen (56).]

345. Reibisch, J. Wirbellose Bodentiere. Abh. deutsch. Seefisch.-Ver. vii, pp. 143–159. [Unimportant.]

346. *Remes, M. Nachträge zur Fauna von Stramberg. I. Die Fauna des rothen Kalksteins (Nesselsdorfer Schichten). Beitr. Pal. Oesterr.-Ung. xxiv [*Vermes*, pp. 209 & 210].

346a. Retzius, G. Weiteres zur Kenntniss der Sinneszellen der Evertebraten. I. Fortgesetzte Untersuchungen uber die Sinneszellen der *Polychäten*. Biol. Untersuch. x, pp. 25–33, pls. viii–xii.

347. Reuss, H. Beobachtungen an der Sporocyste und Cercarie des *Distomum duplicatum* v. Baer. Zool. Anz. xxv, pp. 375–379.
Summary, Zool. Centrlbl. ix, p. 405, and J. R. Micr. Soc. p. 434.

Reynolds, S. H. [See Gardiner & Reynolds (142).]

348. Rhumbler, L. Ueber embryonale und postembryonale Schalenverschmelzungen bei Foraminiferen in ihrer Analogie zu Rieseneiern und Verwachsungszwillingen bei Metazoën. Verh. Congr. Zool. v, Berlin, pp. 429–432.

349. Ribaucourt, E. de. Étude sur l'anatomie comparée des Lombricides. Bull. Sci. France Belgique xxxv, pp. 211–312, pls. ix–xvi, 54 text-figg.

——. [See also Anglas & Ribaucourt (5).]

350. Rice, W. J. Studies in Earthworm chloragogue. Biol. Bull. iii, pp. 88–94, 3 text-figg.

351. Ritter, W. E. A summer's dredging on the coast of Southern California. Science xv [*Enteropneusta*, p. 64].

352. ——. The axial skeleton of the *Enteropneusta*, considered from a functional point of view. Op. cit. xvi, p. 351 [will appear in full in 'Scientific Results, Harriman Alaska Expedition'].

353. ——. A revised classification of the *Enteropneusta*. Amer. Natural. xxxvi, pp. 590 & 591.

354. ——. The movements of the *Enteropneusta* and the mechanism by which they are accomplished. Biol. Bull. iii, pp. 255–261.

355. ——. I. The structure and significance of the heart of the *Enteropneusta*. Zool. Anz. xxvi, pp. 1–5, 3 text-figg.

——. [See also Weinland & Ritter (458).]

356. Rizzo, A. La fauna elmintologica dei rettili nella Provincia di Catania. Arch. parasit. vi, pp. 26–40, figg. 1–12.
Summary, Zool. Centrlbl. ix, p. 504.

357. [Rosa, D. Gli Oligocheti raccolti in Patagonia dal dott. Filippo Silvestri. Atti. Soc. Modena (4) iv, 1901.]
Monit. Zool. ital. xiii, p. 26.

358. *[Rosa, D.] Un lombrico cavernicolo (*Allolobophora spelæa*, n. sp.). Op. cit. xxxv.
Title in Monit. Zool. ital. xiii, p. 126.

359. ——. Il cloragogo tipico degli Oligocheti. Mem. Acc. Torino lii, pp. 119–144, 1 pl.
Summary, Zool. Centrlbl. ix, p. 507.

360. Rössler, P. Ueber den feineren Bau der Cysticerken. Zool. Jahrb. Anat. xvi, pp. 423–448, pls. xxix & xxx, 4 text-figg.
Summary, Zool. Centrlbl. ix, p. 625.

361. Rousselet, C. F. Third list of new Rotifers since 1889. J. R. Micr. Soc. 1902, pp. 148–154.

362. ——. The genus *Synchaeta*: a monographic study, with descriptions of five new species. T. c. pp. 269–290, 393–411, pls. iii–viii.

363. Sabussow, H. v. Tricladenstudien. I. Ueber der Korperbau von *Cercyra papillosa* Uljanin 1870. Vorl. Mt. Protok. Kazan. Univ. 1898–1899, No. 179 [in Russian].

364. ——. Vorläufiger Bericht über die Turbellarien der Insel von Solowetzk. Op. cit. 1896–1897, No. 167, 15 pp.

365. ——. Beobachtungen über die Turbellarien der Inseln von Solowetzk. Trudui Kazan. Univ. xxxiv. [Summary in German, pp. 177–203, 3 pls.]

366. Sabussow, A. Tricladenstudien. III. Ueber den Körperbau von *Rimacephalus pulvinar* Grube, aus dem Baikalsee. Op. cit. xxxvi, i, pp. 1–63, pls. i & ii. [Russian; summary in German.]
Summary, Zool. Centrlbl. ix, p. 197.

367. Salmon, D. E. Food products from diseased animals. 18th Rep. U. S. Dep. Agric. Animal Ind. (1901), pp. 251–256.

368. *Schäfer, A. Über das Vorkommen von *Ascaris lumbricoides* im menschlichen Körper, ausserhalb des Darmes, besonders in der Leber und in den Gallengängen. Inaug.-Diss. (Rostock). Münster, Regensburg, 1900, 8vo (19 pp.).
From Zool. Anz. xxv, Bibl., p. 218.

369. Schiemenz, P. Die Zoologie im Dienste der Fischerei. Verh. Congr. Zool. Berlin 1901, pp. 579–584.

370. Schmidt, F. Die Körpermuskulatur von *Branchiobdella parasita*. Nachr. Ges. Gottingen 1902, pp. 284–290.

371. Schmidt, A. T. Zur Kenntnis der Tricladenaugen und der Anatomie von *Polycladus gayi*. Zeitschr. wiss. Zool. lxxii, pp. 545–564, pls. xxxiii & xxxiv.
Summary, Zool. Centrlbl. ix, p. 839.

372. Schneider, G. *Caryophyllæus fennicus* n. sp. Arch. Naturg. lxviii, i, pp. 65–71, pl. v, figg. 1–3.
Summary, Zool. Centrlbl. ix, pp. 446–448.

373. ——. *Bothrimonus nylandicus* n. sp. T. c. pp. 72–78, pl. v, figg. 4–6, pl. vi, figg. 7–9.

374. ——. Das Vorkommen von Larven des Bandwurms *Bothriotænia proboscidea* Batsch im Magen und Darm von Ostseeheringen (*Clupea harengus membras* L.). SB. Ges. naturf. Berlin 1902, pp. 28–30.
Summary, Zool. Centrlbl. ix, p. 198.

375. SCHNEIDER, K. C. Lehrbuch der vergleichenden Histologie der Tiere. Jena, 1902, xiv + 988 pp., 691 text-figg.

376. SCHOCKAERT, R. L'ovogénèse chez le *Thysanozoon brocchi*. 2 Part. Cellule xx, pp. 101–163, 165–177.
Zool. Anz. xxvi, p. 100.

377. *SCHOO, H. I. M. Het voorkomen van *Distomum* in het lichaam van *Anopheles claviger*. Nederland. Tijdschr. Geneesk. Iaarg. 1902, i, pp. 283–286.
Summary, Zool. Centrlbl. ix, p. 358.

378. SCHRADER, F. C. Geological section of the Rocky Mountains in Northern Alaska. Bull. Geol. Soc. Amer. xiii, pp. 233–252, pls. xl–xliii.

379. SCHULTZ, E. *Dinophilus rostratus* nov. spec. Wiss. Meeresuntersuch. v, pp. 1–10, pl. i.

380. ——. Aus dem Gebiete der Regeneration. II. Ueber die Regeneration bei Turbellarien. Zeitschr. wiss. Zool. lxxii, pp. 1–30, pls. i & ii.
Summary, Zool. Centrlbl. ix, p. 676.

381. ——. Ueber das Verhältnis der Regeneration zur Embryonalentwicklung und Knospung. Biol. Centrbl. xxii, pp. 360–368.

382. SCHWARZE, W. Beiträge zur Kenntniss der Symbiose im Tierreich. Hamburg 1902. Programm (Johanneum), gr. 8vo, 40 pp.
Symbiosis between crabs, Nereids and Sipunculids. Summary, Zool. Centrlbl. ix, pp. 331–334.

383. SCOTT, T. Notes on some parasites of fishes. Rep. Fish. Board Scotland, 19th, iii [*Vermes*, pp. 137–151, pl. viii, figg. 17–31].

384. ——. Notes on some parasites of fishes. Op. cit. 20th, iii [*Vermes*, pp. 299–302, pl. xiii, figg. 30–33].

SELYS-LONGCHAMPS, M. DE. [See LONGCHAMPS (246).]

385. SCHARFF, R. F. *Gephyrea, Chætopoda, Rotifera, Nematoda, Nemertinea, Platyhelmia.*] Rep. Brit. Ass. 1902, pp. 226–231.

386. SHIMER, H. W. & GRABAU, A. W. Hamilton Group of Thedford, Ontario. Bull. Geol. Soc. Amer. xiii, pp. 149–186.

387. SHIPLEY, A. E. On a collection of parasites from the Soudan. Arch. parasit. vi, pp. 604–612, pl. vii.

388. ——. On the Nematodes parasitic in the earthworm. T. c. pp. 619–623.

389. ——. *Gephyrea.* "Southern Cross" Collections, London, 1902, p. 284.

390. ——. *Echiuroidea.* Fauna and Geography of the Maldive and Laccadive Archipelagoes i, 2, pp. 127–130, pl. vi.

391. ——. *Sipunculoidea*, with an account of a new genus *Lithacrosiphon*. T. c. pp. 131–140, pl. vii.

392. ——. *Nematoda.* Encycl. Brit. xxxi, pp. 118–120, 5 figg.

393. ——. *Nemertina.* T. c. pp. 120–122, 3 figg.

394. ——. *Sipunculoidea.* Op. cit. xxxii, pp. 636–638, 4 figg.

395. SKORIKOW, A. S. Die Erforschung des Potamoplanktons in Russland. Biol. Centrbl. xxii, pp. 551–570.

396. Sluiter, C. P. Die Sipunculiden und Echiuriden der Siboga-Expedition, nebst zusammenstellung der Ueberdies aus dem indischen Archipel bekannten Arten. Siboga-Expeditie. Monographie xxv, pp. 1–53, 4 pls. Leiden, edited by Dr Max Weber.

397. ——. Géphyriens (Sipunculides et Echiurides) provenant des campagnes de l'*Hirondelle* et de la *Princesse-Alice* (1886–1897). Résultats des campagnes scientifiques accomplies sur son yacht par Albert 1er Prince de Monaco. Fasc. xv, 30 pp., 3 pls.

398. Smith, Amelia C. The influence of temperature, odors, light and contact on the movements of the earthworm. Amer. J. Physiol. vi, pp. 459–486, 15 figg.

399. Smith, H. Filariasis : late Chyluria. Brit. Med. J. 1902, ii, p. 376.

400. Spiess, C. La structure intime de l'appareil digestif de la Sangsue (*Hirudo medicinalis* Lin.). Arch. Sci. Nat. xiv, pp. 548–552.

401. Soulier, A. Revision des Annélides de la région de Cette. Mem. Ac. Montpellier (2) iii, pp. 109–163, 10 figg.
From Zool. Anz. xxvi, Bibl., p. 102.

402. Spencer, B. Further descriptions of Australian Earthworms. I. P. Soc. Victoria 1900, xiii, pp. 29–67, 9 pls. [37 n. spp., 2 n. g.]

403. *Srámek, A. Helminthen der an der zoologischen Station in Podiebrad (Böhmen) untersuchten Fische. Arch. Landesdf. Bohmen xi, pp. 16–40, figg. 50–71.
Summary, Zool. Centrlbl. ix, p. 451.

404. *Städter, W. Die *Strongyliden* in dem Labmagen der gezähmten Wiederkäuer und die Magenwurmseuche. 14 pls. Inaug.-Diss. (Bern) Hamburg, 1901, 8vo (107 pp.).

405. Stafford, J. *Cephalogonimus americanus* (n. sp.) Centrbl. Bakter. xxxii, pp. 719–725, 1 pl.
Summary, Zool. Centrlbl. ix, p. 844.

406. ——. Notes on worms. Zool. Anz. xxv, pp. 481–483.
Summary, Zool. Centrlbl. ix, p. 733.

407. ——. On the American representatives of *Distomum variegatum*. Zool. Jahrb. Syst. xvi, pp. 895–912, pl. xxxiii.

408. ——. The American representatives of *Distomum cygnoides*. Op. cit. xvii, pp. 411–424, pl. xix.

409. Steuer, A. Mittheilungen aus der k. k. zoologischen Station in Triest. 4. Beobachtungen über das Plankton des Triester Golfes im Jahre 1901. Zool. Anz. xxv, pp. 369–372, 372–375, 1 pl. [unimportant].
Summary, Zool. Centrlbl. ix, p. 494.

410. Stiles, C. W. Verminous diseases of cattle, sheep and goats in Texas. Rep. U. S. Dep. Agric. Animal. Ind. 1900, pp. 356–379.
Summary, Zool. Anz. xxv, p. 577.

411. ——. The significance of the recent American cases of hookworm disease (Uncinariasis, or Anchylostomiasis) in man. Op. cit. 1901 (1902), pp. 183–219, figg. 113–196 ; also in Science xvi, p. 348.

412. ——. Further investigations on verminous diseases of cattle, sheep, and goats in Texas. T. c. pp. 223–229.

413. *[STILES, C. W.] *Trichinella spiralis*, Trichinosis and Trichina-inspection. P. Path. Phil. iv, 1901, pp. 137–153.
Summary, Zool. Centrlbl. ix, p. 777.

414. *——. A new species of hookworm (*Uncinaria americana*) parasitic in man. Amer. med. iii, pp. 777 & 778.
Summary, Zool. Centrlbl. ix, p. 778.

415. *—— & FRANKLAND, W. A. A case of vinegar eel (*Anguillula aceti*) infection in the human bladder. Bull. U. S. Dep. Agric. Animal Ind. xxxv, pp. 35–40, pl. iv.
Not yet received in this country. Summary, Zool. Centrlbl. ix, p. 696.

416. *—— & HASSALL, A. Notes on parasites. Eleven Miscellaneous Papers on Animal Parasites, pp. 7–14, 19–24, 24–35, 41 & 42, and 58–62. T. c.
Volume not yet arrived. Summary, Zool. Anz. xxv, p. 556.

417. —— & ——. *Bertiella*, new name for the Cestode genus *Bertia* Blanchard, 1891. Science xvi, p. 434.

418. *—— & TAYLOR, —. [Notes on parasites.] Bull. U. S. Dep. Agric. Animal Ind. xxxv, pp. 43–47, 47–56.
Volume not yet arrived.

419. STOSSICH, M. Sopra una nuova specie delle *Allocreadiinæ*. Arch. parasit. v, pp. 578–582, 1 fig.

420. ——. Sopra alcuni nematodi della collezione elmintologica del Prof. dott. Corrado Parona. Atti Soc. Ligustica xiii, pp. 61–76, pls. iii–v, and Boll. Mus. Genova 1902, No. 116, 16 pp., 3 pls.
Summary, Zool. Centrlbl. ix, p. 451.

421. *——. Osservazioni elmintologiche. Boll. Soc. Adriat. xx, 1899, pp. 89–104, 1 pl. *Holorchis* n. g. *pycnoporus* n. sp. in *Sargus salviani*, Trieste, *Allocreadium pegorchis* n. sp. in *Mæna amaris*, Trieste, *A. asymphyloporum* n. sp. in *Trutta trutta*, Croatia, *Rhynchobothrium pronosomum* n. sp. in *Trygon pastinaca*, Trieste.
Not yet arrived in this country. Summary, Zool. Centrlbl. ix, p. 349.

422. *——. Il *Monostomum mutabile* Zed. e le sue forme affini. Op. cit. xxi, 1901 (Triest 1902), 40 pp., 9 pls.
Not yet arrived. Title only recorded. Summary, Zool. Centrlbl. ix, p. 406.

——. [See also PARONA & STOSSICH (321).]

423. STRAHAN, A. & CANTRILL, T. C. The geology of the South Wales Coal-field. III. Cardiff. Mem. Geol. Surv. U. K. 1902. [Unimportant for *Vermes*.]

STROBELL, ELLA C. [See FOOT & STROBELL (128, 129).]

424. STUMMER-TRAUNFELS, R. R. VON. Eine Süsswasser-Polyclade aus Borneo. Zool. Anz. xxvi, pp. 159–161.

TAYLOR, —. [See STILES & TAYLOR (418).]

425. TERRE, L. [Review of BATAILLON'S paper on osmotic pressure, see Zool. Rec. XXXVIII (17)]. Annee biol. vi, p. 163.

426. THACHER, HENRIETTA F. The regeneration of the pharynx in *Planaria maculata*. Amer. Natural. xxxvi, pp. 633 641, 8 text-figg.

427. Thébault, V. Troubles pathologiques produits par les *Oxyures.* Arch. parasit. v, pp. 557 & 558.

428. Thiele, J. Zur Cölomfrage. Zool. Anz. xxv, pp. 82–84.

429. *Thienemann, J. Das häufige Vorkommen von Filarien in *Lanius collurio.* Ornith. Monber. x, pp. 91–93.
Summary, Zool. Anz. xxv, p. 487.

430. Thomson, W. M. On a new Polynoïd. Tr. N. Zealand Inst. xxxiv, pp. 241 & 242.

431. Torrey, J. C. Early development of mesoblast in *Thalassema.* Anat. Anz. xxi, pp. 247–256, 3 text-figg.
Abstract, J. R. Micr. Soc. 1902, p. 557.

432. ——. The cell-lineage of the mesoblast-bands and mesenchyme in *Thalassema.* Science xv, p. 576.

433. ——. [Eggs of *Thalassema* from Beaufort, N.C.] Ann. N. York Ac. xiv, p. 137.
A note on a series of eggs found.

Traunfels, S. R. R. [See Stummer-Traunfels (424).]

434. Treadwell, A. L. Notes on the nature of "Artificial Parthenogenesis" in the egg of *Podarke obscura.* Biol. Bull. iii, pp. 235–240, 12 text-figg.

435. ——. [Segmentation of *Podarke obscura.*] Table. Arch. Zool. exp. (3) x, No. 4, pl. xli.

436. Trouessart, E. Instructions aux naturalistes voyageurs pour la récolte des Anthropodes marins microscopiques. Bull. Soc. zool. France xxvii, pp. 23–27. [Unimportant for *Vermes.*]

437. Vaney, C. [Review of Rabes' paper, see Zool. Rec. xxxviii (303).] Annee biol. vi, p. 185.

——. [See also Conte & Vaney (100).]

438. —— & Conte, A. Recherches sur le bourgeonnement de *Rhabdopleura normanni* All. T. c. pp. 748–750.

439. *Vanhöffen, E. Biologische Beobachtungen auf der Possession-Insel. [In] Bericht über die wiss Arb. deutschen Südpolar-exped. auf der Fahrt von Kapstadt bis zu den Kerguelen. Berlin, 1902, pp. 42–44.
Mention of *Enchytræidæ.*
Summary, Zool. Centrlbl. ix, p. 684.

Vavra, V. [See Frič & Vavra (133).]

440. Vejdovsky, F. & Mrázek, A. Ueber *Potamothrix* (*Clitellio?*) *moldavienis* n. g., n. sp. SB. Bohmisch. Ges. 1902, No. 24, pp. 1–7, 1 pl.

441. Verrill, A. E. Additions to the fauna of the Bermudas from the Yale Expedition of 1901, with notes on other species. Tr. Connect. Ac. xi, 1, pp. 15–62, pls. i–viii.

442. ——. The Bermuda Islands: their scenery, climate, productions, physiography, Natural History, and Geology; with sketches of their early history and the changes due to man. T. c. xi, 2, pp. 413–911, pls. lxv–civ. [*Vermes*, pp. 845–849, 2 figg.]

443. Viguier, C. Sur la valeur morphologique de la tête des Annélides. Ann. Sci. nat. xv, pp. 281–311.

444. VOIGT, M. Die Ursachen des Aussterbens von *Planaria alpina* im Hundsrückgebirge und von *Polycelis cornuta* im Taunus. Verh. Ver. Rheinland lviii, pp. 223–246, 2 text-figg.
Summary by ZSCHOKKE, Zool. Centrlbl. ix, pp. 353–356; also in J. R. Micr. Soc. p. 308.

445. ——. Beiträge zur Kenntnis des Planktons pommerscher Seen. Forschber. Plon ix, pp. 72–86, 2 text-figg.

446. ——. Diagnosen bisher unbeschriebener Organismen aus Plöner Gewässern. Zool. Anz. xxv, pp. 35–39.
Brief summary, Zool. Centrlbl. ix, p. 108.

447. ——. Drei neue *Chætonotus*-Arten aus Plöner Gewässern. T. c. pp. 116–118.

448. ——. Die Rotatorien und Gastrotrichen der Umgebung von Plön. T. c. pp. 673–684.

449. VOLTZENLOGEL, E. Untersuchungen über den anatomischen und histologischen Bau des Hinterendes von *Ascaris megalocephala* und *A. lumbricoides*. Zool. Jahrb. Anat. xvi, pp. 481–510, pls. xxxiv–xxxvi.
Summary, Zool. Centrlbl. ix, p. 778.

450. VIULLEMIN, P. Sur la pénétration des femelles d'*Oxyuris vermicularis* à travers la parois de l'intestin. Centrbl. Bakter. xxxii, pp. 358–360.

451. *WAGNER, F. VON. Schmarotzer und Schmarotzerthum in der Thierwelt. Leipzig, 151 pp., 67 figg. (Sammlung Göschen.)
Summary, Zool. Centrlbl. ix, p. 837.

452. WANNER, J. Die Faunen der obersten weissen Kreide in der libyschen Wüste. Palæontogr. xxx, pp. 91–151, 7 pls. [*Serpula* 3 n. spp.]

453. WARD, H. B. A record of the occurrence of *Filaria loa*, a human parasite new to the United States. Science xvi, p. 350.

454. ——. [Review of "Treatise of Zoology" by Benham, Zool. Rec. XXXVIII (25).] Amer. Natural. xxxvi, pp. 497–499.

455. WEINLAND, E. Ueber Energiegewinnung durch Zersetzung von Kohlehydrat ohne Sauerstoffszufuhr bei *Ascaris lumbricoides*. SB. Ges. Munchen xvii, p. 1.

456. ——. Über Kohlehydratzersetzung ohne Sauerstoffaufnahme bei *Ascaris*, Einen tierischen Gärungsprocess. Zeitschr. Biol. xlii, pp. 55–90.
Summary, Zool. Centrlbl. ix, p. 451.

457. ——. Über ausgepresste Extrakte von *Ascaris lumbricoides* und ihre Wirkung. Op. cit. xliii, pp. 86–111.

458. —— & RITTER, A. Über die Bildung von Glykogen aus Kohlehydraten bei *Ascaris*. T. c. pp. 490–502.

459. WENIG, J. Beiträge zur Kenntnis der Geschlechtsorgane von *Lumbriculus variegatus* Gr. SB. Bohmisch. Ges. 1902, No. 14, pp. 1–11, 1 pl., 1 text-fig.

460. WESCHÉ, W. Observations on male Rotifers. J. Quekett Club viii, pp. 323–330, pls. xvii & xviii.

461. WETZEL, H. Zur Kenntnis der natürlichen Teilung von *Chætogaster diaphanus*. Zeitschr. wiss. Zool. lxxii, pp. 100–125, pls. vi & vii, 13 text-figg. [Including note by E. KORSCHELT.]
Summary, Zool. Centrlbl. ix, p. 697.

462. WILLEY, A. *Polychæta.* Nat. Hist. Collections, "Southern Cross." London, 1902, pp. 262–283, pls. xli–xlvi.

463. ——. *Balanoglossus.* Encycl. Brit. xxvi, pp. 84–86, 3 figg.

464. WILLIAMSON, G. A. *Bilharzia hæmatobia* in Cyprus. Brit. Med. J. 1902, ii, p. 956.

465. WILSON, E. B. The history of the centrosome in artificial parthenogenesis and its relation to the phenomenon of normal fertilization. Ann. N. York. Ac. xiv, p. 122.

466. WILSON, —. [Segmentation of *Nereis limbata.*] Arch. Zool. exp. (3) x, No. 4, pl. xxxvii.

467. WINKLER, G. Die Regeneration des Verdauungsapparates bei *Rhyncelmis limosella* Hoffm. SB. Bohmisch. Ges. 1902, No. 12, 34 pp., 2 pls.
Summary, Zool. Centrlbl. ix, p. 508.

468. WOLLEMANN, A. Einige Bemerkungen über die Versteinerungen aus der Kreide von Misburg bei Hannover. Zeitschr. Deutsch. geol. Ges. liv, pp. 30–33. [Unimportant for *Vermes.*]

469. WOLTERECK, R. Trochophora-Studien. 1. Ueber die Histologie der Larve und die Entstehung des Annelids bei den *Polygordius*-Arten der Nordsee. Zoologica xiii, 4to, 71 pp., 11 pls., 25 text-figg.
Full summary, Zool. Centrlbl. ix, pp. 509–517.

470. ——. Uber zwei Entwickelungstypen der *Polygordius*-Larve. Verh. Congr. Zool. v, Berlin 1901, pp. 729–736.
Summary, Zool. Centrlbl. ix, pp. 509 & 517.

471. ZACHARIAS, O. Zur genaueren Charakteristik von *Microstoma inerme.* Zool. Anz. xxv, pp. 237 & 238.
Brief summary, Zool. Centrlbl. ix, p. 501.

472. ——. Zur Kenntnis von *Triarthra brachiata* Rouss. T. c. p. 276.

473. ——. Das Plankton des Laacher Sees. T. c. pp. 395 & 396.
6 *Rotifera* mentioned. Summary, Zool. Centrlbl. ix, p. 495.

474. ——. Zum Capitel der "wurstförmigen Parasiten" bei Räderthieren. T. c. pp. 647–649.

475. ——. Eine neue Turbellarienspecies (*Stenostoma turgidum*). Op. cit. xxvi, pp. 41 & 42.

476. ——. Zur Flora und Fauna der Schilfstengel in Gr. Plöner See. Forschber. Plon ix, pp. 17–25, pl. i, figg. 1–10. (*Vermes*, p. 19.)

477. ——. Zur Kenntnis der Planktonverhältnisse des Schöh- und Schluensees. T. c. pp. 26–32.

478. ——. Notiz über *Microstoma inerme.* T. c. p. 70.

479. ZELENY, C. A case of compensatory regulation in the regeneration of *Hydroides dianthus.* Arch. Entwickmech. xiii, pp. 597–609, 3 text-figg.
Summary, Zool. Centrlbl. ix, p. 782.

480. ZSCHOKKE, F. *Hymenolepis* (*Drepanidotænia*) *lanceolata* Bloch als Schmarotzer im Menschen. Centrbl. Bakter. xxxi, pp. 331–335.

481. ——. *Hymenolepis* (*Drepanidotænia*) *lanceolata* Bloch, aus Ente und Gans als Parasit des Menschen. Zool. Anz. xxv, pp. 337 & 338.

482. *[ZSCHOKKE, F.]. Die Tierwelt eines Bergbachs bei Säckingen in südlichen Schwarzwald. Mt. Bad. zool. Ver. 11 & 12, 1902, pp. 27–41.
Summary in Zool. Centrlbl. ix, p. 42.

483. *——. Parasitische Würmer. Fauna helvetica. Heft 8. (Bibliographie der schweizerischen Landeskunde.) Bern, 1902, 39 pp.
Brief summary, Zool. Centrlbl. ix, p. 393.

484. ZYKOFF, W. Beiträge zur Turbellarienfauna Russlands. Zool. Anz. xxv, pp. 478–480, 1 text-figg.
Summary, Zool. Centrlbl. ix, p. 501.

485. ——. Wo sollen wir den Zwischenwirt des *Cystoopsis acipenseri* N. Wagn. suchen? Biol. Centrbl. xxii, pp. 229–233, 7 figg.
Summary, Zool. Centrlbl. ix, p. 452 ; also J. R. Micr. Soc., p. 308.

486. *——. Compte-Rendu des Travaux des Vacances 1900 de la station biologique du Volga organisée par la Société des naturalistes à Saratow. Trav. Soc. Saratov 1900, ii, 25 pp. [Russian.]
Mentions 1 or 2 fresh water Nemerteans. Brief summary, Zool. Centrlbl. ix, p. 108.

II. SUBJECT-INDEX.

VERMES.

GENERAL SUBJECT (Vermes collectively or more than one division).

[The following memoirs relate to the general subject or are collective, viz. :—ANDROUSOV (4), BRAUN (50), CALKINS (58), FOREL (130), GARDINER & REYNOLDS (142), GOODRICH (150), GRAVIER (159), HERDMAN (174, 175), KOWALEWSKI (215–217), KÜKENTHAL (218), LINSTOW (239), LINTON (242), MORGAN (293), NEVEU-LEMAIRE (303), NICKLES (305), OEFELE (312, 313), PERRIER (324), PERRIER & GRAVIER (325), PERRONCITO (327), PIANA (328), PINTNER & EISIG (332), REIBISCH (345), SCHRADER (378), SCHULTZ (381), SCOTT (383, 384), SHIMER (386), SKORIKOW (395), SRÁMEK (403), STILES & HASSALL (416), STILES & TAYLOR (418), THIELE (428), WAGNER (451), ZSCHOKKE (482, 483).]

Review of work for 1901, PINTNER & EISIG (332).
Structure, and classification, general account in text-book, KÜKENTHAL (218).
General classification and anatomy, GOODRICH (150).
Human parasites, text-book, BRAUN (50).—Animal parasitology, text-book, NEVEU-LEMAIRE (303).—Parasites of man and other animals, PERRONCITO (327).—Parasites and parasitism [popular work], WAGNER (451). —Parasitology in ancient Egypt, OEFELE (312, 313).
Biographical review of ERCOLANI's work on parasitic worms, PIANA (328).
Regeneration, SCHULTZ (381), MORGAN (293).
Tachygenesis in worms, PERRIER & GRAVIER (325), PERRIER (324).
Cœlom in worms, THIELE (428).

Distribution.

Scotland, fish parasites, Scott (383, 384).

†Ireland (Co. Kerry), fossiliferons Silurian beds, Gardiner & Reynolds (142).—Port Erin, guide to Aquarium, Herdman (175).—Port Erin, collections, Herdman (174).

Black Forest, collection, Zschokke (482).

Switzerland, parasitic spp., Zschokke (483).—Lake Geneva, *Rotifera*, *Annelida*, *Hirudinea*, *Nematoda*, *Nemertina*, *Cestoda*, *Trematoda* and *Turbellaria*, Forel (130).

Bohemia, helminthology, Srámek (403).

Poland, helminthology, Kowalewski (215).

Russia, plankton fauna, Skorikow (395).—†Russia, south, n. spp., undescribed, Andrusov (4).

†Northern Alaska, spp. from Rocky Mountains, Schrader (378).

†Ontario, Hamilton group, list of spp., Shimer (386).

Woods Holl, fish parasites, Linton (242).

French Guiana, collection from, Gravier (159).

ANNELIDA.

GEPHYREA.

[The following memoirs relate to *Gephyrea*:—Cuénot (104), Hérubel (176, 177), Mack (264), Monaco (290), Schwarze (382), Scharff (385), Shipley (389, 390, 391, 394) Sluiter (396, 397), Steuer (409), Torrey (431, 432, 433), Verrill (441).]

General Biology.

General anatomy and classification, Shipley (394).

Anatomy, histology and development of the nervous system of *Sipunculus nudus*, Mack (264).

Structure of the brain of *Phascolosoma*, Hérubel (177).

Anatomy and physiology of the peritoneal elements (urns) in *Phascolosoma vulgare*, Hérubel (176).

Glandular organs and ciliated phagocytes, Cuénot (104).

Early development of mesoblast in *Thalassema*, Torrey (431).

Cell-lineage of the mesoblast-bands and mesenchyme in *Thalassema*, Torrey (432).

Symbiosis between Sipunculids and Crabs, Schwarze (382).

Distribution.

Gulf of Gascony and the Azores, n. spp., Sluiter (397).

Africa, north west coast, Monaco (290).

Maldive Islands, *Echiuroidea*, 6 spp., Shipley (390).—Maldive and Laccadive Islands, *Sipunculoidea*, 1 n. gen., 1 n. sp., Shipley (391).

Indian Archipelago, 29 n. spp. of Sipunculids (1 n. g.), 2 n. spp. of Echiurids, Sluiter (396).

Bermudas, 3 spp., Verrill (441).

Cape Adare, collection, Shipley (389).

Systematic.

Apionsoma, n. g. for *A. trichocephalus*, n. sp., Indian Archipelago, structure, Sluiter, Siboga Exped. xxv, p. 42, pl. iv, figg. 8–11.

Aspidosiphon corallicola, p. 19, pl. ii, figg. 1–8; *A. spiralis*, p. 25; *A. cristatus*, p. 26, pl. ii, figg. 14–16; *A. spinosus*, p. 28, pl. ii, figg. 17–19; *A. inquilinus*, p. 29, pl. ii, figg. 21 & 22; Indian Archipelago, structure, Sluiter, t. c., n. spp.

Dendrostoma spinifer, Indian Archipelago, structure, Sluiter, t. c., p. 41, pl. iv, figg. 6 & 7, n. sp.

Hamingia sibogæ, Indian Archipelago, structure, Sluiter, t. c., p. 44, pl. iv, fig. 12, n. sp.

Lithacrosiphon, n. gen. for *L. maldivense*, n. sp., Maldive Islands, anatomy and histology, Shipley, Fauna Maldive i, 2, p. 137, pl. vii.

Phascolion hirondellei, Canary Islands [not described], Monaco, C.R. Ac. Sci. cxxxiv, p. 962.

P. hirondellei, Gulf of Gascony and Azores, p. 7, pl. ii, figg. 1–6, *P. alberti*, Cape Finisterre, p. 9, pl. i, figg. 1 & 2, pl. iii, fig. 1 & 2, Sluiter, Resultats Monaco xv; *P. parvus*, p. 30, pl. iii, figg. 1 & 2; *P. pharetratus*, p. 31, pl. iii, figg. 3–5; *P. convestitus*, p. 32, pl. iii, figg. 6–9; Indian Archipelago, structure, Sluiter, Siboga Exped. xxv : n. spp.

Phascolosoma; brain, Hérubel, C.R. Ac. Sci. cxxxiv, pp. 1603–1605.

Phascolosoma vulgare, nephridia, and urns, Cuénot, Arch. Zool. exp. (3) x, No. 1, pp. 85 & 86, fig. 3; peritoneal elements (urns), Hérubel, Bull. Soc. zool. France xxvii, pp. 105–117, 4 figg.

P. reconditum, Azores, p. 11, pl. ii, figg. 7 & 8, pl. iii, figg. 3 & 4, Sluiter, Resultats Monaco xv; *P. vulgare* var. *tropicum*, n. var. p. 33, *P. fimbricatum*, p. 34, *P. subhamatum*, p. 35, pl. iii, figg. 10–12, *P. anguineum*, p. 36, figg. 13–16, *P. filiforme*, p. 37, figg. 1–4, *P. confusum*, p. 38, pl. iv, fig. 5, *P. depressum*, p. 39, pl. iii, figg. 17–20, *P. mucidum*, p. 40, *P. immunitum*, Indian Archipelago, structure, Sluiter, Siboga Exped. xxv : n. spp.

Physconosoma granulatum, urns free in cœlome, Cuénot, Arch. Zool. exp. (3) x, No. 1, pp. 82–84, fig. 2.

P. hebes, p. 13, pl. i, figg. 5 & 6, *P. glabrum*, p. 14, pl. i, figg. 7 & 8, *P. extortum*, p. 15, pl. i, figg. 9 & 10, *P. spongicola*, p. 16, pl. i, figg. 11 & 12, Indian Archipelago, structure, Sluiter, Siboga Exped. xxv, n. spp.

Priapulus caudatus (=*P. tuberculato-spinosus* De Guerne), Cape Adare, Shipley, Southern Cross, p. 284.

Sipunculoidea, general anatomy, Shipley, Enc. Brit. xxxii, pp. 636–638, 4 figg.

Sipunculus, anatomy, Gineste, Pr.-verb. Soc. Bordeaux lvi, pp. clxiii–clxv.

Sipunculus nudus, anatomy, histology and development of the nervous system, Mack, Arb. Inst. Wien xiii, pp. 237–334, 5 pls., 17 text-figg.; *S. nudus*, *S. tessellatus*, structure and significance of urns, Cuénot, Arch. Zool. exp. (3) x, No. 1, pp. 79–82, 1 fig.

S. nitidus, Azores, Sluiter, Resultats Monaco xv, p. 14, pl. i, fig. 45, pl. iii, figg. 10 & 11; *S. inclusus*, p. 6, *S. æquabilis*, p. 7, *S. claviger*, pl. i, figg. 1 & 2, *S. pellucidus*, p. 9, pl. i, fig. 3, *S. infrons*, p. 10, pl. i, fig. 4, Indian Archipelago, structure, Sluiter, Siboga Exped. xxv, n. spp.

Thalassema; cell-lineage of the mesoblast-bands and mesenchyme, Torrey, Science xv, p. 576; early development of mesoblast, Torrey, Anat. Anz. xxi, pp. 247–256, 3 figg.; eggs at Beaufort, N. C., Torrey, Ann. N. York Ac. xiv, p. 137. *T. erythrogrammon*, p. 128, pl. vi, fig. 1, *T. diaphanes*, fig. 2, *T. mœbii*, p. 129, figg. 3 & 3a & b, *T. sermoni*, fig. 4, Maldive Islands, characters, Shipley, Fauna Maldive i, 2.

Thalassema indivisum, North Spain, Sluiter, Resultats Monaco xv, p. 18; *T. ovatum*, Indian Archipelago, structure, Sluiter, Siboga Exped.

xxv, p. 49, pl. iv, figg. 14–16, n. spp.; *T.* n. sp. [unnamed and undescribed], from the Morocco coast, MONACO, C.R. Ac. Sci. cxxxiv, p. 963.

POLYCHÆTA.

[The following memoirs relate to *Polychæta*, viz.:—ASHWORTH (11), BERGMANN (34), BOHN (37, 38), BORRADAILE (40), BOUNHIOL (46), CHILD (76), CLARK (77), CUÉNOT (104), DEECKE (110), EISIG (121), FAUVEL (123, 124), FISCHER (126), FOREL (130), GOURRET (151), GRAVIER (155–163), HALL (168), HORST (181), IZUKA (187), JANENSCH (194), JOHNSON (198), LILLIE (229–231), LINVILLE (243), LOEB (245), MARENZELLER (269, 270), MARTELLI (271), MAYER (277), MEAD (278), MEISENHEIMER (279), M'INTOSH (287, 288), MOORE (296), OPPENHEIMER (315), OSAWA (316), PERRIER (323), PRUVOT (336, 337), RABES (340), REMES (346), RETZIUS (346a), SCHNEIDER (375), SCHWARZE (382), SOULIER (401), STEUER (409), THOMSON (430), TREADWELL (434, 435), VERRILL (441), VIGUIER (443), WANNER (452), WILLEY (462), ZELENY (479).]

GENERAL BIOLOGY.

Classification of Nereidiens, GRAVIER (160).

Anatomy and post larval stages of *Arenicola assimilis*, ASHWORTH (11).

Value of the morphology of the head, VIGUIER (443).

Histology, SCHNEIDER (375).

Sense organs of the proboscis of *Rhynchobolus dibranchiatus*, OPPENHEIMER (315).

Sense-cells, RETZIUS (346a).

Otocysts, FAUVEL (123).

Glandular organs and ciliated phagocytes, CUÉNOT (104).

Physiology: respiration in *Polychæta*, BOUNHIOL (46).—Muscular, respiratory and locomotor movements, BOHN (38).—Effects of various solutions on ciliary and muscular movement in the larvæ of *Arenicola* and *Polygordius*, LILLIE (229).—Movements, BOHN (37).

Egg formation, BERGMANN (34).

Modifications and behaviour of the segmental organs during reproduction, in *Syllidæ*, PRUVOT (336).

Regeneration of *Hydroides dianthus*, ZELENY (479).—Regeneration and budding, especially of the head, VIGUIER (443).

Collateral budding in *Trypanosyllis*, anatomy and histology, JOHNSON (198).

Stolonial formations, origin of, in *Annelida*, PERRIER (323).—Evolution of stolonial formations in *Syllidæ*, PRUVOT (337).

Fertilisation, development, habits and anatomy of the "Palolo" worm, MAYER (277).

Artificial parthenogenesis, methods of, LOEB (245).—Artificial parthenogenesis in *Amphitrite*, FISCHER (126).—Artificial parthenogenesis and resulting cleavage in eggs of *Podarke obscura*, in salt solutions, TREADWELL (434).

Differentiation without cleavage in the egg of *Chætopterus pergamentaceus*, LILLIE (231).

Development of lobworms, RABES (340).

Symbiosis between Nereids and crabs, SCHWARZE (382).

Adaptability of some Nereidiens, Eunicians, Serpuliens and Capitelliens to fresh water, GRAVIER (163).

Habits of *Amphitrite ornata* and *Diopatra cuprea*, LINVILLE (243).

Polydora boring oysters in Australia, M'INTOSH, Ann. Nat. Hist. (7) ix, pp. 299–308.

DISTRIBUTION.

Norway, Finmark, variety of *Ehlersia cornuta*, M'INTOSH, Ann. Nat. Hist. (7) ix, p. 298.

Scotland, St Andrews, *Nereidæ* and *Staurocephalidæ*, M'INTOSH (288).

Ireland, *Nereidæ*, M'INTOSH (288).

Plymouth and Channel Islands, *Nereidæ* and *Staurocephalidæ*, M'INTOSH (288).

Casamance, FAUVEL (124).

†Stramberg, Nesselsdorf, *Serpula* n. sp., REMES (346).

†Alsace, *Serpula* spp., JANENSCH (194).

Gulf of Marseilles, sedentary forms, GOURRET (151).

Cette (Mediterranean), revision of spp., SOULIER (401).

Atlantic (spp. unnamed), MARENZELLER (270).

North Greenland, 4 n. spp. *Polynoïdæ*, MOORE (296).

Gulf of St Lawrence, *Nereidæ*, M'INTOSH (288).

California, n. sp., JOHNSON (198).

Dry Tortugas, Florida, "Palolo" worm, MAYER (277).

†Libian desert, *Serpula*, 3 n. spp., WANNER (452).

Red Sea, 15 n. spp., GRAVIER (158).

Bermudas, n. sp., VERRILL (441).

French Guiana, fresh-water spp., GRAVIER (159).

Malay Archipelago, 9 n. spp. *Euphrosyne*, HORST (181).

Japan, Ophiurans as hosts for Myzostomes, CLARK (77).—2 n. spp. *Maldanidæ*, IZUKA (187)).—n. sp., MARENZELLER (269).—Palolo worm, OSAWA (316).

†Victoria Tertiary, n. sp., HALL (168).

New Zealand, n. sp., THOMSON (430).

SYSTEMATIC.

Polychæta; monograph on respiration, BOUNHIOL, Ann. Sci. nat. xvi, pp. 1–80; adaptability of some forms to fresh-water, GRAVIER, Bull. Mus. Paris viii, pp. 25–30; fresh-water forms, GRAVIER, C.R. Ac. Sci. cxxxv, pp. 984–986.

Amphiglene mediterranea, Cette, structure and synonymy, SOULIER, Mem. Ac. Montpell. (2) iii, p. 109, figg.

Amphinome djiboutiensis, Red Sea, structure, GRAVIER, Arch. Mus. Paris (4) iii, p. 245, pl. ix, figg. 137–139, n. sp.

Amphitrite, artificial parthenogenesis, FISCHER, Amer. J. Physiol. vii, pp. 301–314; *A. ornata*, habits, LINVILLE, Science xv, p. 192; habits, LINVILLE, Ann. N. York Ac. xiv, p. 160.

Arenicola, effects of various solutions on ciliary and muscular movements in the larvæ, LILLIE, Amer. J. Physiol. vii, pp. 25–55; movements, BOHN, Bull. Mus. Paris 1902, No. 2, pp. 96–102.

A. assimilis, anatomy and post-larval stages, and systematic position, n. var. *affinis*, Otago, ASHWORTH, Quart. J. Micr. Sci. xlvi, pp. 737–785, pls. xxxvi & xxxvii; *A. marina*, undulatory movements, muscular, respiratory and locomotor, BOHN, Bull. Mus. Paris viii, pp. 96–102.

Bhawania cryptocephala, Red Sea, structure, GRAVIER, Arch. Mus. Paris (4) iii, p. 263, pl. x, figg. 152–156, n. sp.

Ceratonereis obokensis, Red Sea, structure, GRAVIER, t. c., p. 177, pl. xi, figg. 44 & 45, n. sp.

Chætopterus; artificial parthenogenesis, LOEB, Arch. Entwickmech. xiii, pp. 481–486; *C. pergamentaceus*, differentiation without cleavage in the egg, LILLIE, Arch. Entwickmech. xiv, pp. 477–499, pls. xxvii & xxviii; differentiation without cleavage in the egg, LILLIE, Science xv, p. 522.

Chrysopetalum ehlersi, Red Sea, structure, GRAVIER, Arch. Mus. Paris (4) iii, p. 260, pl. x, figg. 150 & 151, n. sp.

Clymene harai, Japan, IZUKA, Annot. zool. Japon. iv, p. 111, pl. iii, figg. 9–12, n. sp.

Diopatra cuprea, habits, LINVILLE, Ann. N. York Ac. xiv, p. 160.

Dybowscella baicalensis, reviews of work upon, PRUVOT, Annee biol. vi, pp. 396 & 397.

Eisigella n. g. for *E. ouanaryensis* n. sp., French Guiana, GRAVIER, Bull. Mus. Paris vii, pp. 402–404 and Bull. Soc. Autun xiv, p. 366, figg.

Ereutho antarctica, Cape Adare, WILLEY, "Southern Cross," p. 281, pl. xlii, fig. 6, pl. xlvi, fig. 6, n. sp.

Eunice floridana, *E. norvegica*, in holes of *Lophohelia prolifera*, MARENZELLER, Anz. Ak. Wiss. xxxviii & xxxix, p. 294; *E. fucata*, Florida, habits, reproduction, development, fertilization, anatomy, MAYER, Bull. Brooklyn Mus. i, pp. 93–103, 1 pl.; *E. viridis*, MEISENHEIMER, Naturw. Wochenschr. xvii, pp. 225 & 226.

Euphione tenuiseta, Red Sea, structure, GRAVIER, Arch. Mus. Paris (4) iii, p. 222, pl. viii, figg. 123–126, n. sp.

Euphrosyne maculata, p. 214, *E. obiensis*, p. 215, *E. longesetosa*, p. 215; *E. sibogæ*, p. 216, *E. pelagica*, p. 217, *E. mucosa*, p. 218; *E. hystrix*, p. 219, *E. affinis*, p. 219, *E. pilosa*, p. 220, localities and characters, HORST, Notes Leyden Mus. xxiii : n. spp.

Gattyana cristata, Franklin Island, WILLEY, "Southern Cross," p. 268, pl. xliv, figg. 1–4; *G. senta*, p. 259, pl. xiii, figg. 1–13, *G. ciliata*, p. 263, pl. xiii, figg. 14–19, North Greenland, structure, MOORE, P. Ac. Philad. liv n. spp.

Glycera, ciliated cœlomic phagocytes, CUÉNOT, Arch. Zool. exp. (3) x, No. 1, p. 92.

Harmothoë (*Eunoa*) *truncata*, North Greenland, MOORE, P. Ac. Philad. liv, p. 272, pl. xiv, figg. 21–28, n. sp.

Hermella (*Sabellaria*) *alveolata* [=*H. savignyi* Qtrfgs.], Gulf of Marseilles, GOURRET, C.R. Ass. franc. 1901 (2), p. 690, fig. 4*b*.

Hesione sicula, egg formation and division, BERGMANN, Zeitschr. wiss. Zool. lxxiii, pp. 286–292, pl. xvii, figg. 20 & 21, pl. xviii, figg. 22–27.

Hydroides dijanthus, regeneration, ZELENY, Arch. Entwickmech. xiii, pp. 597–609, 3 text-figg.; *H. pectinata* (=*Eupomatus* Phil.), p. 686, figg. 1*a–e*, *H. affinis* (=*Eupomatus* Marion), p. 687, figg. 2*c–g*, GOURRET, C.R. Ass. franc. 1901 (2); *H. uncinata*, Cette, structure and synonymy, SOULIER, Mem. Ac. Montpell. (2) iii, p. 152, figg.

Lagisca multisetosa, North Greenland, structure, MOORE, P. Ac. Philad. liv, p. 267, pl. xiv, figg. 29–36, n. sp.

Leonnates jousseaumei, Red Sea, structure, GRAVIER, Arch. Mus. Paris (4) iii, p. 160, pl. xi, figg. 34–37, n. sp.

Lepidonotus obscurus, Red Sea, structure, GRAVIER, t. c., p. 218, pl. viii, figg. 118–122, n. sp.

Lycastis, composition and systematic position, GRAVIER, Bull. Soc. Autun xiv, pp. 373–379.

Lycastis ouanaryensis, p. 397, *L. geayi*, 399, French Guiana, GRAVIER, Bull. Mus. Paris vii, and Bull. Mus. Autun xiv, pp. 354–361, figg. 1–17, n. spp.

Maldane gotoi, Japan, IZUKA, Annot. zool. Japon. iv, p. 109, pl. iii, figg. 1–8, n. sp.

Malmgrenia crassicirris, Cape Adare, WILLEY, "Southern Cross," p. 269, pl. xlii, figg. 3 & 4, pl. xliv, figg. 5 & 6, n. sp.

Myxicola infundibulum, *M. æsthetica*, Cette, structure and synonymy, SOULIER, Mem. Ac. Montpell. (2) iii, pp. 128, 133, figg.

Myzostomes, parasites of *Asteroceras pergamena*, Japan, CLARK, Zool. Anz. xxv, p. 670.

Nephthys cæca, ciliated phagocytes, CUÉNOT, Arch. Zool. exp. (3) x, No. 1, p. 92.

Nereidiens, ciliated phagocytes, CUÉNOT, t. c., pp. 91 & 92; British, Canadian and Norwegian forms, with localities, M'INTOSH, Ann. Nat. Hist. (7) x, pp. 252–260, pl. vi; classification, GRAVIER, Bull. Mus. Paris vii, pp. 350–357.

Nereis diversicolor, histology, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 367–375, figg. 353 & 354; *N. versicolor*, Japanese Palolo worm, anatomy, OSAWA, Int. Zool. Congr. Berlin 1901, pp. 751–755, 1 pl.

N. coutierei, Red Sea, structure, GRAVIER, Arch. Mus. Paris (4) iii, p. 167, pl. xi, figg. 38–41, text-figg. 166–172, n. sp.

Onuphis tubicola, egg formation and development of the zona radiata, BERGMANN, Zeitschr. wiss. Zool. lxxiii, pp. 279–286, pl. xvii, figg. 1–19.

Oria armandi, Cette, structure and synonymy, SOULIER, Mem. Ac. Montpell. (2) iii, p. 114, figg.

Oxydromus aucklandicus, Auckland Islands, WILLEY, "Southern Cross," p. 281, n. sp.

Pectinaria regalis, Bermudas, VERRILL, Tr. Connect. Ac. xi, p. 38, pl. viii, figg. 6 & 7, n. sp.

Perinereis heterodonta, p. 179, pl. xi, fig. 46, *P. horsti*, p. 182, fig. 47, Red Sea, structure, GRAVIER, Arch. Mus. Paris (4) iii, n. spp.

Platynereis insolita, p. 197, pl. xii, fig. 53, *P. pallida*, p. 200, fig. 54, *P. pulchella*, p. 202, figg. 55 & 56; Red Sea, structure, GRAVIER, t. c., n. spp.

Podarke: budding, morphology of the head, VIGUIER, Ann. Sci. nat. xv, pp. 281–311; *P. obscura*, nature of "artificial parthenogenesis" and subsequent cleavage in egg, TREADWELL, Biol. Bull. iii, pp. 235–240, 12 text-figg.

Polydora, boring oysters in New South Wales, description of injury and suggestions for remedy, M'INTOSH, Ann. Nat. Hist. (7) ix, pp. 299–308.

Polygordius, effects of various solutions on ciliary and muscular movements in the larvæ, LILLIE, Amer. J. Physiol. vii, pp. 25–55; *P. neapolitanus*, histology, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 197–201, 363–366, fig. 352.

Polynoë comma, New Zealand, anatomy, THOMSON, Tr. N. Zealand Inst. xxxiv, pp. 241 & 242, n. sp.

Pomatoceros triqueter, Cette, synonymy and structure, SOULIER, Mem. Ac. Montpell. (2) iii, p. 138, figg.; *P. triquetroides*, Gulf of Marseilles, GOURRET, C.R. Ass. franc. 1901 (2), p. 689, figg. 3*a–c*.

Potamilla reniformis, Cette, structure and synonymy, SOULIER, Mem. Ac. Montpell. (2) iii, p. 120, figg.

Protula meilhaci, Cette, structure and synonymy, SOULIER, t.c., p. 156, figg.

Pseudonereis anomala, Red Sea, structure, GRAVIER, Arch. Mus. Paris (4) iii, p. 191, pl. xii, figg. 50–52, n. sp.

Rhynchobolus dibranchiatus, sense organs of the proboscis, OPPENHEIMER, P. Amer. Ac. xxxvii, pp. 553–562, 6 pls.

†*Salmacina* (?) *tereta*, Victoria Tertiary, HALL, P. Soc. Victoria xv, pt. 1, p. 83, pl. xi, fig. 9, n. sp.

Scalisetosus prælongus, S. Japan, MARENZELLER, Anz. Ak. Wiss. viii, p. 87.

†*Serpula* spp., Alsace, JANENSCH, Abh. geol. Karte Elsass v, pp. 128 & 129; *S. crater*, Cette, structure and synonymy, SOULIER, Mem. Ac.

Montpell. (2) iii, p 145, figg.; †*Serpula*, 3 n. spp., Libian desert, WANNER, Palæontogr. xxx, pp. 91–151, pls.; †*S. torquata*, Nesselsdorf, in red chalk, REMES, Beitr. Pal. Oesterr.-Ung. xxiv, p. 210, pl. xx, fig. 31, n. sp.

Sigalion squamatum, histology, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 376–381, figg. 355–357.

Spirographis spallanzanii, Cette, structure and synonymy, SOULIER, Mem. Ac. Montpell. (2) iii, p. 116, figg.

†*Spirorbis omphalodes*, Devonian, MARTELLI, Boll. Soc. geol. Ital. xxi, p. 369.

Staurocephalidæ; some British spp., with localities, M'INTOSH, Ann. Nat. Hist. (7) x, pp. 255–257.

Syllidæ, notes on some British and Norwegian forms, M'INTOSH, Ann. Nat. Hist. (7) ix, pp. 296–299; origin of stolonial formations, PERRIER, C.R. Ac. Sci. cxxxiv, pp. 453–456; evolution of stolonial formations, PRUVOT, C.R. Ac. Sci. cxxxiv, pp. 433–436.

Syllis vittata, behaviour of segmental organs during reproduction, PRUVOT, t. c., pp. 242–245.

Thalenessa djiboutiensis, Red Sea, structure, GRAVIER, Arch. Mus. Paris (4) iii, p. 231, pl. vii, figg. 114–117, n. sp.

Trypanosyllis gemmipara, formation of collateral buds, JOHNSON, Amer. Natural. xxxvi, pp. 302–315, text-figg. 8–17; and other spp., collateral buds: morphology of the head, VIGUIER, Ann. Sci. nat. xv, pp. 281–311; *T. ingens*, California, structure, lateral buds, affinities, JOHNSON, Amer. Natural. xxxiv, pp. 296–302, text-figg. 1–6A, n. sp.

OLIGOCHÆTA.

[The following memoirs relate to *Oligochæta*, viz.:—ABEL (1), BEDDARD (19, 20, 21, 22, 23, 24), BOHN (37), BORRADAILE (40), BORTOLOTTI (41, 42), BRETSCHER (52), BUDINGTON (53), COGNETTI (89, 90, 91), CUÉNOT (104), DUBOSCQ (119), FOOT & STROBELL (128, 129), FOREL (130), FRIČ & VAVRA (133), FRIEND (134), HANSSON (169), HESSE (178), HÜBNER (183), JANDA (192, 193), JOHNSON (198), JOHNSTON & JOHNSON (200), JOSEPH (201), KOROTNEFF (210), MICHAELSEN (282, 283, 284, 285), MOORE (295), MORGAN (294), MRÁZEK (299), NUSBAUM (307), PIERANTONI (329, 330), RIBAUCOURT (349), RICE (350), ROSA (357, 358, 359), SCHNEIDER (375), SHIPLEY (388), SMITH (398), SPENCER (402), STAFFORD (406), VANHÖFFEN (439), VEJDOVSKY & MRÁZEK (440), VERRILL (441), WENIG (459), WETZEL (461), WINKLER (467), ZACHARIAS (476).]

GENERAL BIOLOGY.

Comparative anatomy and histology of *Lumbricidæ*, RIBAUCOURT (349).—Anatomy of 6 n. spp. *Benhamia*, BEDDARD (20).—Anatomy of *Æolosoma tenebrarum*, JANDA (192).—Anatomy and affinities of *Alminæ*, DUBOSCQ (119).—Anatomy of *Enantiodrilus borellii*, COGNETTI (90).—Anatomy and histology; a new cœlomic organ in *Pheretima posthuma*, BEDDARD (23).—Histology, *Schneider* (375).

Phylogeny, histology and anatomy of the nervous system of *Lumbricidæ* and *Enchytræidæ*, JOSEPH (201).

Anatomy, especially of the ♂ reproductive organs of various *Lumbriculidæ* from Lake Baikal, MICHAELSEN (283).—Anatomy of the reproductive organs of *Lumbriculus variegatus*, HESSE (178).—Reproductive organs of *Lumbriculus variegatus*, WENIG (459).—Organs of sex and oviposition in *Phallodrilus*, PIERANTONI (329).

Glandular organs and ciliated phagocytes, CUÉNOT (104).

Anatomy of the gonad ducts and nephridia in *Eudrilus*, BEDDARD (22).—Anatomy of 3 n. spp. of *Polytoreutus*, especially of the spermatophores of the genus, BEDDARD (24).—Spermatophores of *Benhamia*, BEDDARD (21).

Spermatozoa of *Allolobophora fœtida*, behaviour of centrosomes, FOOT & STROBELL (129).

Formation of cocoons of *Allolobophora fœtida* during copulation, and separately, FOOT & STROBELL (128).

Spawn and young of *Marphysa*, in Ceylon, BORRADAILE (40).

Chlorogen; origin, structure, distribution and physiological significance, ROSA (359).—Function of chlorogen in *Lumbricus* and *Allolobophora*, BORTOLOTTI (42).—Physiological significance of earthworm chlorogen, RICE (350).

Course of the blood flow in *Lumbricus*, JOHNSTON & JOHNSON (200), JOHNSON (198).

Physiological characteristics of Annelid muscle, BUDINGTON (53).

Locomotion, BOHN (37).

Influence of temperature, odors, light and contact on movements of *Allolobophora fœtida*, SMITH (398).

Natural budding and division in *Chætogaster diaphanus*, WETZEL (461).

Regeneration of organs, ABEL (1).—Regeneration in limicolous forms, ABEL (1).—Regeneration in *Lumbricus*, HÜBNER (183).—Regeneration of the central nervous system and mesoblast in *Rhynchelmis*, JANDA (193).—Regeneration in *Allolobophora fœtida*, MORGAN (294).—Regenera-in the *Enchytræidæ*, NUSBAUM (307).—Regeneration of the digestive apparatus in *Rhynchelmis limosella*, WINKLER (467).

Opalina parasitic in *Lumbricus*, BORTOLOTTI (41).

Nematodes in earthworms, SHIPLEY (388).

Influence of the ice-age on the distribution of earthworms, MICHAELSEN (284).

DISTRIBUTION.

Scandinavia, *Lumbricidæ*, 11 spp., HANSSON (169).

Norway, *Lumbricidæ* and their affinities, MICHAELSEN (282).

Irish *Enchytræidæ*; new theory of larval forms, FRIEND (134).

Switzerland, n. spp., BRETSCHER (52).

Lake Plön, 4 spp., ZACHARIAS (476).

Bohemia, from the Elbe, FRIČ & VAVRA (133).—Prague, n. g. and n. sp. of *Tubificidæ*, VEJDOVSKY & MRÁZEK (440).—Prague, hot-house spp., MRÁZEK (299).

Naples, 2 n. genera, PIERANTONI (329).

Calcutta, n. sp., BEDDARD (19).

Lake Baikal, 4 n. spp., 1 n. g., MICHAELSEN (283).

Australia, 1 n. g., 37 n. spp., SPENCER (402).

Africa (Equatorial East and Central), n. spp. of *Polytoreutus* and *Benhamia*, BEDDARD (20, 24).

Tanganyika, n. sp., BEDDARD (19).

Bermuda, n. sp., MOORE (295).—Bermuda Islands, list of spp., VERRILL (441).

Argentine Republic, n. g. and sp., COGNETTI (89).—Bolivia and Argentina, 2 n. genera, 2 n. spp., COGNETTI (89).

Patagonian spp., ROSA (357).

Systematic.

Oligochæta, cavernous spp., Cognetti, Atti. Soc. Modena (4) v, 10 pp.; movements of undulation and locomotion, Bohn, Bull. Mus. Paris vii, pp. 404–411.

Achæta vejdovskyi, Switzerland, Bretscher, Rev. Suisse Zool. x, p. 27, n. sp.

Æoslosoma tenebrarum, anatomy, Janda, Zool. Anz. xxv, pp. 172–174.

Allolobophora, function of chlorogen, Pieri, Rend. Acc. Lincei xi, pp. 449–451; *A. fœtida*, influence of temperature, etc. on movements, Smith, Amer. J. Physiol. vi, pp. 459–486, 15 figg.; regeneration, Morgan, Arch. Entwickmech. xiv, pp. 562–591, pls. xix–xxx; behaviour of the centrosomes of the spermatozoa, Foot & Strobell, Amer. J. Anat. i, pp. 321–327, 1 pl.; formation of cocoons during copulation, and separately, Foot & Strobell, Biol. Bull. iii, pp. 206–213, 3 text-figg.; *A. transpadana*, chlorogen, Rosa, Mem. Acc. Torino lii, figg. 8 & 9.

A. spelœa, cavernous form, Rosa, Atti. Soc. Modena xxxv, n. sp.

Alma zebanguii, Haut-Oubangui, anatomy and affinities, Duboscq, Arch. Zool. exp. notes (3) x, pp. xcvii–cv, 3 figg., n. sp.

Alminæ, composition, affinities, anatomy, Duboscq, t. c., pp. xcvii–cv, 3 figg.

Annelida, physiological characteristics of muscle, Budington, Amer. J. Physiol. vii, pp. 155–179.

Anteoides n. g. for *A. rosæ*, n. sp., Argentina, San Lorenzo, structure, especially of the reproductive organs, Cognetti, Boll. Mus. Torino xvii, No. 420, pp. 4–9, pl. 1.

Benhamia austeni, spermatophores, Beddard, P. Zool. Soc. London 1901, ii, pp. 704–709, 3 text-figg.

B. tanganyikæ, Lake Tanganyika, Beddard, Ann. Nat. Hist (7) ix, pp. 459–463; *B. moorei*, p. 191, figg. 12, 13, 16, *B. johnstoni*, p. 198, figg. 14–16, *B. mollis*, p. 203, fig. 16, *B. austeni*, p. 206, fig. 17, *B. gambiana*, p. 210, fig. 18, *B. michaelseni*, p. 213, fig. 19, Tropical Africa, anatomy, Beddard, P. Zool. Soc. London 1901, ii : n. spp.

Branchiobdella parasita, nephridia and cœlomic phagocytes, Cuénot, Arch. Zool. exp. (3) x, No. 1, p. 93.

Bythonomus lemani, Geneva, general remarks, Forel, Le Léman, iii, Lausanne, p. 115, fig. 190.

Chætogaster diaphanus, natural budding and division, Wetzel, Zeitschr. wiss. Zool. lxxii, pp. 100–125, pls. v–vii, 13 text-figg.

Cryptodrilus shephardi, p. 40, figg. 28–30, Victoria, *C. queenslandica*, p. 41, figg. 31–33, *C. cooraniensis*, p. 42, figg. 34–36, Queensland, Spencer, P. Soc. Victoria xiii : n. spp.

Digaster minor, p. 65, figg. 100–102, *D. brunneus*, p. 66, figg. 103–105, *D. gayndahensis*, p. 67, figg. 106–108, Queensland, Spencer, t.c., n. spp.

Diplotrema n. g. for *D. fragilis*, n. sp., Queensland, Spencer, t. c., p. 31, figg. 4–6.

Diprochæta davallia, p. 52, figg. 61–63, *D. mediocincta*, p. 53, figg. 54–66, *D. lindti*, p. 54, figg. 67–69, *D. euzona*, p. 55, figg. 70–72, *D. telopea*, p. 56, figg. 73–75, *D. notabilis*, p. 57, figg. 76–78, *D. richardi*, p. 58, figg. 79–81, *D. nemoralis*, p. 59, figg. 82–84, *D. manni*, p. 60, figg. 85–87, *D. arnoldi*, p. 61, figg. 88–90, *D. frosti*, p. 62, figg. 91–93, Victoria, *D. grandis*, p. 63, figg. 94–96, Queensland, *D. maplestoni*, p. 64, figg. 97–99, Victoria, Spencer, t. c. : n. spp.

Eisenia (*Lumbricus*) *rosea*, *E. veneta*, histology, Schneider, Lehrbuch vergleich. Hist. Jena 1902, pp. 381–426, figg. 358–364, 366–376, 380–383, 385 & 386, 388–392.

Embolocephalus velutinus, Geneva, characters, Forel, Le Léman, iii, Lausanne, p. 117, fig. 191.

Enantiodrilus n. g. for *E. borellii*, n. sp., San Lorenzo (Argentina), characters briefly summarised, COGNETTI, Boll. Mus. Torino xvii, p. 9.
Enantiodrilus borellii, Argentine Republic, structure, affinities, COGNETTI, Atti. Acc. Torino xxxvii, pp. 432–446, 1 pl.
Enchytræidæ, Ireland, new theory of larval forms, FRIEND, Irish Natural xi, pp. 110–115; regeneration, NUSBAUM, Biol. Centrbl. xxii, pp. 292–298; nervous system, JOSEPH, Arb. Inst. Wien xiii, pp. 335–400, figg. 27 & 28.
Enchytræus marinus, Bermuda, structure, MOORE, P. Ac. Philad. liv, pp. 80–82, fig.; *E. parvulus*, *E. alpestris*, Switzerland, BRETSCHER, Rev. Suisse Zool. x, pp. 18 & 19, n. spp.
Eudrilus, gonad ducts and nephridia, BEDDARD, P. Zool. Soc. London 1902, pp. 89–97, text-figg. 17–20.
Fridericia variata, p. 19, *F. connata*, p. 20, fig. 1, Switzerland, BRETSCHER, Rev. Suisse Zool. x, n. f.; *F. emarginata*, p. 24, *F. parva*, p. 25, *F. exserta*, p. 26, Switzerland, BRETSCHER, t. c., n. spp.
Helodrilus (*Bimastus*) *norvegicus* Eisen, characters and affinities, MICHAELSEN, Verh. ver. Hamburg naturw. (3) ix, pp. 5–13.
Henlea nasuta, nephridia and cœlomic phagocytes, CUÉNOT, Arch. Zool. exp. (3) x, No. 1, p. 93.
H. dorsalis, Switzerland, BRETSCHER, Rev. Suisse Zool. x, p. 15, n. sp.
Heterodrilus n. g. for *H. arenicolus*, n. sp., Gulf of Naples, PIERANTONI, Boll. Soc. Napoli xvi, p. 115, fig. 3.
Howascolex, n. g., MICHAELSEN, Verh. ver. Hamburg naturw. (3) ix.
Lampodrilus, n. g., *Lamprodrilus pygmæus*, p. 46, *L. isoporus*, p. 47, *L. semenkewitschi*, p. 47, Lake Baikal, MICHAELSEN, t. c., n. spp.
Lumbricidæ; monograph on the comparative anatomy and histology, RIBAUCOURT, Bull. Sci. France Belgique xxxv, pp. 211–312, pls. ix–xvi, 54 text-figg.; Norwegian spp., affinities, MICHAELSEN, Verh. ver. Hamburg naturw. (3) ix, pp. 1–13; influence of the ice-age on the geographical distribution, MICHAELSEN, t. c., pp. lxii lxv.
Lumbriculidæ, ♂ reproductive organs in various spp., MICHAELSEN, t. c., pp. 49–56.
Lumbriculus, regeneration, MORGAN, Arch. Entwickmech. xiv, pp. 584–586; *L. variegatus*, reproductive organs, HESSE, Zool. Anz. xxv, p. 620, 2 figg.; reproductive organs, WENIG, SB. Bohmisch. Ges. 1902, pp. 1–11, 1 pl.
Lumbricus, anatomy, histology and phylogenetic significance of the nervous system, JOSEPH, Arb. Inst. Wien xiii, pp. 335–400, figg. 1–26; parasitised by *Opalinæ*, BORTOLOTTI, Monit. Zool. ital. xiii, pp. 195–204; function of chlorogen, PIERI, Rend. Acc. Lincei xi, pp. 449–451; course of blood flow, JOHNSON, Science xv, p. 577; Scandinavia, 11 spp., HANSSON, Ofv. Ak. Forh. lviii, pp. 730–732; *L. herculeus*, physiological significance of chlorogen, RICE, Biol. Bull. iii, pp. 88–94, 3 text-figg.; *L. terrestris*, regeneration, HÜBNER, Zool. Jahrb. Syst. xv, pp. 483–498, pl. xxix; course of the blood flow, JOHNSTON & JOHNSON, Amer. Natural. xxxv, pp. 317–328, 3 text-figg.; histology, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 381–426, fig. 377.
Lycodrilus dybowskii, characters and systematic position, MICHAELSEN, Verh. Ver. Hamburg naturw. (3) ix, pp. 44–46.
Marphysa teretiuscula, spawn and young in Ceylon, BORRADAILE, P. Zool. Soc. London 1901, ii, pp. 714–720, pl. xxxix.
Megascolex andersoni, p. 44, figg. 37–39; *M. lurpentensis*, p. 45, figg. 40–42; *M. fardyi*, p. 46, figg. 43–45; *M. pritchardi*, p. 47, figg. 46–48; *M. montanus*, figg. 49–51, *M. lobulatus*, p. 48, figg. 52–54, Victoria; *M. minor*, p. 49, figg. 55–57; *M. illidgei*, p. 50, figg. 58–60, Queensland; *M. terangiensis*, p. 51, Victoria, SPENCER, P. Soc. Victoria xiii, n. spp.
Megascolides diaphanus, p. 32, figg. 7–9; *M. eucalypti*, p. 35, figg. 13–15;

M. tisdalli, p. 36, figg. 16–18; *M. punctatus*, p. 37, figg. 19–21; *M. warragulensis*, p. 38, figg. 22–24; *M. volvens*, p. 39, figg. 25–27, Victoria, SPENCER, t. c., n. spp.

Mesenchytræus tigrina, Switzerland, BRETSCHER, Rev. Suisse Zool. x, p. 16, n. sp.

Naïs, regeneration, ABEL, Zool. Anz. xxv, pp. 525–530; *N. proboscidea*, regeneration of parts, experiments and results, ABEL, Zeitschr. wiss. Zool. lxxiii, pp. 1–74, pls. i–iii, 2 text-figg.

Octochætus beatrix, Calcutta, BEDDARD, Ann. Nat. Hist. (7) ix, pp. 456–459, n. sp.

Phallodrilus n. g. for *P. parthenopæus*, n. sp., Gulf of Naples, PIERANTONI, Boll. Soc. Napoli xvi, p. 114, figg. 1 & 2; organs of sex oviposition, PIERANTONI, Arch. Zool. ital. i, pp. 108–119, pl. v.

Pheretima (*Perichæta*) *posthuma*, a new cœlomic organ, BEDDARD, P. Zool. Soc. London 1902, ii, pp. 164–168, text-figg. 36–39.

Polytoreutus kenyaensis, pp. 191–200, figg. 46, 47, 51–54, *P. montiskenyæ*, pp. 194–200, figg. 48–50, British Central Africa, *P. bettonianus*, pp. 199 & 200, British East Africa, structure, especially of the spermatophores, BEDDABD, t. c.

Potamothrix (*Clitellio* ?), n. g. for *P. moldaviensis*, n. sp., Prague, structure and affinities, VEJDOVSKÝ & MRÁZEK, SB. Bohmisch. Ges. 1902, pp. 1–11, 1 pl.

Rhynchelmis limosella nephridia and cœlomic phagocytes, CUÉNOT, Arch. Zool. exp. (3) x, No. 1, p. 93; regeneration of the central nervous system, and mesoblast, JANDA, SB. Bohmisch. Ges. 1902, pp. 1–59, 2 pls. 6 text-figg.; regeneration of the digestive system, WINKLER, SB. Bohmisch. Ges. 1902, No. 12, 34 pp., 2 pls.

Styloscolex, n. g. for *S. baicalensis*, n. sp., Lake Baikal, MICHAELSEN, Verh. ver. Hamburg naturw. (3) ix, p. 48.

Trichæta, n. g. for *T. australis*, n. sp., Victoria, SPENCER, P. Soc. Victoria xiii, p. 30, figg. 1–3.

Tubifex, regeneration, ABEL, Zool. Anz. xxv, pp. 525–530; *T. rivulorum*, regeneration of parts, experiments and results, ABEL, Zeitschr. wiss. Zool. lxxiii, pp. 1–74, pls. i–iii, 2 text-figg.

HIRUDINEA.

[The following memoirs relate to *Hirudinea*, viz.: ALLEN (3), APÁTHY (6), BEDDARD (25), BOHN (37), BÜRGER (55), CUÉNOT (104), FOREL (130), FRIČ & VAVRA (133), HANSSON (169), KOWALEWSKY (216), LIVANOW (244), MOORE (296A), OKA (314), POPPIUS (333), SCHMIDT (370), SCHNEIDER (375), SCOTT (383), SPIESS (400).]

GENERAL BIOLOGY.

General anatomy, BEDDARD (25); anatomy and histology of the digestive system of *Hirudo medicinalis*, SPIESS (400).

Topography of organs in typical segments of *Hirudo medicinalis*, ALLEN (3).

Histology, SCHNEIDER (375); histology of three different "light cells," or sensory cells, in *Hirudinea*, APÁTHY (6).

Glandular organs and ciliated phagocytes, CUÉNOT (104).

Blood vascular system of various *Hirudinea*, OKA (314).

Musculature of *Branchiobdella parasita*, SCHMIDT (370).

Locomotion, BOHN (37).

Fertilization in *Hæmenteria costata*, KOWALEWSKY (216).

Embryology of *Clepsine*, BÜRGER (55).

Distribution.

Lapland, *Acanthobdella*, Poppius (333).
Scandinavia, 14 spp., Hansson (169).
Sweden, n. sp., Livanow (244).
Russia, Lake Baikal, n. spp., Livanow (244).
Scotland, parasites of fishes, Scott (383).
France, n. sp., Livanow (244).
Bohemia, from the Elbe, Frič & Vavra (133).
Porto Rico, 2 n. spp. and 1 n. gen., Moore (296a).

Systematic.

Hirudinea, movements of undulation and locomotion, Bohn, Bull. Mus. Paris vii, pp. 404–411; ciliated phagocytes, Cuénot, Arch. Zool. exp. (3) x, No. 1, p. 92; Scandinavia, 14 spp., Hansson, Ofv. Ak. Forh. lviii, pp. 732–736.
Leech, general anatomy, Beddard, Enc. Brit. xxx, pp. 181 & 182, 3 figg.

Acanthobdella in Lapland, Poppius, Medd. Soc. Faun. Fenn. xxiv, p. 40.
Branchellion, histology of light sensory cells, Apáthy, Verh. Congr. Zool. v, Berlin 1901, pp. 707–728, 2 pls.
Branchiobdella parasita, musculature, Schmidt, Nachr. Ges. Göttingen 1902, pp. 284–290.
Clepsine sexoculata, embryology, Bürger, Zeitschr. wiss. Zool. lxxii, pp. 525–544, pls. xxx–xxxii.
Diplobdella n. g. for *D. antellarum*, n. sp., Porto Rico, anatomy, Moore, Bull. U. S. Fish Comm. 1900, ii, p. 219, pl. xiii.
Glossiphonidæ, blood vascular system, Oka, Annot. zool. Japon. iv, pp. 49–60, 5 text-figg.
Gnathobdellidæ, blood vascular system, Oka, t. c. pp. 49–60, 5 text-figg.
Hæmenteria costata, fertilization, Kowalewsky, Mem. Ac. St Petersb. (8) xi, pp. 1–13 (14–19).
Hemiclepsis, genus revised, synonymy, composition and characters, Livanow, Zool. Jahrb. Syst. xvii, pp. 329–334, pl. xiii.
Herpobdellidæ, blood vascular system, Oka, Annot. zool. Japon. iv, pp. 49–60, 5 text-figg.
Hirudo, histology of light sensory cells, Apáthy, Verh. Congr. Zool. v, Berlin 1901, pp. 707–728, 2 pls.; *H. medicinalis*, topography of organs in typical segments, Allen, Biol. Bull. iii, pp. 161–164, 1 text-fig.; histology, Schneider, Lehrbuch vergleich. Hist. Jena 1902, pp. 200, 426–443, figg. 256, 393–400; alimentary system, Spiess, Arch. Sci. Nat. xiv, pp. 548–552.
Hirudinaria blanchardi, Porto Rico, structure, Moore, Bull. U. S. Fish Comm. 1900, p. 214, pl. xii, n. sp.
Ichthyobdellidæ, blood vascular system, Oka, Annot. zool. Japon., pp. 49–60, 5 text-figg.
Pontobdella, histology of sensory cells ("light cells"), Apáthy, Verh. Congr. Zool. v, Berlin 1901, pp. 707–728, 2 pls.
Protoclepsis n. g. [= ! *Protoclepsine* Moore] for *P. meyeri*, n. sp., Russia, Sweden, France, p. 345, *P. garjaewi*, n. sp., p. 346, *P. tessellatoides*, n. sp., Lake Baikal, p. 349, pl. xiii, Livanow, Zool. Jahrb. Syst. xvii.
P. tessellata (= *Hirudo* Braun), *P. mollissima* (= *Clepsine*), Livanow, t. c. pp. 348–353.
Pseudobranchellion, histology of light sensory cells, Apáthy, Verh. Congr. Zool. v, Berlin 1901, pp. 707–728, 2 pls.
Trachelobdella spp. in North Sea fishes, Scott, Rep. Fish. Board Scotland iii, pp. 137–139.

PLATYHELMINTHES.

NEMERTINA.

[The following memoirs relate to *Nemertina*, viz. :—BERGENDAL (27–32), CHILD (74), COE (86, 87), FOREL (130), JOUBIN (202), KOSTANECKI (211, 212), MRÁZEK (298), PUNNETT (338, 339), SCHNEIDER (375), SHARFF (385), SHIPLEY (393), VERRILL (441, 442), ZYKOFF (486).]

GENERAL BIOLOGY.

General classification and anatomy, SHIPLEY (393).—Anatomy and classification of *Heteronemerteans*, in particular of *Valencinura bahusiensis*, BERGENDAL (28).—Anatomy and histology of *Carinoma armandi*, BERGENDAL (31).—Anatomy and histology of *Callinera bürgeri*, BERGENDAL (27–32).—Histology, SCHNEIDER (375).

Structure, affinities and history of species parasitic on crabs, COE (87).

Abnormalities in the eggs of *Cerebratulus marginatus*, KOSTANECKI (212).

Maturation and fertilization of the eggs of *Cerebratulus marginatus*, KOSTANECKI (211).

Habits, natural history, occurrence and distribution of *Stichostemma*, CHILD (74).

DISTRIBUTION.

Arctic Metanemerteans and Heteronemerteans, 5 n. spp., PUNNETT (338).

Sweden, west coast, n. g. and n. sp., Palæonemertine, BERGENDAL (29).—Sweden, n. g. and n. spp., BERGENDAL (30).

Bohemia, free-living fresh-water form, MRÁZEK (298).—Prague, hot-house spp., MRÁZEK (299).

Mediterranean, n. sp., *Heteronemertean*, JOUBIN (202).—Gulf of Gascony, n. spp., JOUBIN (202).

Morocco, n. sp., *Heteronemertean*, JOUBIN (202).

Cape Verde Islands, n. spp., JOUBIN (202).

Soudan coasts, n. spp., JOUBIN (202).

North America, Woods Holl and California, spp. parasitic on crabs, COE (87).—Massachusetts, crustacean parasites, COE (87).

Bermudas, VERRILL (441).—Bermuda Island, land sp., VERRILL (442).

SYSTEMATIC.

Nemertina, general anatomy and classification, SHIPLEY, Encyc. Brit. xxxi, pp. 120–122, 3 figg.

Amphiporus, synopsis of species, with note on the vascular system of Metanemerteans, PUNNETT, P. Zool. Soc. London 1901, ii, pp. 100–104.

A. thompsoni, p. 91, pl. vi, fig. 6, pl. vii, fig. 8 ; *A. paulinus*, p. 92, pl. vii, fig. 11 ; *A. arcticus*, p. 94, pl. vii, fig. 9, Arctic regions, PUNNETT, t. c. ; *A. vaillanti*, p. 188, figg. 2–4, *A. perrieri*, p. 196, figg. 7 & 8, Coasts of Soudan, structure, JOUBIN, Exped. "Travailleur" et "Talisman" : n. spp.

Callinera, anatomy and histology, BERGENDAL, Verh. Congr. Zool. v, Berlin 1901, pp. 63, 739–749, 2 pls.; *C. bürgeri*, anatomy and histology, BERGENDAL, Acta Univ. Lund. xxxvii, pp. 49–118, 25 text-figg.

Carcinonemertes n. g. for *C. epialti*, n. sp. in egg masses of *Epialtus productus*, California, COE, Amer. Natural. xxxvi, pp. 440–449, 9 figg.; *C. carcinophila* n. n. for *Nemertes carcinophilos* Kölliker, COE, t. c. p. 441; characters, composition and synonymy, COE, Zool. Anz. xxv, pp. 409–414.

Carinella grönlandica, p. 4, figg. 1 & 2, *C. theeli*, p. 6, fig. 3, Sweden, BERGENDAL, Bergens Mus. Aarbog 1902, 4 n. spp.

Carinina burgeri, Gulf of Gascony, structure, JOUBIN, Exped. "Travailleur" et "Talisman," p. 184, pl. viii, fig. 1, n. sp.

Carinoma armandi Oudemans, anatomy and histology, BERGENDAL, Ofv. Ak. Forh. lix, pp. 13–18.

Cerebratulus, spp. described and figured, JOUBIN, Exped. "Travailleur" et "Talisman," pp. 213–217; *C. marginatus*, histology, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 195–197, 349–363, figg. 251 & 252, 343–351; maturation and fertilization of the egg, KOSTANECKI, Bull. Acc. Cracovie 1902, No. 5, pp. 270–277; egg, KOSTANECKI, t. c., pp. 278–289.

C. greenlandicus (Heteronemertean), Greenland, anatomy, PUNNETT, P. Zool. Soc. London 1901, ii, p. 99, pl. vi, figg. 1–3, pl. vii, figg. 10–12, n. sp.

Drepanophorus borealis (Metanemertean), Davis Strait, anatomy and development of the ovum, PUNNETT, t. c., pp. 95 and 104–106, pl. vi, figg. 4, 5, 7, pl. vii, figg. 13–17, text-figg. 2 & 3; *D. edwardsi*, Cape Verde Islands, structure, JOUBIN, Exped. "Travailleur" et "Talisman," p. 200, figg. 9 & 10 : n. spp.

Eupolidæ, structure of proboscis, BERGENDAL, Acta Univ. Lund. xxxviii, pp. 77–85, text-figg.

Eupolia filholi, Morocco, structure, JOUBIN, Exped. "Travailleur" et "Talisman," p. 208, figg. 14 & 15, n. sp.

Geonemertes chalicophora, Prague, in hot-houses, MRÁZEK, SB. Bohmisch. Ges. 1902, 21 pp.

Heteronemertina, composition, anatomy, histology and systematic position of genera, BERGENDAL, Acta Univ. Lund. xxxviii, pp. 1–104, 18 text-figg., 2 pls.

Hubrechtella n. g. for *H. dubia*, n. sp., Sweden, BERGENDAL, Bergens Mus. Aarbog 1902, 4, pp. 9–12.

Lineus iota, Mediterranean, structure, JOUBIN, Exped. "Travailleur" et "Talisman," p. 210, fig. 16, n. sp.

Micrura follini, Soudan Coasts, structure, JOUBIN, t. c., p. 212, fig. 19, n. sp.

Oxypolella n. g. for *O. punnetti*, n. sp., Sweden, BERGENDAL, Bergens Mus. Aarbog 1902, 4, pp. 12–14.

Procarinina n. g. for *P. atavia*, n. sp., west coast of Sweden, anatomy and histology, BERGENDAL, Zool. Anz. xxv, pp. 421–432, 5 figg.

Stichostemma, habits, natural history, formation of cysts, sexual relations, egg-laying, and distribution, CHILD, Amer. Natural. xxxv, pp. 975–1006; *S. græcense* Böhmig, free-living in fresh-water, Bohemia, habitat and characters, MRÁZEK, SB. Bohmisch. Ges. 1902, pp. 1–7.

Valencinura n. g. for *V. bahusiensis*, n. sp., Sweden, BERGENDAL, Bergens Mus. Aarbog 1902, 4, pp. 14–18, 20–22, figg. 4–6.

V. bahusiensis, anatomy, histology, and systematic position, BERGENDAL, Acta Univ. Lund. xxxviii, pp. 1–104, 18 text-figg., 2 pls.

TURBELLARIA.

[The following memoirs relate to *Turbellaria*, viz.:—BARDEEN (15), BERGENDAL (33), BÖHMIG (36), CALMAN (59), CAULLERY & MESNIL (68), CHILD (72, 73), CURTIS (105A), DORNER (117), FOREL (130), FRIČ & VAVRA (133), GAMBLE (141), GRAFF (152, 153), GRAVIER (159), ISSEL (186), LAIDLAW (222, 223), LANG (225), LEIPER (227), LILLIE (230), MRÁZEK (299), MÜLLER (300), PEARL (322), RASPAIL (344), SABUSSOW (366), SCHMIDT (371), SCHNEIDER (375), SCHOCKAERT (376), SCHULTZ (379, 380), STUMMER-TRAUNFELS (424), THACHER (426), VERRILL (441, 442), VOIGT (444), ZACHARIAS (471, 475, 476, 478), ZYKOFF (484).]

GENERAL BIOLOGY.

General classification and anatomy of Planarians, GAMBLE (141).

Anatomy of *Fecampia*, CAULLERY & MESNIL (68).—Anatomy of *Polycladus gayi*, SCHMIDT (371).—Anatomy of *Cercyra papillosa*, SABUSSOW (366).—Anatomy and histology of *Rimacephalus pulvinas*, SABUSSOW (366).—Anatomy, especially of the reproductive organs, of the *Bipaliidæ*, and of 5 n. spp., MÜLLER (300).—Anatomy of the reproductive organs of *Gyrator hermaphroditus*, GRAFF (152).—Reproductive organs of *Polypostia*, BERGENDAL (33).—Histology, SCHNEIDER (375).—Histology of the eyes of Triclads, SCHMIDT (371).

Movements and reactions of fresh-water Planarians, PEARL (322).

Regeneration in Planarians, LILLIE (230).—Regeneration in *Stenostoma*, CHILD (72, 73).—Fission, regeneration, structure and movements of *Stenostoma*, CHILD (72, 73).—Regeneration of the pharynx in *Planaria maculata*, THACHER (426).—Regeneration of various organs in Triclads, Polyclads, and Rhabdocœles, SCHULTZ (380).—Embryonic and regenerative development in *Planaria maculatæ*, including histogenesis in the embryo, BARDEEN (15).

Embryology, reproductive organs and fission in *Planaria*, CURTIS (105A).

Formation of the cocoon, and embryology of *Fecampia*, CAULLERY & MESNIL (68).

Ovogenesis, formation of the two polar bodies, SCHOCKAERT (376).

DISTRIBUTION.

Bergen and Alexandrowsk, acœlous forms, GRAFF (153).

Scotland, acœlous sp. [unnamed] in *Echinocardium cordatum*, LEIPER (227).—Scotland, Perthshire, occurrence of land Planarians, CALMAN (59).

France (Oise), n. sp., RASPAIL (344).

Heligoland, *Dinophilus*, n. sp., SCHULTZ (379).

East Prussia, 7 n. spp., DORNER (117).

Lake Plön, 4 spp., ZACHARIAS (475, 476, 478).

Bohemia, from the Elbe, FRIČ & VAVRA (133).—Prague, hot-house spp. of Planarians, MRÁZEK (299).

Russia, east, numerous spp., ZYKOFF (484).—Solowetzk, n. sp., SABUSSOW (366).

Lake Baikal, 2 n. spp., SABUSSOW (366).

Euganea, in hot mineral springs, ISSEL (186).

Naples, n. sp. of Rhabdocœle from *Nephthys scolopendroides*, LAIDLAW (223).

Teneriffe, acœlous forms, GRAFF (153).

Malay Peninsula, *Bipalium*, n. spp., MÜLLER (300).

Java, *Bipalium*, n. sp., MÜLLER (300).

Borneo, n. gen. and sp. of Polyclad, STUMMER-TRAUNFELS (424).—Borneo, *Bipalium*, n. spp., MÜLLER (300).

Sumatra, n. sp. *Bipalium*, MÜLLER (300).

Rotuma, Funafuti, and Torres Straits, Planarians, LAIDLAW (222).

Bermudas, 7 n. spp., VERRILL (441).—Bermuda Islands, 1 sp. land Planarian, VERRILL (441, 442).

S. of South America, *Rhabdocœla*, 3 n. spp., *Tricladida*, 5 n. spp., BÖHMIG (36).

SYSTEMATIC.

Amphichœrus, history, composition and characters, GRAFF, Zool. Anz. xxvi, pp. 112, 121-123.

Anoplodium chirodotæ, Solowetzk, SABUSSOW, Trudui Kazan. Univ. xxxiv, p. 188, pl. ii, fig. 22 and Protok. Kazan. Univ. 1896–1897, No. 167, n. sp.

Automolos balanocephalus, Magalhaens Straits, BÖHMIG, Ergebn. Hamburger Magalhaens vi, p. 8, pl. i, figg. 8–10, pl. ii, fig. 32, n. sp.

Bipalium, 5 n. spp., anatomy especially of the reproductive organs and pharyngeal apparatus, MÜLLER, Zeitschr. wiss. Zool. lxxiii, pp. 75–114, pls. iv–vi, 3 text-figg.; *B. phebe* (?) var. *transversefasciatum* nov. var., Malay Peninsula, anatomy, MÜLLER, t. c., pp. 81–84, pl. iv, figg. 4 & 4*a*.

Bipalium virile, Sumatra, p. 76, pl. iv, figg. 1–1*b*, pl. v, figg. 1 & 2, *B. graffi*, Borneo, p. 78, figg. 2–2*b*, and pl. v, figg. 3 & 4, pl. vi, figg., *B. bohmigi*, Borneo, p. 79, figg. 3–3*b*, *B. megacephalum*, Malay, p. 84, figg. 5 & 5*a*, *B. penzigi*, Java, p. 85, figg. 6–6*b*, and pl. vi, figg. 2 & 3, anatomy, especially of the reproductive organs and pharynx (pp. 86–112), MÜLLER, t. c., n. spp.

Boemigia n. g. for *B. maris albi*, n. sp., Solowetzk, SABUSSOW, Trudui Kazan. Univ. xxxiv, p. 178, pl. i.

Castrada agilis, East Prussia, DORNER, Zool. Anz. xxv, p. 493, n. sp.

Castrella serotina, East Prussia, DORNER, t. c., p. 493, n. sp.

Cercyra papillosa, anatomy, SABUSSOW, Protok. Kasan. Univ. 1898–1899, No. 179.

Dendrocœlum lacteum, regeneration of organs, SCHULTZ, Zeitschr. wiss. Zool. lxxii, pp. 1–16, pl. i; histology, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 293–309, 189, figg. 243, 316, 318, 321 & 322; *D. punctatum*, structure of eyes, SCHMIDT, Zeitschr. wiss. Zool. lxxii, p. 551, pl. xxxiii, fig. 6.

Dinophilus rostratus, Heligoland, SCHULTZ, Wiss. Meeresuntersuch. v, pp. 1–10, pl. 1, n. sp.

Discocelis binoculata, *D. cyclops*, Bermudas, p. 43, pl. v, figg. 1, 3, 4, VERRILL, Tr. Connect. Ac. xi, n. spp.

Dolichoplana voeltzkowi, structure of eyes, SCHMIDT, Zeitschr. wiss. Zool. lxxii, pp. 547–550, pl. xxxiii, fig. 2, *D. feildeni*, p. 550, pl. xxxiii, figg. 3–5.

Euplanaria gonocephala, histology of eyes, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 301–305, figg. 319 & 320.

Fecampia xanthocephala, in *Idotea neglecta*, anatomy, formation of cocoon, and development, CAULLERY & MESNIL, C.R. Ac. Sci. cxxxiv, pp. 911–913 and C.R. Soc. Biol. liv, pp. 439–441, n. sp.

Gunda variabilis, Magalhaens-Straits, BÖHMIG, Ergebn. Hamburger Magalhaens vi, p. 12, pl. i, figg. 11–13, pl. ii, fig. 35, n. sp.; var. nov. *isabellina*, S. of South America, BÖHMIG, t. c., p. 14, pl. i, figg. 17 & 18, pl. ii, fig. 33.

Gyrator hermaphroditus, reproductive organs, GRAFF, Zool. Anz. xxvi, pp. 39–41.

Latocestidæ nov. fam. for *Latocestis* and *Acelis*, LAIDLAW, Mem. Manchester Soc. xlvii, pp. 7–9.

Latocestus pacificus, Rotuma, measurements and structure, LAIDLAW, t. c., p. 8, 1 fig., n. sp.

Leptoplana atomata, regeneration of organs, SCHULTZ, Zeitschr. wiss. Zool. lxxii, pp. 16–25, pl. ii.

Macrorhynchus helgolandicus Metschnikoff (=*Prostomum boreale*, n. sp., Mereschkowski), SABUSSOW, Trudui Kazan. Univ. xxxiv, p. 186.

Mesostoma mutabile, S. of South America, BÖHMIG, Ergebn. Hamburger Magalhaens vi, p. 4, pl. i, figg. 1–5; *M. masovicum*, *M. cycloposthe*, *M. exiguum*, east Prussia (immature), DORNER, Zool. Anz. xxv, p. 492; *M. uljanini*, Solowetzk, SABUSSOW, Trudui Kazan. Univ. xxxiv, p. 184, pl. ii, fig. 21 : n. spp.

Microplana humicola, Prague, in hot-houses, MRÁZEK, SB. Bohmisch. Ges. 1902, 21 pp.

Microstoma inerme, characters, ZACHARIAS, Zool. Anz. xxv, pp 237 & 238.

M. inerme, Lake Plön, ZACHARIAS, Forschber. Plon ix, p. 70; *M. septentrionale*, Solowetzk, SABUSSOW, Trudui Kazan. Univ. xxxiv, p. 181, pl. ii, figg. 16–20 : *M. punctatum*, east Prussia, DORNER, Zool. Anz. xxv, p. 491, n. spp.

Monotus morgiensis, Geneva, habits, FOREL, Le Léman, iii, Lausanne, p. 127, fig. 193.

M. viridirostris, Solowetzk, SABUSSOW, Trudui Kazan. Univ. xxxiv, p. 190, n. sp.

Paraplanocera n. g. for *P. rotumanensis*, n. sp., Rotuma, measurements and structure, LAIDLAW, Mem. Manchester Soc. xlvii, ii, pp. 4–7.

Pelmatoplana maheensis, structure of eyes, SCHMIDT, Zeitschr. wiss. Zool. lxxii, pp. 546 & 547, pl. xxxiii, fig. 7.

Plagiostoma lemani, Geneva, occurrence, FOREL, Le Léman, iii, Lausanne, p. 126, fig. 194.

Planarians, movements and reactions and various stimuli, PEARL, Quart. J. Micr. Sci. xli, pp. 509–714.

Planaria, regeneration experiments, LILLIE, Amer. J. Physiol. vi, pp. 129–141, 7 figg.; *P. alpina*, causing death in the Hundsrückgebirge, VOIGT, Verh. ver. Rheinland lviii, pp. 223–246, 2 text-figg.; *P. maculata*, life history, reproductive system, fission, CURTIS, P. Boston Soc. xxx, pp. 515–559, pls. ix–xix; *P. maculata*, regeneration of the pharynx, THACHER, Amer. Natural. xxxvi, pp. 633–641; embryonic and regenerative development, BARDEEN, Biol. Bull. iii, pp. 262–288, 12 text-figg.

P. onegensis, Lake Baikal, SABUSSOW, Trudui Kazan. Univ. xxxvi, pp. 1–63, 2 pls.; *P. ignorata*, France (Oise), mode of life, characters, RASPAIL, Bull. Soc. zool. France xxvii, pp. 119–123; *P. dimorpha*, Chili, p. 18, pl. i, figg. 21–24, pl. ii, fig. 36, *P. michaelseni*, Terra del Fuego, p. 20, pl. i, figg. 27 & 28, pl. ii, fig. 37, *P. similis*, Chili, p. 22, pl. i, figg. 25 & 26, *P. ambigua*, S. Patagonia, p. 23, pl. i, figg. 29 & 30, BÖHMIG, Ergebn. Hamburger Magalhaens vi : n. spp.

Planocera, histology, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 186–189, 306–309, figg. 241 & 242.

Polycelis cornuta causing death in the Taunus, VOIGT, Verh. Ver. Rheinland lviii, pp. 223–246, 2 text-figg.

P. linkoi, Lake Baikal, SABUSSOW, Trudui Kazan. Univ. xxxvi, pp. 1–63, 2 pls., n. sp.

Polychœrus, history, composition and characters, GRAFF, Zool. Anz. xxvi, pp. 112, 121–123.

Polycladus gayi, anatomy, structure of eyes, SCHMIDT, Zeitschr. wiss. Zool. lxxii, pp. 545–564, pl. xxxiii, figg. 8 & 9, pl. xxxiv, figg. 10–16.

Polypostia (Polyclad), reproductive organs, BERGENDAL, Verh. Congr. Zool. v, Berlin 1901, pp. 63 & 750.

Procerodes solowetzkiana, Solowetzk, SABUSSOW, Trudui Kazan. Univ. xxxiv, p. 191, pl. iii, figg. 32–34, n. sp.

Pseudoceros regalis Haddon (in MS.), *P. haddoni* (= *Planaria nigrocincta* Haddon, in MS. nom. preocc.), Torres Straits, measurements and structure, LAIDLAW, Mem. Manchester Soc. xlvii, p. 10; *P. bicolor*, *P. aureolineata*, Bermudas, VERRILL, Tr. Connect. Ac. xi, p. 42, pl. v, figg. 5 & 6, n. spp.

Rhynchodemus terrestris, *R. scharffi*, Perthshire, CALMAN, Ann. Scott. Nat. Hist. 1902, pp. 231–233; *R. bilineatus*, Prague, in hot-houses, MRÁZEK, SB. Bohmisch. Ges. 1902, 21 pp.

Shelfordia n. g. for *S. borneensis*, n. sp., Borneo, in fresh-water, STUMMER-TRAUNFELS, Zool. Anz. xxvi, pp. 159–161.

Stenostoma, structure, movements, fission and regulation, CHILD, Arch. Entwickmech. xv, pp. 187–237, 355–420, pls. v–vii; regeneration, CHILD, Science xv, p. 527.

S. turgidum, Plön, in *Sphagnum*, ZACHARIAS, Zool. Anz. xxvi, pp. 41 & 42, n. sp.

Stylochus bermudensis, Bermudas, VERRILL, Tr. Connect. Ac. xi, p. 43, n. sp.

Thysanozoon brocchi, ovogenesis, SCHOCKAERT, Cellule xx, pp. 101–163, 165–177; *T. griseum*, Bermudas, VERRILL, Tr. Connect. Ac. xi, p. 41, pl. v, fig. 7, n. sp.

Triclads, Polyclads and Rhabdocœles, regeneration of various organs, SCHULTZ, Zeitschr. wiss. Zool. lxxii, pp. 1–30, pls. i & ii.

Trigonoporus microps, Bermudas, VERRILL, Tr. Connect. Ac. xi, p. 45, pl. v, fig. 2, n. sp.

Typhlorhynchus n. g. for *T. nanus*, n. sp., Naples, from *Nephthys scolopendroides*, anatomy and histology, LAIDLAW, Quart. J. Micr. Sci. xlv, pp. 637–652, pl. xxxv.

Vortex incertus, S. of South America, BÖHMIG, Ergebn. Hamburger Magalhaens vi, p. 6, pl. i, figg. 6 & 7, n. sp.

CESTODA.

[The following memoirs relate to *Cestoda*, viz.:—AGOSTINO (2), ARIOLA (8), BARBAGALLO (14), BARTELS (16), BOAS (35), BOSSUAT (43), BREAZZANO (51), BUGGE (54), CALAMIDA (57), CERRUTI (70), CHILD (75), CLERC (78), COBB (83), COHN (93), DAMPEL (107), DÉVÉ (113), DRIXELIUS (118), FÉDOROV (125), FOREL (130), FUHRMANN (135, 136, 137, 138, 139), GALLI-VALERIO (140), GRAVIER (159), HASWELL (170, 171), JANICKI (195), KHITROW (206), KHOLODKOVSKY (207), LINSTOW (232, 234, 236, 237), LÜHE (258, 259, 260, 261), LYMAN (262), MESSINEO (281), PARONA (320), PERRONCITO (326), RAILLIET (342), RANSOM (343), RIZZO (356), RÖSSLER (360), SALMON (367), SCHIEMENZ (369), SCHNEIDER (372, 373, 374, 375), SHIPLEY (387), STILES & HASSALL (416, 417), ZSCHOKKE (480, 481).]

GENERAL BIOLOGY.

Review of work published in 1894, 1895, 1896, LINSTOW (239).

Anatomy of the genus *Cittotænia*, LYMAN (262).—Anatomy of new type of larva found in *Canis aureus*, RAILLIET (342).—Anatomy and histology of *Urogonoporus armatus*, LÜHE (260).—Anatomy and histology of *Hymenolepis* spp., RANSOM (343).—Anatomy of *Echinococcus alveolaris* and *Plerocercus lachesis*, n. sp., LINSTOW (234). –Anatomy of embryo and adult of *Hymenolepis carioca* and *H. megalops*, RANSOM (343).—Histology,

SCHNEIDER (375).—Histology of *Cysticerci*, RÖSSLER (360).—Anatomy of the larva of *Bothriotænia proboscidea*, from *Clupea harengus membras*, SCHNEIDER (374).

Development, anatomy and histology of the scolices of the cyst of *Tænia echinococcus*, DÉVÉ (113).—Anatomy, and development of *Tænia crassicollis* and its *Cysticercus*, BARTELS (16).—Anatomy and development of *Phyllobothrium*, n. sp., HASWELL (170).

Morphology of the rostrum of *Davaineæ*, BREAZZANO (51).

Excretory system, BUGGE (54).

Metamerism, ARIOLA (8).

Mode of fixation to host's alimentary canal, and pathological effects on host, LÜHE (261).

Poison of *Tænidæ*, CALAMIDA (57).—Poison in human *Tænia* spp., MESSINEO (281).

Disease in man caused by *Tænia* spp., SALMON (367).—Pathology of anæmia caused by *Bothriocephalus*, FÉDOROV (125).

Man as host for *Hymenolepis* (*Drepanidotænia*) *lanceolata*, ZSCHOKKE (480, 481).

Cat parasitised by *Bothriocephalus latus*, GALLI-VALERIO (140).

A rock-kangaroo, parasite of, BOAS (35).

Bird parasite, n. sp., FUHRMANN (136).—Avian parasites, 2 n. g., FUHRMANN (137).

Fish parasites [unnamed and undescribed], SCHIEMENZ (369).

Liver parasites in *Orthagoriscus mola*, BOSSUAT (43).

Development of secondary cysts in the hydatid cysts of *Tænia echinococcus*, PERRONCITO (326).—Development of hydatid cysts of *Tænia echinococcus*, PERRONCITO (326).

Nematode parasites of *Tænia pusilla*, DAMPEL (107).

Origin of abnormalities in *Moniezia expansa*, CHILD (75).

Fertilization in *Cestoda*, FUHRMANN (139).

DISTRIBUTION.

Finland, n. sp. of *Caryophyllæus* in *Leuciscus erythrophthalmus*, SCHNEIDER (372).—Finland, n. sp. of *Bothrimonas* from *Pleuronectes flesus*, SCHNEIDER (373).

Ural, avian parasites, n. g. and spp., CLERC (78).

Russia, anæmia caused by *Bothriocephalus*, FÉDOROV (125).—Kharkow, *Cotugnia digonopora* in birds, KHITROW (206).—Russia, parasites of ruminants, KHOLODKOVSKY (207).

Aschabad, *Tænia hominis*, n. sp. in man, LINSTOW (236).

Triest, fish parasite, LÜHE (260).

Elba, in vertebrates, PARONA (320).

Taranto, n. sp., CERRUTI (70).

Catania, 5 spp. and reptilian hosts, RIZZO (356).

Egypt, new Cysticercus from *Gerbillus pyramidum*, LINSTOW (237).

Soudan, bird parasites, SHIPLEY (387).

Sumatra, n. sp. from birds, FUHRMANN (135).

Celebes, 2 n. spp. of *Davainea* from mammals, JANICKI (195).

New Guinea, avian parasite, n. gen., FUHRMANN (137).

Australia, avian parasite, n. gen., FUHRMANN (137).—Port Jackson, shark parasite, n. sp., *Phyllobothrium*, HASWELL (170).—Australia, n. sp. from *Chimæra ogilbyi*, HASWELL (171).

North America, n. spp. from birds, FUHRMANN (135).—Nebraska and Kansas, *Cittotænia* spp. from rabbits, LYMAN (262).

South America, avian parasites, n. spp., FUHRMANN (135).—Surinam, n. sp. from *Dasypus gigas*, COHN (93).—Brazil, avian parasites, n. sp., FUHRMANN (135).

SYSTEMATIC.

Revision of the *Bothriocephalidæ*, LÜHE (258).
Taxonomy, synonymy of Cestoda of *Centrolophus*, LÜHE (259).

Cestoda, excretory system, anatomy and histology, BUGGE, Zool. Jahrb. Anat. xvi, pp. 177–208, pls. xxi–xxiii; 49 spp. from vertebrates, Elba, hosts named, but no descriptions, PARONA, Boll. Mus. Genova 1902, No. 113, pp. 7–13; metamerism, ARIOLA, Rev. gen. Sci. xiii, pp. 471–476, 4 figg.

Amerina, n. g. in birds, form of strobila, no spp. named, FUHRMANN, Arch. Sci. Nat. xii, p. 505; *A. alaudæ*, Taranto, in *Alauda arvensis*, CERRUTI, Atti Acc. Napoli (2) xi, No. 6, 1 pl.

A. inermis, Ural, in *Sitta uralensis*, CLERC, Zool. Anz. xxv, p. 663, n. sp.

Amphicotylinæ n. subfam. of *Ptychobothriidæ* n. fam., for *Bathybothrium* n. g., *Abothrium*, *Amphicotyle*, LÜHE, Centrbl. Bakter. xxxi, p. 326.

Amphicotyle heteropleura, from *Centrolophus pompilius*, synonymy, LÜHE, t. c., pp. 629–637.

Amphitretus wageneri, fig. 1, *A.* (?) *settii*, from *Centrolophus pompilius*, synonymy, LÜHE, t. c., pp. 635–637.

Anonchocephalus n. g. type = *A. chilensis* (Riggb.), LÜHE, t. c., p. 325.

Aporina n. g. for *A. alba*, n. sp., characters, copulation, FUHRMANN, Arch. Sci. Nat. xiii, p. 517; Brazil, from *Pyrrhura* sp., anatomy, FUHRMANN, Centrbl. Bakter. xxxii, pp. 135–138, figg. 15–17; Australia in *Ptilorchis alberti*, FUHRMANN, Zool. Anz. xxv, pp. 357–360, 1 fig.

Bathybothrium n. g. for *Tænia rectangulum* Bloch, LÜHE, Centrbl. Bakter. xxxi, p. 329, fig. 9.

Bertia delafondi (= *Tænia* Railliet), anatomy, FUHRMANN, Centrbl. Bakter. xxxii, pp. 132–135, figg. 13 & 14.

Bertiella n. n. for *Bertia* Blanchard, with species to be placed in the genus, STILES & HASSALL, Science xvi, p. 434.

Biuterina n. g. for *B. paradisea*, n. sp., New Guinea, in *Paradisea raggiana*, FUHRMANN, Zool. Anz. xxv, pp. 357–360, 1 fig.; in birds, curious structure of strobila mentioned, but no spp. named, FUHRMANN, Arch. Sci. Nat. xii, p. 505.

Bothriocephalidæ, revision, LÜHE, Centrbl. Bakter. xxxi, pp. 318–331, 9 figg.

Bothriocephalus, experiments on its relation to anæmia, FÉDOROV, Arch. parasit. vi, pp. 207–244; *B. latus* in cats, GALLI-VALERIO, Centrbl. Bakter. xxxii, pp. 285–287.

Bothriocotyle solenosomum, from *Centrolophus pompilius*, synonymy, LÜHE, Centrbl. Bakter. xxxi, pp. 635–637, fig. 3.

Bothrimonus nylandicus, Finland, from *Pleuronectes flesus*, SCHNEIDER, Arch. Naturg. lxviii, i, pp. 72–78, pl. v, figg. 4–6, pl. vi, figg. 7–9, n. sp.

Bothriotænia proboscidea, anatomy of larva, from *Clupea harengus membras*, SCHNEIDER, SB. Ges. naturf. Berlin 1902, pp. 28–30.

Caryophyllæus fennicus, Finland, from *Leuciscus erythrophthalmus*, SCHNEIDER, Arch. Naturg. lxviii, i, pp. 65–71, pl. v, figg. 1–3, n. sp.

Chapmania tauricollis, rostrum, BREAZZANO, Atti Acc. Napoli (2) xi, No. 3, figg. 11 & 12.

Choanotænia brevis, Ural, in *Picus major*, CLERC, Zool. Anz. xxv, p. 661, n. sp.

Cittotænia kuvaria (= *Cœlodela* Shipley), p. 142, fig. 22, anatomy, FUHRMANN, Centrbl. Bakter. xxxii; *C. variabilis angusta*, *C. pectinata*, Nebraska and Kansas, from rabbits, anatomy and histology, LYMAN, Tr. Amer. micr. Soc. xxiii, pp. 173–190, 2 pls.; *C.*, anatomy of genus, LYMAN, Stud. Lab. Nebraska, No. 48, pp. 173–190, 2 pls.

Cœnomorphus n. g., LÖNNBERG, Bih. Svenska Ak. 1889 [omitted previously].

Cotugnia digonopora, Kharkow, in birds, and parasitised by *Strongylidæ*, KHITROW, Trudui Kharkov. Univ. xxxv, pp. xxvii–xxxiv; *C. polycantha*?, Soudan, from a dove, SHIPLEY, Arch. parasit. vi, p. 606, pl. vii, figg. 1 & 2.

Cysticercoides rostratus, in *Coluber viridiflavus*, Catania, RIZZO, Arch. parasit. vi, p. 30.

Cysticercus tenuicollis, *C. fasciolaris*, histology, RÖSSLER, Zool. Jahrb. Anat. xvi, pp. 423–444, pls. xxix & xxx, 4 text-figg.; [cf. *Tænia crassicollis*], BARTELS (16); *C. ascalobotidis*, in *Lacerta agilis*, Catania, RIZZO, Arch. parasit. vi, p. 30.

Davainea cesticilus, *D. tetragona*, *rostrum*, BREAZZANO, Atti Acc. Napoli (2) xi, No. 3, figg. 1–10 & 13; *D. cesticillus*, *D. tetragona*, *D. Bothrioplites*, structure. BARBAGALLO, Boll. Acc. Gioen. lxxiii, p. 6.

D. celebensis, Celebes, in *Mus meyeri*, anatomy, histology and development, JANICKI, Arch. parasit. vi, pp. 275–289, text-figg. 11–18; *D. polycalceola*, Celebes, in *Mus muschenbrocki*, anatomy, histology and development, JANICKI, t. c., pp. 258–275, 10 text-figg.; *D. spharoïdes*, Ural, in *Buteo vulpinus*, CLERC, Zool. Anz. xxv, p. 664, n. spp.

Dibothriocephalidæ n. fam. for part of *Bothriocephalidæ*, LÜHE, Centrbl. Bakter. xxxi, p. 320.

Drepanidotænia infundibuliformis, characters, BARBAGALLO, Boll. Acc. Gioen. lxxiii, p. 6.

D. baschkiriensis, *D. musculosa*, *D. meleagris*, Ural, in *Meleagris gallopavo*, p. 574, fig. 1, *D. acuminata*, p. 659, figg. 3 & 4, CLERC, Zool. Anz. xxv, n. spp.

Echinococcus alveolaris, anatomy and measurements, LINSTOW, Zool. Anz. xxvi, pp. 162–164, figg. 1–12.

Echinocotyle uralensis, Ural, in *Totanus hypoleucus*, CLERC, Zool. Anz. xxv, p. 660, n. sp.

Fistulicola dalmatinus (Stoss.), *F. plicatus* (Rud.), anatomy and affinities, LÜHE, Centrbl. Bakter. xxxi, pp. 322–324, figg. 1–4.

Floriceps saccatus, in the liver of *Orthagoriscus mola*, anatomy and development, BOSSUAT, Arch. parasit. vi, pp. 161–178, 13 text-figg.

Gyrocotyle nigrosetosa, Australia, from *Chimæra ogilbyi*, structure and affinities, HASWELL, P. Linn. Soc. N. S. Wales xxvii, pp. 48–54, pl. vii, n. sp.

Hymenolepis carioca, *H. megalops*, anatomy of embryo and adult characters and affinities of genus, RANSOM, Stud. Lab. Nebraska, No. 47, pp. 151–172, 3 pls., and Tr. Amer. micr. Soc. xxiii, pp. 151–172, 3 pls.; *H.* (*Drepanidotænia*) *lanceolata*, in man, ZSCHOKKE, Centrbl. Bakter. xxxi, pp. 331–335; parasitic in the duck, the goose and man, ZSCHOKKE, Zool. Anz. xxv, p. 337.

Ichthyotænia n.g. for *Tetrabothrium* ex p., LÖNNBERG, Centrbl. Bakter. 1894, xv, p. 101 (omitted previously).

Linstowia linstowi (= *Tænia* Parona), Soudan, in *Numida ptilorhyncha*, SHIPLEY, Arch. parasit. vi, p. 607.

L. lata, Soudan, from *Numida ptilorhyncha*, FUHRMANN, Centrbl. Bakter. xxxii, p. 140, figg. 20 & 21, n. sp.

Moniezia expansa, origin of abnormalities, CHILD, Biol. Bull. iii, pp. 143–160, 74 text-figg.; *M. carrinoi* (= *Paronia* Diamare ex p.), anatomy and synonymy, FUHRMANN, Centrbl. Bakter. xxxii, p. 122, figg. 1–6.

M. columbæ (= *Paronia carrinoi* Diamare ex parte), Sumatra, from *Ptilonopus* sp.; *M. ambigua*, South America, from *Chrysotis amazonica*, FUHRMANN, t. c., pp. 128–132, figg. 7–12, n. spp.

Monorchis filum (= *Tænia* Goeze), p. 571, figg. 1 & 2, *M. crassirostris*, *M. hirsuta*, *M. cirrosa*, *M. dujardini* (= *Tænia* Krabbe), pp. 572 & 573, CLERC, Zool. Anz. xxv.

Monorchis n. g. for *M. pseudofilum*, n. sp., p. 572, figg. 3 & 4, and *M.*

penetrans, n. sp. in *Tringa minuta*, Ural, p. 658, figg. 1 & 2 (and for 5 *Tænia* spp.), CLERC, t. c.

Oochoristica surinamensis, Surinam, from *Dasypus gigas*, structure, COHN, Arch. Naturg. lxix, pp. 61–66, pl. iii, figg. 11–13, n. sp.

Phyllobothrium vagans, from Cestracion, HASWELL, Quart. J. Micr. Sci. xlvi, pp. 399–415, pls. xxii–xxiv, n. sp.

Pterocercus lachesis in *Lachesis mutus* Daud., LINSTOW, Zool. Anz. xxvi, pp. 165 & 166, figg. 13 & 14, n. sp.

Prosobothrium n. g. for *P. armigerum*, n. sp. from *Squalus acanthias*, anatomy and histology, COHN, Arch. Naturg. lxix, pp. 55–60, pl. iii, figg. 9 & 10.

Ptychobothriidæ n. fam. for part of *Bothriocephalidæ* with *Amphicotylinæ* n. subfam., LÜHE, Centrbl. Bakter. xxxi, p. 326.

Ptychobothrium n. g. for *Bothriocephalus belones* Dujardin, LÖNNBERG, Bih. Svenska Ak. 1889, xiv, pp. 36–38, figg. 21 & 22 (omitted previously).

Ptychobothrium armatum in *Turdus parochus*, Egypt, structure and systematic position, FUHRMANN, Arch. parasit. v, pp. 440–448, 6 text-figg., n. sp.

Scololepis fuliginosa, anatomy and histology, ATTEMS, Arb. Inst. Wien xiv, pp. 173–210, 4 pls.

Tænia, poison, CALAMIDA, Riforma med. An. xvii (iii), pp. 364 & 365; *T.* spp., excretory system, anatomy and histology, BUGGE, Zool. Jahrb. Anat. xvi, pp. 177–208, pls. xxi–xxiii; *T.* spp. in man, poison, MESSINEO, Atti Acc. Gioen. xiv, 36 pp.; *T. brauni*, Setti, *Cysticercus* (new form) found in Egypt in *Gerbillus pyramidum*, LINSTOW, Centrbl. Bakter. xxxii, pp. 882–886, 4 figg.; *T. crassicollis*, anatomy and development, with description of *Cysticercus fasciolaris*, BARTELS, Zool. Jahrb. Anat. xvi, pp. 511–570, pls. xxxvii–xxxix, 2 text-figg.; *T. echinococcus*, development of secondary cysts, PERRONCITO, Bull. Soc. zool. France xxvii, p. 150, 1 fig.; development of hydatid cysts, PERRONCITO, t. c., p. 150; evolution of the scolices of the cyst, DÉVÉ, Arch. parasit. vi, pp. 54–81, 11 text-figg.; *T. ovilla*, Australia, probable occurrence in sheep, COBB, Agric. Gaz. N. S. W. xiii, p. 796; *T. pusilla*, parasitised by Nematodes, DAMPEL, Trudui Kharkov. Univ. xxxv, pp. xxxvii–xliii; *T. saginata*, histology, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 309–316, figg. 323, 324, 327 & 328; *T. serrata*, *T. marginata*, *T. crassicollis*, *T. echinococcus*, in the liver of *Orthagoriscus mola*, anatomy and pathological effects, BOSSUAT, Arch. parasit. vi, pp. 178–185; *T. solium*, *T. saginata*, in man, mode of transmission, SALMON, 18th Rep. U. S. Dep. Agric. Animal Ind., pp. 253 & 254; *T. tuberculata*, *T. rotundata*, *T. dispar*, in reptiles, Catania, RIZZO, Arch. parasit. vi, p. 30.

T. hominis, Aschabad, in man, LINSTOW, Centrbl. Bakter. xxxi, p. 770, figg. 3 & 4; *T. anoplocephaloides*, from *Psittacus erythacus*, anatomy, Centrbl. Bakter. xxxii, pp. 144–147, figg. 23–25, *T. cylindrica*, Ural, in *Larus canus*, CLERC, Zool. Anz. xxv, p. 661, n. spp.

Tetrabothrium torulosum, *T. auriculatum*, systematic position, LINSTOW, P. R. Soc. Edinb. xxiii, p. 158.

Thysanosoma pygargi, Russia, in *Capreolus pygargus*, KHOLODKOVSKY, Arch. parasit. vi, pp. 145–148, pl. i, and Trudui St Peterb. Obshch. xxxiii, pp. 60–64, fig. n. sp.

Triplotænia mirabilis, in *Petrogale penicillata*, BOAS, Zool. Jahrb. Syst. xvii, pp. 329–334.

Tritapheros n. g. for *T. retzii*, n. sp. in *Raja clavata*, LÖNNBERG, Bih. Svenska Ak. 1889, xiv, pp. 23 & 24, figg. 11–13 (omitted previously).

Urogonoporus armatus, in *Acanthias vulgaris*, anatomy, histology and affinities, LÜHE, Arch. parasit. v, pp. 209–250, 1 pl.

Wageneria; anatomy, histology and affinities, LÜHE, t. c., pp. 236–250, 3 text-figg.

Zschokkia n. gen. for *Tænia*, (*Hymenolepis*, *Linstowia*) *linstowi* Parona, anatomy and synonymy, FUHRMANN, Centrbl. Bakter. xxxii, pp. 138–140, figg. 18 & 19.

TREMATODA.

[The following memoirs relate to *Trematoda*, viz.:—ANGLAS & RIBAUCOURT (5), ARIOLA (9), BAVAY (18), BOSSUAT (43), BRAUN (48, 49), BUGGE (54), BUTTEL-REEPEN (56), COHN (92, 93, 95), COLES (96), DARR (108), FOREL (130), FRIČ & VAVRA (133), GOLDSCHMIDT (145, 146, 147), GRAVIER (159), HANSSON (169), HEATH (172), HENNEGUY (173), HOLLACK (180), JÄGERSKIÖLD (189), JAMESON (191), KAMENSKY (203), LINSTOW (239), LOOSS (248, 249, 250, 251, 252), LÜHE (261), MACCALLUM (263), MANSON (267), NICKERSON (304), ODHNER (308, 309, 310, 311), OSBORN (317), PARONA (320), PRATT (334), REUSS (347), RIZZO (356), RÖSSLER (360), SCHNEIDER (375), SCHOO (377), SCOTT (383, 384), STAFFORD (405, 406, 407, 408), STOSSICH (419, 421, 422), WILLIAMSON (464).]

GENERAL BIOLOGY.

Review of work published in 1894, 1895, 1896, LINSTOW (239).

Anatomy, histology, and systematic position of the parasites of the turtle, LOOSS (251).

Anatomy of the *Aspidobothridæ*, NICKERSON (304).

Anatomy and systematic position of 4 n. gen. and 9 n. spp. from Soudan reptiles, ODHNER (310).

Development and structure of *Zoogonus mirus*, GOLDSCHMIDT (145).—Anatomy of *Zoogonus*, ODHNER (309).—Anatomy and taxonomy of *Orophocotyle*, n. g., LOOSS (248).—Anatomy of *Epidella squamula*, n. sp., HEATH (172).—Anatomy of *Bathycotyle* n. g. *branchialis*, n. sp., and of *Hirudinella clavata*, DARR (108).—Anatomy of an avian parasite, n. sp., COHN (92).—Anatomy of 72 spp. of avian parasites, BRAUN (49).—Anatomy of *Distoma goliath*, BRAUN (48).

Anatomy, especially of the reproductive organs, STAFFORD (405).

Anatomy of the sporocyst and cercaria of *Distomum duplicatum*, REUSS (347).

Excretory system, BUGGE (54).

Histology, SCHNEIDER (375).—Anatomy and histology of *Distomum lanceolatum*, ANGLAS & RIBAUCOURT (5).—Anatomy and histology of *Distomum ampullaceum* and *D. siemersi*, BUTTEL-REEPEN (56).

Anatomy of adult and larva of *Distomum* (*Lucithodendrium*) *somateriæ*, which gives rise to pearls in Molluscs, JAMESON (191).

Maturation of egg, fertilisation and development of *Polystomum integerrimum*, GOLDSCHMIDT (146, 147).—Mode of fixation to host's alimentary canal, and pathological effects on host, LÜHE (261).

Life-history of *Distomum* (*Leucithodendrium*) *somateriæ*, JAMESON (191).

Origin of pearls, due to Trematode larvæ, JAMESON (191).

Condition of blood in cases affected with *Bilharzia*, COLES (96).

Fish parasites, n. sp., COHN (95).

Avian parasites, BRAUN (49).

Liver parasites in *Orthagoriscus mola*, BOSSUAT (43).

A *Distomum* parasitic in a medusa, BAVAY (18).

Distribution.

Scandinavia, 5 spp., Hansson (169).
Kharkow, *Opisthorchis tenuicollis* in a cat, Kamensky (203).
Bohemia, Frič & Vavra (133).
Triest, 4 n. gen. parasitic in *Mugil* spp., Looss (252).—Triest, n. g., Looss (252).—Triest, fish parasites, Looss, Centrbl. Bakter. xxxi, pp. 637–644.—Triest, n. spp., Stossich (421).—Triest, parasite in *Anguilla vulgaris*, Stossich (419).
Catania, 6 spp. and reptilian hosts, Rizzo (356).
Naples, 3 n. spp. parasitic in the tunny fish, Ariola (9).
Elba, vertebrate parasites, Parona (320).
Cyprus, *Bilharzia* in man, Williamson (464).
Egypt, 4 n. spp., Looss (251).—Egypt, parasites of the turtle, Looss (251).—White Nile, 3 n. spp. from the gall bladder of fish, Odhner (309, 310).—Soudan, 4 n. gen., 9 n. spp. out of reptiles, Odhner (310).—Red Sea, Omdurman, parasites from the urinary bladder of fishes, 5 n. spp., 1 n. g., Odhner (309, 310).—Red Sea, *Tocotrema expansum* in *Pandion haliaëtus*, Jägerskiöld (189).
Pemba, German E. Africa, new parasite of the mackerel, Darr (108).
East Asia, man as host for *Fasciolopsis buski*, Odhner (311).
Japan, n. g. and sp., Cohn (92).
America, Amphibian parasite (*Distomum cygnoides*), Stafford (408).
North America, synopsis of families, subfamilies and genera of Digenetic Trematodes, Pratt (334).—North America, *Distomum* spp. in vertebrate and invertebrate hosts, Stafford (406).—Canada, 5 n. spp. parasitic in *Bufo*, *Hyla*, and *Rana*, Stafford (407).—Mississippi valley, n. sp. of *Aspidobothridæ*, Nickerson (304).—Toronto, n. sp. from green frogs, Stafford (405).—Ontario, n. g. and sp. in *Chelydra serpentina*, MacCallum (263).—Lake Chautauqua, notes on 3 spp., Osborn (317).
South America, n. g. and sp., Cohn (92).
Antigua, *Bilharzia* in man, Manson (267).

Systematic.

Nomenclature, Looss (251), pp. 731–768.

Trematoda, excretory system, anatomy and histology, Bugge, Zool. Jahrb. Anat. xvi, pp. 208–224, pl. xxiv; 33 spp. from vertebrates, Elba, hosts named, but no descriptions, Parona, Boll. Mus. Genova 1902, No. 113, pp. 2–7; Scandinavia, 5 spp., Hansson, Ofv. Ak. Forh. lviii, p. 736.

Digenetic Trematodes of North America, synopsis of families, subfamilies, and genera, Pratt, Amer. Natural. xxxvi, pp. 887–910; systematic descriptions of families, genera and species, Looss, Zool. Jahrb. Syst. xvi, pp. 779–866.

Acanthochasmus productus, *A. vicinus*, Soudan, from the alligator, Odhner, Ofv. Ak. Forh. lix, p. 24, n. spp.

Acanthocotyle monticelli, North Sea, in *Raia clavata*, structure, Scott, Rep. Fish. Board Scotland iii, p. 300, figg. 31–33, n. sp.

Adenogaster serialis in *Thalassochelys corticata*, Egypt, Looss, Zool. Jahrb. Syst. xvi, pp. 545–548, pl. xxvi, figg. 71–74.

Amphistomum spinulosum in *Chelone mydas*, Egypt, structure and affinities, Looss, t. c., pp. 430–444, pl. xxi, figg. 10 & 11, pl. xxii, figg. 12–16.

Anchitrema mutabile (= *Distomum* Molin), in *Lacerta agilis*, Catania, anatomy, Rizzo, Arch. parasit. vi, p. 27, fig. 1.

Angiodictyidæ, anatomy and histology, descriptions of n. gen. and spp., pp. 684–699, Looss, Zool. Jahrb. Syst. xvi, pp. 617–684.

Anoictostoma? planicolle in *Pelecanus sula*, structure, BRAUN, Zool. Jahrb. Syst. xvi, pp. 28–31, fig. 20.

Aspidobothrida, revision of the family, anatomy, characters and affinities of genera, 1 n. sp., NICKERSON, Zool. Jahrb. Syst. xv, pp. 597–624, pls. xxxii & xxxiii, 1 text-fig.

Aspidogaster, revision of genus, NICKERSON, t. c., pp. 519 & 520.

Bathycotyle n. g. for *B. branchialis*, n. sp., from a mackerel, German East Africa, anatomy and affinities, DARR, Zeitschr. wiss. Zool. lxxi, pp. 644–662, pl. xxxiii.

Bilharzia, condition of blood in cases affected with, COLES, Brit. Med. J. 1902, p. 1137; in man, in Antigua, MANSON, t. c., p. 1894; in man, in Cyprus, WILLIAMSON, t. c., p. 956.

Bilharziella pulverulenta in *Anas querquedula*, p. 140, figg. 83 & 84, *B.? canaliculata* (= *Distomum* Rud.) in *Sterna galericulata*, pp. 142–146, figg. 85–88, BRAUN, Zool. Jahrb. Syst. xvi.

Brachycladium, systematic position discussed, LOOSS, Zool. Jahrb. Syst. xvi, pp. 775–778.

Brachycœlium, characters and position, LOOSS, t. c., pp. 768–775.

Calycodes anthos in *Thalassochelys mydas*, Egypt, structure and affinities, LOOSS, t. c., pp. 458–463, pl. xxi, figg. 17 & 18.

Callodistomum n. g. for *C. diaphanum*, n. sp., White Nile, from gall bladder of *Polypterus bichir*, ODHNER, Centrbl. Bakter. xxxi, p. 154.

Campula, systematic position discussed, LOOSS, Zool. Jahrb. Syst. xvi, pp. 775–778.

Cathaemasia fodicans, characters, BRAUN, Zool. Jahrb. Syst. xvi, p. 4, fig. 1.

Cathocotyle fraterna, Soudan, from *Harelda glacialis*, ODHNER, Ofv. Ak. Forh. lix, p. 19, n. sp.

Cephalogonimus americanus, Toronto, from *Rana virescens* and *R. clamata*, anatomy, especially of the reproductive organs, STAFFORD, Centrbl. Bakter. xxxii, pp. 719–725, 1 pl., n. sp.

Cercariaeum helicis, excretory system, BUGGE, Zool. Jahrb. Anat. xvi, pp. 208–224, pl. xxiv.

Charaxicephalus robustus in *Chelone mydas*, structure, LOOSS, Zool. Jahrb. Syst. xvi, pp. 541–545, pl. xxv, figg. 65–69, pl. xxvi, fig. 89.

Cotylaspis, revision of genus, NICKERSON, Zool. Jahrb. Syst. xv, p. 519; *C.* sp., Lake Chautauqua, in the kidney of *Anodonta plana*, OSBORN, Science xv, p. 573.

Cotylogaster, revision of genus, NICKERSON, t. c., p. 518; *C. occidentalis*, Mississippi valley, anatomy, histology, and systematic position, NICKERSON, t. c, pp. 597–616, pls. xxxii & xxxiii, n. sp.

Cotylotretus n. g. for *C. rugosus*, n. sp., Soudan, from *Spilotes pullatus*, ODHNER, Ofv. Ak. Forh. lix, p. 32.

Cricocephalus albus (= *C. delitescens* Looss) in *Chelone*, LOOSS, Zool. Jahrb. Syst. xvi, p. 532, pl. xxv, fig. 64, pl. xxxii, figg. 170–174.

C. megastomus, p. 533, pl. xxv, figg. 57–60, pl. xxvii, fig. 90, *C. resectus*, p. 537, pl. xxv, figg. 61–63, in *Chelone mydas*, Egypt, structure and affinities, LOOSS, t. c., n. spp.

Deropristis, n. g. for *Distomum hispidum* Rud. and *Distomum inflatum* Molin, ODHNER, Centrbl. Bakter. xxxi, pp. 154–160, 2 text-figg.

Dicrocœliinæ, revision, HOLLACK, Centrbl. Bakter. xxxii, pp. 867–869.

Dicrocœlium lanceatum, in liver of *Orthagoriscus mola*, BOSSUAT, Arch. parasit. vi, p. 188; *D. petiolatum* in *Garrulus glandarius*, p. 98, fig. 57, *D. albicolle* in *Aquila pennata*, p. 99, fig. 58, *D. deflectens* in *Thryothorus hypoxanthus*, p. 101, fig. 59, *D. delectans* in *Myiothera ruficeps*, p. 102, fig. 60, *D. voluptarium* in *Falco* sp., Brazil, p. 103, fig. 61, *D. reficiens* in *Falco nitidus*, p. 103, fig. 62, *D. lubens* in *Pipra rupricola*, p. 104, fig. 63, *D. illiciens* in *Rhamphastus*, sp., p. 105, fig. 64, synonymy and structure, BRAUN, Zool. Jahrb. Syst. xvi.

Dicrogaster n. g. for *D. perpusillus*, n. sp., and *D. contractus*, n. sp., Triest, in *Mugil chelo*, Looss, Arch. parasit. vi, pp. 134–136, figg. 1–4.

Didymocystis n. g. for *D. reniformis*, n. sp. (=*Monostoma bipartitum* Wagener, and *Didymozoon thynni* Taschenberg), Naples, in *Thynnus vulgaris*, Ariola, Arch. parasit. vi, p. 101, figg. 1–3; *D. wedli* (=*Monostoma bipartitum* Wagener, 3rd form, *Didymozoon thynni* (partim) Braun Naples, in *Thynnus vulgaris*, Ariola, t. c., p. 105, figg. 7–10, n. sp.

Didymostoma bipartitum (=*Monostoma bipartitum* Wedl., *Didymozoon thynni* Braun, *Monostoma micropterygis* Richiardi), in *Thynnus vulgaris*, Naples, Ariola, t. c., p. 103, figg. 4–6.

Didymozoon pretiosus, Naples, in *Thynnus vulgaris*, Ariola, t. c., p. 107, fig. 11, n. sp.

Distomum disseminated by *Anopheles*, Schoo, Nederland. Tijdschr. Geneesk. Iaarg. 1902, i, pp. 283–286; *Distomum* spp. in vertebrate and invertebrate hosts in North America, Stafford, Zool. Anz. xxv, pp. 481–483; *Distomum* spp., mode of fixation in host, Lühe, Verh. Congr. Zool. Berlin 1901, pp. 679–706; *D. acervocalciferum* in *Rana esculenta*, Catania, anatomy, Rizzo, Arch. parasit. vi, p. 28, fig. 2; *D. ampullaceum*, *D. siemersi*, anatomy and histology, Buttel-Reepen, Zool. Jahrb. Syst. xvii, pp. 165–236, pls. vi–x, 8 text-figg.; *D. duplicatum*, sporocyst and cercaria, Reuss, Zool. Anz. xxv, pp. 375–379; *D. hepaticum*, *D. lanceolatum*, excretory system, Bugge, Zool. Jahrb. Anat. xvi, pp. 208–224, pl. xxiv; formation of the egg, maturation and fertilization, Henneguy, C.R. Ac. Sci. 1235; *D. lanceolatum*, anatomy and histology, Anglas & Ribaucourt, Ann. Sci. nat. xv, pp. 313–354, 38 text-figg.; *D. macrostomum*, early stages in *Rhizostoma cuvieri*, Bavay, Arch. parasit. v, pp. 199 & 200; *D. pittacium* in *Strepsilas interpres*, p. 146, fig. 89, *D. suspensum* in *Corvus* sp., p. 147, fig. 90, *D. marculentum* in *Emberiza citronella*, p. 148, fig. 91, *D. trifolium* in *Ardea coicoi*, Brazil, p. 150, figg. 92 & 93, *D. vexans* in *Turdus merula*, p. 151, figg. 94 & 95, *D. globulus* in *Anas fuligula*, p. 152, figg. 96 & 97, *D. polyoon* in *Gallinula chloropus*, p. 155, fig. 98, *D. arenula* in *Fulica atra*, p. 156, fig. 99, synonymy and structure, Braun, Zool. Jahrb. Syst. xvi; *D.* (*Microphallus*) *opacum*, *D.* (*Bundera*) *nodulosum*, Lake Chautauqua, in the black bass, Osborn, Science xv, p. 573; *D. retroconstrictum* n. n. for *Monostomum* Dies, Frič & Vavra, Arch. Landesdf. Bohmen ii, 3, p. 108, fig. 62; *D.* (*Brachycœlium* Duj., *Leucithodendrium* Looss) *somateriæ*, larvæ giving rise to pearls, Jameson, P. Zool. Soc. London 1902, i, pp. 140–166, pls. xiv–xvii, text-figg. 22–24.

D. ovafarctum, White Nile, in gall bladder of *Polypterus birchir*, Odhner, Centrbl. Bakter. xxxi, p. 153; *D. bolodes*, in *Fulica atra*, structure, Braun, Zool. Jahrb. Syst. xvi, pp. 17 & 18, figg. 12 & 13: n. spp.

Echinostomum umbonatum, Soudan, from the crocodile, Odhner, Ofv. Ak. Forh. lix, p. 21, n. sp.

Enodiotrema megachondrus in *Chelone mydas*, *E. instar*, *E. reductum* in *Thalassochelys corticata*, pp. 516 & 517, pl. xxiv, figg. 45–49, Egypt, anatomy and affinities, Looss, Zool. Jahrb. Syst. xvi, pp. 508–516, pl. xxiv, figg. 41–44.

E. acariæum in *Thalassochelys corticata*, Egypt, Looss, t. c., p. 517, pl. xxiv, fig. 50, n. sp.

Epibathra crassa=(*Glyphicephalus crassus* Looss) in *Thalassochelys corticata*, Egypt, Looss, t. c., p. 575, pl. xxvi, figg. 83–88.

Epidella squamula, Monterey Bay, N. America, parasitic on *Paralichthys californicus* and *Sebastodes*, structure, especially of the reproductive organs, Heath, P. Calif. Ac. iii, pp. 109–136, pls. xv & xvi, n. sp.

Eumegacetes contribulans=(*Distomum crassum* Sieb.) in *Hirundo rustica*, p. 93, fig. 54, *E. medioximus* in *Gabula grandis*, p. 96, figg. 55 & 56, Braun, Zool. Jahrb. Syst. xvi.

Fasciola hepatica in liver of *Orthagoriscus mola*, anatomy and pathological effects, BOSSUAT, Arch. parasit. vi, pp. 186 & 187.

Fasciolopsis buski (Lank.) [=*Distomum crassum* Cobb.] in man, anatomy, ODHNER, Centrbl. Bakter. xxxi, pp. 573–581, 1 pl.

Glaphyrostomum, definition, p. 129, *G. adhærens* in *Myrothera* sp., pp. 130–132, fig. 78, *G. propinquum* in *Dendrocolaptes scandens*, p. 132, fig. 79, synonymy and structure, BRAUN, Zool. Jahrb. Syst. xvi.

Glyphicephalus solidus, p. 571, pl. xxvi, figg. 79 & 80, pl. xxvii, figg. 92 & 93, pl. xxxii, fig. 178, *G. lobatus*, p. 573, pl. xxvi, figg. 81 & 82, pl. xxvii, fig. 91, in *Chelone mydas*, Egypt, anatomy, Looss, Zool. Jahrb. Syst. xvi.

Gorgodera translucida, p. 413, fig. 1, *G. opaca*, p. 416, fig. 2, in *Bufo lentiginosus*, *G. attenuata*, p. 418, fig. 4, in *Rana* spp., America, STAFFORD, Zool. Jahrb. Syst. xvii, n. spp.

Gorgoderidæ, composition, and descriptions of genera (1 n. g.) and spp., Looss, Zool. Jahrb. Syst. xvi, pp. 843–866.

Gorgoderina n. g. for *Gorgodera simplex*, Looss, t. c., pp. 851–862.

Hæmatoloechus variegatus (Rud.), anatomy, COHN, Zool. Anz. xxv, pp. 716–718, 5 figg.

H. longiplexus, p. 901, pl. xxxiii, fig. 1, *H. breviplexus*, p. 904, fig. 2, *H. varioplexus*, p. 906, fig. 3, *H. similiplexus*, p. 907, fig. 4, *H. medioplexus*, p. 908, fig. 5, Canada, in *Rana catesbiana*, STAFFORD, Zool. Jahrb. Syst. xvi, n. spp.

Hapalotrema constrictum in turtles, Egypt, structure, Looss, t. c., pp. 519–524.

Haploporus n. g. for *H. benedeni* (=*Distomum benedinii* Stossich) and *H. lateralis*, n. sp., Triest, in *Mugil* spp., Looss, Arch. parasit. vi, pp. 134, 136–139, figg. 5–8.

Haplosplanchnus n. g. for *H. pachysomus* (Eysenh.), anatomy and affinities, Looss, Centrbl. Bakter. xxxii, p. 119, figg. 3 & 4.

Harmostomum fuscatum in *Coturnix communis*, p. 114, fig. 71, *H. marsupium* in *Perdix rufina*, p. 118, fig. 72, *H. centrodes* in *Tinamus variegatus*, p. 120, figg. 73 & 74, *H. mordens* in *Rallus* sp., p. 122, fig. 75, *H. caudale* in *Nucifraga caryocatactes*, pp. 123–126, *H. mesostomum* (=*Distomum*), in *Turdus iliacus*, pp. 126–129, fig. 76, synonymy and structure, BRAUN, Zool. Jahrb. Syst. xvi.

Helicometra n. g. for *Distomum pulchellum* Rud., *D. fasciatum* Rud., *D. sinuatum* Rud., ODHNER, Centrbl. Bakter. xxxi, pp. 160–162, fig. 3.

Heronimus n. g. for *H. chelydræ*, n. sp., Ontario, from *Chelydra serpentina*, anatomy, MACCULLUM, Centrbl. Bakter. xxxii, pp. 632–636, 2 figg.

Heterophyes fraternus [=*Distomum fraternum* Looss], p. 887, *H. heterophyes* [=*Distomum* v. Sieb.], p. 889, characters, Looss, Centrbl. Bakter. xxxii.

H. inops from *Milvus ægyptius*, p. 887, *H. æqualis* from the cat, *H. dispar* from the cat and dog, p. 888, *H. pallidus* from *Milvus ægyptius*, p. 889, Egypt, characters, Looss, t. c., n. spp.

Hirudinella clavata, systematic position, anatomy and histology, DARR, Zeitschr. wiss. Zool. lxxi, pp. 662–699, pls. xxxiv & xxxv.

Lecithobotrys n. g. for *L. putrescens*, n. sp., Triest, in *Mugil auratus*, Looss, Arch. parasit. vi, pp. 135–143, fig. 14.

Lecithocladium barbatum, from *Coryphæna*, pp. 47–54, pl. iii, figg. 1–7, *L. excisiforme*, from *Scomber scomber*, p. 54, pl. iii, fig. 8, anatomy and histology, COHN, Arch. Naturg. lxix, n. spp.

Lecithodendrium, characters and position, Looss, Zool. Jahrb. Syst. xvi, pp. 768–775; *L. nigrovenosum* (=*Distomum* Bellingham), in *Tropidonotus natrix*, Catania, RIZZO, Arch. parasit. vi, p. 28.

Lecithodesmus n. g. for *Distoma goliath* v. Ben., anatomy and systematic position, BRAUN, Centrbl. Bakter. xxxii, pp. 800–803, 1 pl.

Lepidophyllum n. g. for *L. steenstrupi*, n. sp., from *Anarrhichas minor*, ODHNER, Centrbl. Bakter. xxxi, p. 68, fig. 3.

Leptophyllum n. g. for *L. stenocotyle*, n. sp., South America, from *Herpetodryas fuscus*, anatomy, COHN, op. cit. xxxii, pp. 880–882, figg. 4 & 5.

Liolope n. g. for *L. copulans*, n. sp., Japan, from *Cryptobranchus japonicus*, anatomy and copulation, COHN, t. c., pp. 877–880, 3 figg., n. sp.

Loborchis mutabilis from *Anguilla vulgaris*, Triest, structure, STOSSICH, Arch. parasit. v, pp. 578–582, 1 fig., n. sp.

Lophotaspis vallei (= *L. adhaerens* Looss) in *Thalassochelys corticata*, Egypt, structure, Looss, Zool. Jahrb. Syst. xvi, pp. 418–430, pl. xxi, figg. 1–9.

Lyperosomum longicauda (= *Distomum longicauda* Rud.) in *Corvus cornix*, p. 106, fig. 65; *L. lobatum* (= *Dicrocœlium lobatum* Raill.) in *Pica caudata*, p. 110, fig. 67; *L. corrigia* in *Tetrao tetrix*, p. 111, fig. 68; *L. rudectum* in *Ibis cœrulescens*, p. 112, fig. 69; *L. salebrosum* in *Cypselus melba*, p. 113, fig. 70; synonymy and structure, BRAUN, t. c.

Macraspis; revision of genus, NICKERSON, Zool. Jahrb. Syst. xv, p. 618.

Macrodera naja (= *Distomum* Rud.), RIZZO, Arch. parasit. vi, p. 28.

Mesaulus n. g. for *M. grandis* [= *Distomum grande* Braun], in *Platalea ajaja*, structure, BRAUN, Zool. Jahrb. Syst. xvi, pp. 24–28, figg. 16–19.

Metorchis xanthosomus in *Colymbus septentrionalis*, pp. 7–10, figg. 4–7; *M. crassiusculus*, p. 10, structure, BRAUN, t. c.

M. cœruleus in *Cairina moschata*, Brazil, BRAUN, t. c., p. 11, fig. 8, n. sp.

Microlistrum; definition, p. 55; *M. cochleariforme* in *Pelecanus aquila*, p. 56, fig. 35; *M. cochlear* in *Sterna* spp., p. 58, fig. 36; *M. spinetum* in *Rhynchops nigra*, pp. 59–62, figg. 37–39; synonymy and structure, BRAUN, t. c.

Monorchis monorchis (Stoss.), anatomy, Looss, Centrbl. Bakter. xxxii, pp. 115–119, fig. 1.

M. parvus, Triest, from *Sargus* spp., Looss, t. c., p. 118, fig. 2, n. sp.

Monostomidæ; validity of the name discussed, Looss, Zool. Jahrb. Syst. xvi, pp. 700–731.

Monostomum mutabile, Triest, STOSSICH, Boll. Soc. Adriat. xxi, 1901, 40 pp., 9 pls.

M. oculobium, from the eye of *Vanelli melanogastri*, anatomy, COHN, Zool. Anz. xxv, pp. 712–718, 4 figg., n. sp.

Nephrocephalus n. g. for *N. sessilis*, n. sp., Soudan, from the crocodile, ODHNER, Ofv. Ak. Forh. lix, p. 27.

Ochetosoma monstruosum in *Corone venustissima*, structure, BRAUN, Zool. Jahrb. Syst. xvi, pp. 65–67, figg. 41 & 42.

Octobothrium (?) *esmarkii*, Shetland, in *Gadus esmarkii*, SCOTT, Rep. Fish. Board Scotland iii, p. 147, pl. viii, fig. 22, n. sp.

Oistosomum n. g. for *O. caduceus*, n. sp., Soudan, from the crocodile, ODHNER, Ofv. Ak. Forh. lix, p. 26.

Opisthorchis, systematic position discussed, Looss, Zool. Jahrb. Syst. xvi, pp. 775–778; *O. felineus*, *O. sinensis*, *O. conjunctus*, in liver of *Orthagoriscus mola*, anatomy and pathological effects, BOSSUAT, Arch. parasit. vi, pp. 188–192; *O. interruptus*, in *Alcedo viridirufa*, characters, BRAUN, Zool. Jahrb. Syst. xvi, pp. 5–7, fig. 2; *O. tenuicollis*, Russia, in cats and fish, anatomy, KAMENSKY, Trudui Kharkov. Univ. xxxv, pp. i–xxiii.

O. piscicola, White Nile, from gall bladder of *Gymnarchus niloticus*, ODHNER, Centrbl. Bakter. xxxi, p. 152, n. sp.

Orchidasma amphiorchis, in *Thalassochelys corticata*, Egypt, structure and synonymy, Looss, Zool. Jahrb. Syst. xvi, pp. 463–468, pl. xxiii, figg. 25–29, pl. xxiv, fig. 39.

Orchipedum, definition, p. 19; *O. tracheïcola* in *Anas fusca*, structure, BRAUN, t. c., pp. 20–23, figg. 14 & 15.

Orophocotyle, n. g. for *Podocotyle planci* Stoss. and *O. divergens*, n. sp., from *Ranzania truncata*, anatomy and synonymy, Looss, Centrbl. Bakter. xxxi, pp. 637–644, 4 figg.

Pachypsolus irroratus (= *P. lunatus* Looss), in *Thalassochelys corticata*, Egypt, structure and affinities, Looss, Zool. Jahrb. Syst. xvi, pp. 485–505, pl. xxiii, figg. 37 & 38, pl. xxxii, fig. 169.

Phaneropsolus micrococcus, in *Glareola austriaca*, Braun, Zool. Jahrb. Syst. xvi, pp. 62–64, fig. 40.

Philopthalmus, definition, p. 31, *P. lucipetus* in *Larus fuscus*, structure, Braun, t. c., pp. 32–37, figg. 21–23.

P. lacrymosus, in *Larus maculipennis*, Brazil, Braun, t. c., pp. 36 & 37, fig. 24, n. sp.

Phyllodistomum unicum, in bladder of *Serranus*, Red Sea, *P. linguale*, in bladder of *Gymnarchus niloticus*; *P. spatula*, in bladder of *Bagrus* spp.; *P. spatulæforme*, in bladder of *Malapterus electricus*, Omdurman, Odhner, Centrbl. Bakter. xxxi, pp. 66 & 67, n. spp.

Plagiorchis, definition, p. 37; *P. elegans* (= *Distomum elegans* Rud.) in *Passer domesticus*, pp. 37–43, figg. 25 & 26; *P. cirratus* in *Corvus* spp., pp. 43 & 44; *P. maculosus* (= *Distomum maculosum* Rud.), pp. 45–47, figg. 27 & 28; *P. nanus*, in *Scolopax gallinula*, pp. 47–50, figg. 29 & 30; *P. vitellatus* (= *Distomum vitellatum* Linst.) in *Actitis hypoleucus*, p. 50, fig. 31; *P. triangularis* in *Merops apiaster*, pp. 51–54, figg. 32 & 33; *P. permixtus* in *Hirundo rustica*, p. 54, figg. 33 & 34; synonymy and structure, Braun, Zool. Jahrb. Syst. xvi.

Plesiorchorus cymbiformis in *Thalassochelys corticata*, Egypt, anatomy, histology and systematic position, Looss, t. c., pp. 469–485, pl. xxiii, figg. 30–36.

Pleurogonius trigonocephalus in *Thalassochelys corticata*, p. 548, pl. xxvi, figg. 75–78; *P. longiusculus*, p. 558, pl. xxvii, figg. 94–98, pl. xxxii, figg. 176 & 177; *P. linearis*, p. 565, pl. xxvii, fig. 99; *P. bilobus*, p. 567, pl. xxvii, fig. 100; *P. minutissimus*, p. 568, pl. xxvii, fig. 101; in *Chelone mydas*, Egypt, anatomy and affinities, Looss, t. c.; maturation and fertilization of the egg, and development, Goldschmidt, Zeitschr. wiss. Zool. lxxii, pp. 180–189, 11 text-figg.

Polystomum integerrimum, maturation of the egg, fertilization and cell-division, Goldschmidt, op. cit. lxxi, pp. 397–444, pls. xxii–xxiv.

Probolitrema n. g. for *Anaporrhutum ricchiardii*, Looss, Zool. Jahrb. Syst. xvi, pp. 855–862.

Pronocephalidæ; anatomy and histology, Looss, t. c., pp. 581–617.

Pronocephalus obliquus in *Chelone mydas*, Egypt, structure and affinities, Looss, t. c., pp. 527–532, pl. xxv, figg. 55 & 56, pl. xxvi, fig. 70, pl. xxxii, fig. 175.

Prosthogonimus; definition, p. 67; *P. ovatus* in *Corvus frugilegus*, pp. 69–75, fig. 43; *P. cuneatus* in *Olis tarda*, pp. 75–79, figg. 44 & 45; *P. pellucidus* in *Gallus domesticus*, pp. 79–81, fig. 45A; *P. japonicus* in chickens, Japan, pp. 81–83, fig. 46; *P. rarus* in *Fulica atra*, pp. 83–85, figg. 47 & 48; synonymy and structure, Braun, t. c.

Psilostomum; characters, p. 11; *P. brevicolle* in *Hæmatopus ostralegus*, pp. 12, 13, fig. 9; *P. oxyurum* in *Anas*, p. 14, fig. 10; *P. spiculigerum* in *Fuligula nyroca*, p. 15, fig. 11 [= *Distomum oligoon* Looss]; structure, Braun, t. c.

Pyelosomum cochlear in *Chelone mydas*, Egypt, structure, Looss, t. c., p. 578, pl. xxvii, figg. 102–104, pl. xxxii, fig. 181.

Rhytidodes gelatinosus in *Chelone mydas*, Egypt, structure and affinities, Looss, t. c., pp. 445–457, pl. xxii, figg. 19–24.

Scaphiostomum; definition, p. 133; *S. illatabile* in *Falco nitidus*, pp. 134–136, fig 80, Braun, Zool. Jahrb. Syst. xvi.

Soccocœlium n. g. for *S. obesum* and *S. tensum*, n. spp., Triest, in *Mugil* spp., Looss, Arch. parasit. vi, pp. 135, 140–142, figg. 9–13.
Stephanoprora n. g. for *S. ornata*, n. sp., Soudan, from the crocodile, Odhner, Ofv. Ak. Forh. lix, p. 22, fig. 1, n. sp.
Stichocotyle; revision of genus, Nickerson, Zool. Jahrb. Syst. xv, p. 617.
Stomylotrema; definition, p. 85; *S. pictum* in *Glareola pratincola*, pp. 86–89, figg. 49; *S. vicarium* in *Ibis cœrulescens*, pp. 89 & 90, fig. 50; *S. tagax* in *Hirundo versicolor*, p. 90, fig. 51; *S. fastosum* in *Caprimulgus*, Brazil, p. 90, fig. 52; *S. bijugum* in *Himantopus melanopterus*, p. 91, fig. 53; synonymy and structure, Braun, op. cit. xvi.
Styphlodora solitaria, in *Thalassochelys corticata*, Egypt, characters, Looss, t. c., pp. 506 & 507, pl. xxiv, fig. 40.
Telorchis ercolanii (= *Distomum* Monticelli), in *Tropidonotus natrix*, Catania, Rizzo, Arch. parasit. vi, p. 28.
T. solivagus, Soudan, from *Clemmys caspica*, Odhner, Ofv. Ak. Forh. lix, p. 29, fig. 2, n. sp.
Tocotrema expansum, Red Sea, in *Pandion haliaëtus*, anatomy and affinities, Jägerskiöld, Centrbl. Bakter. xxx, pp. 979–983, 1 fig.
Trochopus lineatus, Clyde, in *Trigla lineata*, Scott, Rep. Fish. Board Scotland iii, p. 143, pl. viii, figg. 18.
Urogonismus macrostomus (= *Distomum holostomum* Rud.), p. 136; affinities, Braun, Zool. Jahrb. Syst. xvi.
Urorygma nanodes in *Falco nitidus*, p. 138, figg. 81 & 82; structure, Braun, t. c.
Zoogoninæ n. subfam. for *Zoogonoides* n. g. and *zoogonus*, Odhner, Centrbl. Bakter. xxxi, pp. 63 & 64.
Zoogonoides n. g. for *Z. viviparus* (= *Distomum* Olsson) Linstow, t. c., pp. 62–64, fig. 2.
Zoogonus rubellus, anatomy, Odhner, t. c. pp. 59–61, fig. 1.
Zoogonus mirus, development and structure, Goldschmidt, op. cit. xxxii, pp. 870–876, 6 figg.

NEMATHELMINTHES.

NEMATODA (incl. Gordiacea).

[The following memoirs relate to *Nematoda*, viz.:—Bancroft (13), Barbagallo (14), Bentley (26), Bonnevie (39), Bossuat (43), Camerano (60, 61, 63, 64, 65), Cattie (67), Chapman (71), Cobb (80, 81, 82, 84, 85), Coles (96), Conte (98), Cori (101), Corti (102), Dampel (107), Delage (111), Durme (120), Forel (130), Frič & Vavra (133), Gemmill & Linstow (143), Golowin (149), Grassi (154), Gravier (159), Green (165), Gulland (166), Häcker (167), Hofer (179), Issel (186), Jacobi (188), Jägerskiöld (190), Kašparek (205), Khitrow (206), Kolb (209), Kurlow (219), Lambinet (224), Lavergne (226), Linstow (233, 235, 238, 239, 240), Looss (247), Low (254, 255, 256), Lühe (261), Maggi (265), Maitland (266), Marchoux (268), Maurizi (276), Michel (286), Miura & Nishuichi (289), Noel (306), Osterwald (318), Parona (319, 320), Parona & Stossich (321), Perrier (324), Pieri (331), Prout (335), Racovitza (341), Rhumbler (348), Rizzo (356), Salmon (367), Schäfer (368), Schneider (375), Scharff (385), Shipley (387, 388, 392), Smith (399), Städter (404), Stiles (410, 411, 412, 413, 414), Stiles & Frankland (415), Stossich (420), Thébault (427), Thienemann (429), Vuillemin (450), Voltzenlogel (449), Ward (453), Weinland (455, 456, 457, 458), Woltereck (469, 470), Zacharias (476), Zykoff (485).]

General Biology.

Review of work published in 1894, 1895, 1896, Linstow (239).

General classification and anatomy, Shipley (392).

Anatomy, etc., of *Ascaris lumbricoides*, Maurizi (276).—Anatomy of *Ichthyonema grayi*, Gemmill & Linstow (143).—Anatomy and histology of the posterior end of *Ascaris megalocephala* and *A. lumbricoides*, Voltzenlogel (449).

Internal structure, Cobb (85).

Excretory organs, anatomy and histology, Golowin (149).

Histology, Schneider (375).

Skin glands, Jägerskiöld (190).

Mode of penetrating the skin by larvæ of *Strongyloïdes intestinalis*, Durme (120).

Mode of fixation to host's alimentary canal, and pathological results in host, Lühe (261).

Mode of transmission of the parasite, *Ancylostoma duodenale*, Pieri (331).

Intestine wall penetrated by *Oxyuris vermicularis*, Vuillemin (450).

Formation of glycogen in *Ascaris*, Weinland & Ritter (458).

Physiological and chemical action of extract pressed out of *Ascaris lumbricoides*, Weinland (457).

Resistance of eggs of *Ankylostoma* to physico-chemical reagents, Lambinet (224).

Carbonic acid gas broken down without absorption of oxygen in *Ascaris*, Weinland (456).

Protandry, Perrier (324).

Hermaphroditism in *Rhabditis*, Michel (286).

Nuclear division in *Ascaris*, Häcker (167).

Abnormalities in the nuclear-division of the egg of *Ascaris lumbricoides*, Bonnevie (39).

Nuclear division, Häcker (167).

Ontogenesis, segmentation and development of *Nematoda*, Conte (98).

Histology, organogenesis and metamorphosis of *Polygordius* larvæ, and origin of the North Sea species, Woltereck (469).

Development of *Polygordius*, Woltereck (470).

Development, intermediate host, prevalence and pathology of *Filaria demarquaii*, Low (254).

Intermediate host (*Anopheles maculipennis*) of *Filaria immitis*, Bancroft (13).

Life-history of *Cystoopsis acipenseri*, Zykoff (485).

Liver parasites in *Orthagoriscus mola*, Bossuat (43).

Avian Cestodes parasitised by *Strongylidæ*, Khitrow (206).

Nematode parasites of *Tænia pusilla*, Dampel (107).

Earthworm parasites, Shipley (388).

Man infected with *Anguilula aceti*, Stiles & Frankland (415).

Economic ; injuries caused in gardens, Osterwald (318).

Disease in ferns, Cattie (67).

Potted-plants injured by *Aphelenchus olesistus*, Hofer (179).

Disease in doves caused by *Heterakis perspicillum*, Kašparek (205).

Ravages of *Tylenchus radicicola* in Australia, Cobb (85).

Injury to turnips and oats by *Heterodera schachtii*, Jacobi (188).

Disease caused by *Uncinaria*, Stiles (410, 411).

Uncinariasis, or ankylostomiasis in man, prevention and treatment, Stiles (411).

Trichinosis, Stiles (413).

Pseudo-parasitism of *Parachordodes pustulosus*, Parona (319).

Causal relationship between "ground itch" or "pani-ghao," and *Ankylostoma duodenale*, prevalence, etiology and treatment, BENTLEY, Brit. Med. J. 1902, pp. 190–193.

Filariasis, THIENEMANN (429), SMITH (399), NOEL (306).—Filariasis in Sierra Leone, PROUT (335).—Filariasis, condition of the blood, GULLAND (166), COLES (96).

Filariasis and mosquitos, GRASSI (154).

Malaria, relationship between *Anopheles* and *Filaria*, GRASSI (154).

Pathological effects of *Oxyuris*, THÉBAULT (427).

DISTRIBUTION.

Sweden (Kristineberg), n. sp., JÄGERSKIÖLD (190).

Lake Plön, 2 spp., ZACHARIAS (476).

Galicia, n. spp. and hosts, LINSTOW (238).

Bohemia, from the Elbe, 1 n. sp., FRIČ & VAVRA (133).

Siberia, *Anguillula intestinalis* causing disease in man, KURLOW (219).

Italy, n. spp., STOSSICH (420).—Padua, in warm springs, 40°—45° C., LINSTOW (240).—Pavia, n. g. and n. sp., parasitic in *Chironomus* larvæ, CORTI (102).—Genoa, n. spp. and hosts, LINSTOW (238).—Euganea, in hot mineral springs, ISSEL (186).—Catania, 15 spp. (5 n. spp.) and reptilian hosts, RIZZO (356).

Triest, *Polygordius* larva, CORI (101).

Elba, vertebrate parasites, PARONA (320).

Caucasus, parasite (n. sp.) in man, LINSTOW (236).

Egypt, n. spp., with hosts, LINSTOW (238).—*Sclerostomidæ* in horses and donkeys, LOOSS (253).

Soudan, parasites, SHIPLEY (387).—*Chordodes hawkeri*, n. sp., CAMERANO (64).

Congo, *Chordodes gariazzi*, n. sp., CAMERANO (65).

South Africa, n. spp., with hosts, LINSTOW (238).

Madagascar, n. sp., CAMERANO (63).

India, operative treatment of lymphangiectasis of filarial origin, MAITLAND (266).

Malay Peninsula, *Gordii* collected, CAMERANO (60).

Japan, *Filaria*, n. sp. on a salamander, LINSTOW (233).—*Ascaris* eggs in the human foot, MIURA & NISHIUCHI (289).

Australia, parasites of stock, COBB (80).—New South Wales, injury by root-gall, COBB (81).—Eel-worm infesting roots of passion-vine, COBB (82).

Barbadoes, filarial diseases, LOW (255).

Haiti, 2 n. spp. from *Metopoceros cornutus*, LINSTOW (235).

America, hookworm disease in man, STILES (411).—*Filaria loa* in man, WARD (453).—Texas, causing disease in cattle, sheep and goats, STILES (410).—Diseases of cattle, sheep and goats, treatment, STILES (412).—Guatemala, n. sp. of *Gordius*, LINSTOW (238).

South America, vine roots attacked by *Anguilula*, LAVERGNE (226).

Argentina, 1 n. sp. from *Dasypus*, PARONA & STOSSICH (321).—N. sp., CAMERANO (61).—Buenos Aires, n. spp., STOSSICH (61).—Paraguay, spp. collected, CAMERANO (61).

South Pole, RACOVITZA (341).

SYSTEMATIC.

Formula for description, COBB (84).

Taxonomy, validity of the name *Ankylostomum*, LOOSS (247).

Nematoda, general anatomy and classification, SHIPLEY, Encycl. Brit. xxxi, pp. 118–120, 5 figg.; 19 spp. from vertebrates, Elba, hosts named,

but no descriptions, PARONA, Boll. Mus. Genova 1902, No. 113, pp. 13–16; 21 n. spp., from Italy, S. America, Australia, etc., hosts, characters, STOSSICH, Boll. Mus. Genova 1902, No. 116, 16 pp., 3 pls.

Agamonema bembidii in *Bembidium*, LINSTOW, Arch. mikr. Anat. lx, p. 223, pl. xiii, fig. 7, n. sp.

Anguilula attacking vine roots in South America, LAVERGNE, Revist. chilena v, pp. 85–91, 3 figg; *A. aceti*, in man, STILES & FRANKLAND, Bull. U. S. Dep. Agric. Animal Ind. xxxv, pp. 35–40, pl. iv; *A. intestinalis*, causing disease in man, in Siberia, KURLOW, Centrbl. Bakter. xxxi, pp. 614–628, 9 text-figg.

Ankylostoma, resistance of eggs to physico-chemical reagents, LAMBINET, Bull. Ac. Med. Belgique (5) xv, pp. 397–401; *A. duodenale*, mode of transmission of the larva, PIERI, Rend. Acc. Lincei xi, pp. 217–220; and its relation to "ground itch" or "pani-ghao," BENTLEY, Brit. Med. J. 1902, pp. 190–193.

Ankylostomum Dubini, validity of the name, LOOSS, Centrbl. Bakter. xxxi, pp. 422–426.

Aphelenchus olesistus, causing disease in ferns, CATTIE, Zeit. Pflanz. Sorauer xi, p. 34; damaging potted plants, HOFER, Zeit. Pflanz. Sorauer xi, p. 34.

Aprocta turgida, Cagliari, in *Larus argentatus*, p. 12; *A. ophthalmophaga*, Abissinia, in *Falco*, p. 13, STOSSICH, Boll. Mus. Genova 1902, No. 116, n. spp.

Ascaris, nuclear division, HÄCKER, Jena. Zeitschr. xxx, pp. 357–359; mentioned in a discussion of the theories of fertilization, DELAGE, Verh. Congr. Zool. v, Berlin, pp. 121–140; formation of glycogen, WEINLAND & RITTER, Zeitschr. Biol. xliii, pp. 490–502; carbonic acid gas broken down without the absorption of oxygen, WEINLAND, Zeitschr. Biol. xlii, pp. 55–90; *A. lumbricoides*, anatomy, MAURIZI, Boll. Soc. zool. Ital. (2) iii, fasc. iv–vi, pp. 198–223; in liver of *Orthagoriscus mola*, anatomy and pathological results, BOSSUAT, Arch. parasit. vi, pp. 193–197; action of extract of, WEINLAND, Zeitschr. Biol. xliii, pp. 86–111; physiology of breathing, WEINLAND, SB. Ges. Munchen xvii, p. 1; abnormalities in the early stages of division in the egg, BONNEVIE, Jena. Zeitschr. xxx, pp. 83–104, pls. iv–vi, 1 text-fig.; eggs in the human foot in Japan, structure and size of eggs, MIURA & NISHIUCHI, Centrbl. Bakter. xxxii, pp. 637–641, 2 figg.; *A. megalocephala*, *A. lumbricoides*, anatomy and histology of the posterior end, VOLTZENLOGEL, Zool. Jahrb. Anat. xvi, pp. 481–510, pls. xxxiv–xxxvi; *A. megalocephala*, histology, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 316–348, 193, figg. 249, 329–342; segmentation of egg, and development of organs, CONTE, Ann. Univ. Lyon, Fascicule 8, pp. 44–46, 59 & 60, 66 & 72.

Ascaris turgida, Buenos Aires, in *Didelphys crassicaudata*, p. 2, pl. iv, fig. 23; *A. microcerca*, Genoa, in *Lophius budegassa*, p. 3, pl. iv, figg. 26 & 27, pl. v, fig. 28; *A. clavata*, Genoa, in *Mullus barbatus* and *Aulopus filamentosus*, p. 2, pl. iii, fig. 15; *A. longestriata*, Sardinia, in *Thynnus vulgaris*, p. 4, pl. iii, figg. 2 & 3; *A. prionodora*, Viareggio, in *Lampris luna*, p. 5, pl. iii, figg. 9 & 10; *A. pachyderma*, in *Lamna cornubica*, figg. 13 & 14; *A. stictodora*, in *Dentex gibbosus*, Genoa, figg. 11 & 12; *A. genypteri*, Rio Plata, in *Genypterus capensis*, p. 6; *A. filariformis*, Genoa, in *Scropelus caudispinosus*, p. 6; *A. casta*, Alto Parana, in *Salminus maxillosus*, p. 6; STOSSICH, Boll. Mus. Genova 1902, No. 116. *A. viperæ*, in *Vipera arietans*, S. Africa; *A. leonina* in *Felis leo*, p. 217, pl. xiii, fig. 1, LINSTOW, Arch. mikr. Anat. lx: n. spp.

Atractis cruciata, Haiti, from *Metopoceros cornutus*, LINSTOW, Centrbl. Bakter. xxxi, p. 29, figg. 1–5: n. sp.

Cephalobus cephalatus, New South Wales, on roots of passion-vine, COBB, p. 1115–1117, 1 fig., n. sp.

Chordodes hawkeri, Soudan, in bilge water, SHIPLEY, Arch. parasit. vi, p. 611; *C. moutoni*, *C. puncticulatus*, characters, CAMERANO, Boll. Mus. Torino xvi, No. 408, 2 pp.; *C. peraccæ*, *C. talensis*, characters, CAMERANO, t. c., No. 411.

C. gariazzi, Congo, structure, CAMERANO, Boll. Mus. Torino xvii, No. 426, 2 pp.; *C. hawkeri*, Soudan, structure, CAMERANO, t. c., No. 416, 3 pp.; *C. montgomeryi*, Madagascar, CAMERANO, op. cit. xvi, No. 412; *C. nobilii*, Argentina, CAMERANO, t. c., No. 410 : n. spp.

Cucullanus sp. in avian Cestodes at Kharkow, KHITROW, Trudui Kharkov. Univ. xxxv, pp. xxvii–xxxiv.

Cyathostomum affine, Eritrea, in *Felis catus ferus*, STOSSICH, Boll. Mus. Genova 1902, No. 116, p. 14, pl. iv, figg. 21 & 22, n. sp.

Cylicolaimus magnus, anatomy and histology, JÄGERSKIÖLD, Svenska Ak. Handl. xxxv, pp. 5–32, pl. i, figg. 4–6, pls. ii & iii, figg. 2–4, pl. iv, figg 1, 2, 4–11.

Cystoopsis acipenseri, life-history and hosts, ZYKOFF, Biol. Centrbl. xxii, pp. 229–233, 7 figg.

Dorylaimus atratus, Padua, in warm springs, 40°–45° C., structure ♀ and ♂, LINSTOW, Boll. Mus. Genova 1901, No. 109, pp. 1 & 2, figg. 1–4, n. sp.

Emea lacustris, Geneva, FOREL, Le Léman, iii, Lausanne, p. 120, fig. 192.

Filaria, and malarial mosquitos, GRASSI, Verh. Congr. Zool. v, Berlin, pp. 99–115; condition of blood in filariasis, GULLAND, Brit. Med. J. 1902, pp. 831 & 832; spp. causing filariasis in Sierra Leone, PROUT, t. c., pp. 879–881; in *Lanius collurio*, THIENEMANN, Ornith. Monber. x, pp. 91–93; *F. demarquaii*, embryos, intermediate host, prevalence, and pathology, LOW, Brit. Med. J. 1902, pp. 196 & 197; *F. immitis* and *F. bancrofti*, spread by mosquitos, GRASSI, Verh. Congr. Zool. Berlin 1901, pp. 99–115; *F. immitis* in *Anopheles maculipennis*, as intermediate host, BANCROFT, J. R. Soc. N. S. Wales xxxv, pp. 41–46; *F. loa*, United States, in man, WARD, Science xvi, p. 350; *F. medinensis*, mode of transmission, MARCHOUX, xiii Congr. Internat. Med. Paris 1900, Sect. Bactér. Parasit. p. 95; *F. perstans*, shown not to be the cause of "sleeping sickness" (Nganda), LOW, Brit. Med. J. 1902, ii, p. 1964; *F. rotundicauda* in *Garrulus glandarius*, LINSTOW, Arch. mikr. Anat. lx, p. 222, pl. xiii, fig. 6, n. sp.

F. cingula, Japan, on *Cryptobranchus-Megalobatrachus maximus*, LINSTOW, Zool. Anz. xxv, p. 634, 1 fig.; *F. dolichosoma*, Rio Peripa, in *Dicotyles*, p. 11, *F. pseudophysalura*, Eritrea, in *Buceros nasatus*, p. 12, pl. v, fig. 29, STOSSICH, Boll. Mus. Genova 1902, No. 116: *F. hellichi*, in *Barbus fluviatilis*, Bohemia, FRIČ & VAVRA, Arch. Landesdf. Bohmen ii, 3, p. 99, fig. 53: *F. parvomucronata*, Catania, in *Coluber viridiflavus*, RIZZO, Arch. parasit. vi, p. 37, figg. 11 & 12: *F. sudanensis*, Soudan, in the lion and hyæna, SHIPLEY, Arch. parasit. vi, p. 605, pl. vii, fig. 9: n. spp.

Gnathostoma turgida, Argentina, in *Didelphys azare*, STOSSICH, Boll. Mus. Genova 1902, No. 116, p. 13, n. sp.

Gordius guatemalensis, Guatemala, LINSTOW, Arch. mikr. Anat. lx, p. 228, pl. xiii, figg. 15 & 16, n. sp.

Heterakis papillosa, *H. perspicillum*, structure, BARBAGALLO, Boll. Acc. Gioen. lxxviii, p. 5; *H. perspicillum*, in doves, KAŠPAREK, Centrbl. Bakter. xxxi, pp. 245–247.

H. ægyptiaca in *Ardea garzetta*, Egypt, LINSTOW, Arch. mikr. Anat. lx, p. 218, pl. xiii, fig. 2; *H. orthocerca*, Cagliari, in *Rhea americana*, p. 7, pl. iii, figg. 4–8, *H. dolichocerca*, New Guinea, in *Circus spilothorax*, p. 7, pl. v, figg. 30–32, STOSSICH, Boll. Mus. Genova 1902, No. 116 : n. spp.

Heterodera schachtii, damaging turnips and oats, JACOBI, Kais. Gesundheits. Biol. Abth. Land. Forstw. Flugbl. xi, pp. 1–4.

Hydromermis n. g. for *H. rivicola*, n. sp., Pavia, in *Chironomus* larva, anatomy, affinities, and habits, CORTI, Rend. Ist. Lombardo (2) xxxv, pp. 105–113.

Ichthyonema grayi, anatomy, GEMMILL & LINSTOW, Arch. Naturg. lxviii, ii, pp. 113–118, pl. viii.

Œsophagostomum tuberculatum, Argentina, from *Dasypus villosus*, structure, PARONA & STOSSICH, Boll. Mus. Genova 1901, No. 110, pp. 1–3, figg. 1–5, n. sp.

Ollulanus sp., in avian Cestodes, at Kharkow, KHITROW, Trudui Kharkov. Univ. xxxv, pp. xxvii–xxxiv.

Oxyuris, pathological effects, THÉBAULT, Arch. parasit. v, pp. 557 & 558; *O. spinicauda*, *O. brevicaudata*, *O. longicollis*, *O. dentata*, *O. draschei*, *O. albanica*, *O. uncinata*, Catania, in reptiles, pp. 31 & 32, RIZZO, op. cit. vi; *O. vermicularis*, on the peritoneum of the Cavum Douglasii, KOLB, Centrbl. Bakter. xxxi, pp. 268–272; *O. vermicularis*, female, penetrating the wall of the intestine, VUILLEMIN, op. cit. xxxii, pp. 358–360.

O. annulata, Catania, in *Gongylus ocellatus*, RIZZO, Arch. parasit. vi, p. 31, figg. 3 & 4; *O. monhystera*, Haiti, from *Metopocerus cornutus*, LINSTOW, Centrbl. Bakter. xxxi, p. 29, figg. 6–9 : n. spp.

Parachordodes pustulosus, pseudo-parasitism in man, PARONA, Clinica Medica 10, 1901.

Physaloptera caucasia, Caucasus, in man, LINSTOW, Centrbl. Bakter. xxxi, p. 769, figg. 1 & 2; *P. fusiformis* in *Micropogon*, LINSTOW, Arch. mikr. Anat. lx, p. 219, pl. xiii, fig. 3; *P. elegantissima*, Eritrea, in *Ratelus capensis*, p. 10, pl. iv, figg. 24 & 25, *P. alba*, "Nuova Olanda" (?), in *Cyclodus boddaertii*, p. 10, pl. iv, figg. 18–20, STOSSICH, Boll. Mus. Genova 1902, No. 116 : n. spp.

Polygordius, larva, Triest, occurrence and preservation, CORI, Zool. Anz. xxv, pp. 361–365; *P. neapolitanus*, *P. lacteus*, development of larvæ, WOLTERECK, Int. Zool. Congr. Berlin 1901, pp. 729–736; *P. lacteus*, *P. appendiculatus* (*Trochophora*), larvæ of the North Sea, histology, organogenesis, metamorphosis, and origin, WOLTERECK, Zoologica xiii, pp. 1–71, 11 pls., 25 figg.

Rhabditis, hermaphroditism, MICHEL, C.R. Ac. Sci. cxxxv, pp. 907–910.

Sclerostomidæ, Egypt, in horses and donkeys, LOOSS, Rep. Egyptian Govt. School Med. Cairo 1901, pp. 27–139, pls. i–xiii.

Sclerostomum equinum, development, CONTE, Ann. Univ. Lyon, Fascicule 8, pp. 27–31, etc.

Spiroptera microstoma, development, CONTE, Ann. Univ. Lyon, Fasc. 8, pp. 31–38, etc.; *S. turdi*, in *Lumbricus terrestris*, SHIPLEY, Arch. parasit. vi, p. 621.

S. tuberculata in *Dacelo gigantea*, S. Africa, LINSTOW, Arch. mikr. Anat. lx, p. 219, pl. xiii, fig. 4, n. sp.

Strongyloïdes intestinalis, embryos, and their mode of penetrating the skin, DURME, Thompson Yates Lab. iv, 2, pp. 471–474, pl. vii.

Strongylidæ causing hookworm disease in man in America, STILES, 18th Rep. U. S. Dep. Agric. Animal Ind. 1901, pp. 185–219, figg. 113–196.

Strongylus contortus, Texas, in cattle, sheep and goats, treatment, STILES, t. c., pp. 223–229; *S. contortus*, *S. ostertagi*, *S. micrurus*, *S. filaria*, causing disease in cattle, sheep and goats in Texas, modes of prevention and attack, STILES, op. cit. 1900, pp. 356–379; *S. paronai*, Australia, in *Amphibolurus muricatus*, p. 8, pl. iii, fig. 16, pl. iv, fig. 17; STOSSICH, Boll. Mus. Genova 1902, No. 116 : n. spp.

S. catanensis in *Tropidonotus natrix* and *Coluber viridiflavus*, p. 33, figg. 5 & 6; *S.* ? n. sp. in *Lacerta agilis* and *L. viridis*, p. 34, figg. 7 & 8, Catania, RIZZO, Arch. parasit. vi.

Thoracostoma acuticaudatum, Sweden, anatomy, JÄGERSKIÖLD, Svenska Ak. Handl. xxxv, p. 33, pl. i, figg. 1–3, pl. iii, figg. 1, 5 & 6, n. sp.
Trichinella spiralis, causing trichinosis, STILES, P. Path. Phil. iv, 1901, pp. 137–153.
Trichosoma hepaticum in liver of *Orthagoriscus mola*, pathological anatomy, BOSSUAT, Arch. parasit. vi, p. 192.
T. mingazzinii, Catania, in *Tropidonotus natrix*, RIZZO, t. c., p. 35, figg. 9 & 10, n. sp.
Trichosomum obtusiusculum, anatomy and histology, JÄGERSKIÖLD, Svenska Ak. Handl. xxxv, pp. 49–67, pl. v.
Tylenchus (*Heterodera*) *radicicola*, internal structure, COBB, Agric. Gaz. N. S. W. xiii, pp. 1031–1033; *T. schachtii*, in New South Wales, form of destruction of roots, means of prevention, COBB, t. c, pp. 1041–1052, 8 figg.
Uncinaria spp. in man, mode of attack, prevention and treatment, STILES, 18th Rep. U. S. Dep. Agric. Animal Ind. 1901, pp. 183–219, figg. 113–196; *U. duodenalis*, *U. americana*, causing disease in man, in America, STILES, Science xvi, p. 348; *U. radiata*, *U. cernua*, causing disease in cattle, sheep and goats in Texas, modes of prevention and of attack, STILES, Rep. U. S. Dep. Agric. Animal Ind. 1900, pp. 362–379.
U. pachydermatica, Eritrea, in *Hyrax*, STOSSICH, Boll. Mus. Genova 1902, No. 116, p. 9, pl. v, figg. 33–38; *U. americana*, America, in man, STILES, 18th Rep. U. S. Dep. Agric. Animal Ind. 1901, pp. 183, etc., figg. : n. spp.

ACANTHOCEPHALA.

[The following memoirs relate to *Acanthocephala*, viz. :—FRIČ & VAVRA (133), GINESTE (144), GRAYBILL (164), IHERING (184), LINSTOW (239), LÜHE (261), MARVAL (273), PARONA (320), RIZZO (356).]

GENERAL BIOLOGY.

Review of work published in 1894–1896, LINSTOW (239).
Anatomy and histology of *Echinorhynchi* from *Ambloplites rupestris* and *Micropterus dolomieu*, GRAYBILL (164).—Anatomy, *Sipunculus*, GINESTE (144).
Mode of fixation to host's alimentary canal and pathological effects on host, LÜHE (261).
Bird parasites, anatomy, MARVAL (273).

DISTRIBUTION.

Bohemia, FRIČ & VAVRA (133).
Catania, 3 spp. and reptilian hosts, RIZZO (356).
Elba, in vertebrates, PARONA (320).
North America, fish parasites, GRAYBILL (164).
South America, parasites in birds and mammals, IHERING (184).—N. spp. and hosts, LINSTOW (239).

SYSTEMATIC.

Echinorhynchus, anatomy and histology, GRAYBILL, Stud. Lab. Nebraska, No. 49, pp. 191–200, 1 pl.; 8 spp. from vertebrate hosts, Elba [not

described], PARONA, Boll. Mus. Genova 1902, No. 113, pp. 16 & 17; spp. in birds and mammals of South America, IHERING, Zool. Anz. xxvi, pp. 42–51; from the rock bass and black bass, N. American lakes, histology and anatomy, GRAYBILL, Tr. Amer. Micr. Soc. xxiii, pp. 191–200, 1 pl.; *E. globulosus* (= *E. anguillæ* Müll.) in *Barbus*, Bohemia, FRIČ & VAVRA, Arch. Landesdf. Bohmen ii, 3, p. 103, 6 figg.; *E. strumosus*, *E. polymorphus*, *E. capitatus*, mode of fixation in alimentary canal of host, LÜHE, Int. Zool. Congr. Berlin 1901, pp. 703–706; *E. rheæ*, in *Rhea americana*, p. 414, figg. 2–4, *E. transversus*, in Passerine birds, p. 416, fig. 5, *E. pigmentatus*, in *Corvus corone*, p. 419, fig. 6, *E. rostratus* in *Corvus corone*, p. 420, fig. 7, *E. compressus* in *Corvus cornix*, p. 422, fig. 8, *E. segmentatus*, in *Numida ptilorhynchus*, p. 423, fig. 9, *E. striatus*, in various birds, p. 425, fig. 10, *E. polymorphus*, p. 427, fig. 11, *E. frassoni* in *Numenius arcuatus*, p. 430, fig. 12, *E. caudatus*, p. 432, figg. 13 & 14, anatomy of young and adult forms, MARVAL, Arch. parasit. v; *E. polyacanthus*, *E. inæqualis*, *E. oligacanthus*, Catania, in reptiles, RIZZO, op. cit. vi, pp. 38 & 39.

E. invaginabilis in *Numenius arquatus*, p. 228, pl. xiii, figg. 17–20, *E. obesus* in *Oriolus*, S. America, p. 229, figg. 21–23, *E. monechinus* in *Myrmecophaga quadridentata*, figg. 27 & 28, LINSTOW, Arch. mikr. Anat. lx; *E. oncicola*, Brazil, in *Felis*, *oncæ*, IHERING, Zool. Anz. xxvi, p. 45, n. spp.

CHÆTOGNATHA.

[The following memoirs relate to *Chætognatha*, viz.: CAR (66), CLEVE (79), DONCASTER (115, 116), SCHNEIDER (375), SCHARFF (385).]

Histology, SCHNEIDER (375).

Development of *Sagitta*, and anatomy of adult, DONCASTER (115).

Singapore, *Sagitta* n. sp., DONCASTER (116).

Maldive Islands. *Sagitta*, 6 n. spp., DONCASTER (116).

Krohnia pacifica, Maldive Islands, DONCASTER, Fauna Maldive i, 2, p. 215, fig. 40.

Sagitta bipunctata, Skagerak, CLEVE, Svenska Ak. Handl. xxxv, pp. 11, 12, 14 & 21; *S. bipunctata*, *S. enflata*, development, *S. minima*, anatomy of adult, DONCASTER, Quart. J. Micr. Sci. xlvi, pp. 351–398, pls. xix–xxi; *S. hexaptera*, histology, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 226–228, 693–699, figg. 282, 547–551.

S. robusta, p. 212, pl. xiii, figg. 1 A & B, *S. ferox*, fig. 2, *S. gardineri*, figg. 5 A & B, *S. pulchra*, figg. 4 A & B, *S. polydon*, figg. 3 A & B, *S. septata*, p. 214, fig. 6, Maldive Islands, *S. bedfordii*, p. 215, Singapore, characters, DONCASTER, Fauna Maldive i, 2, n. spp.

Spadella draco, Maldive Islands, DONCASTER, t. c., p. 214.

ROTIFERA.

[The following memoirs relate to *Rotifera*, viz.: APSTEIN (7), ARNOLD (10), BASTIAN (17), CAR (66), COHN (91), COLLIN (97), DADAY (106), DIXON NUTTALL (114), FOREL (130), FRIČ & VAVRA (133), ISSEL (186), JENNINGS (196), LEVANDER (228), LOZERON (257), M. (297), MURRAY (302), RACOVITZA (341), ROUSSELET (361, 362), SCHARFF (385), VOIGT (445, 446, 448), WESCHÉ (460), ZACHARIAS (472, 473, 474, 476, 477).]

General Biology.

Review of work published in 1894, Collin (97).
Asymmetry in the *Rattulidæ*, Jennings (196).
Parasites of *Rotifera*, Zacharias (474).—Protozoa parasitic in *Rotifera*, Cohn (94).
Rotifera serving as food for fish, Arnold (10).

Distribution.

Scotland, 7 n. spp., Murray (302).—Dundee, Great Yarmouth, Margate, n. spp. of *Synchæta*, Rousselet (361).
Lancashire, n. sp., Dixon-Nuttall (114).
Neasden (near London), male forms, Weschè (460).
Gotland, Apstein (7).
Plön, n. sp., Voigt (446).—Plön, 1 n. g., 3 n. spp., Voigt (445).—Lake Plön, 3 spp., Zacharias (476).
Schöhsee and Schluensee, list of spp., Zacharias (477).—Laacher See, 6 spp. mentioned, Zacharias (473).—Lake of Zurich, plankton, Lozeron (257).
Pomerania, list of lake spp., Voigt (445).
Bohemia, in the Elbe, Frič & Vavra (133).
Euganea, in hot mineral springs, Issel (186).
Naples, n. sp. *Synchæta*, Rousselet (361).
Patagonia, 2 n. spp., Daday (106).
South Pole, Racovitza (341).

Systematic.

List of spp. new since 1889, with bibliography, Rousselet (362).

Rotifera, a key to genera and spp., Amer. Micr. J. xxiii, pp. 89–114; parasitised by *Ascosporidium blochmanni*, Zacharias, Zool. Anz. xxv, pp. 647–649.
Classification, M. (297).
Classification, validity of the species *Anurœa eichwaldi*, Levander (228).
Anurea aculeata var. *cochlearis* n. var. Plön, Voigt, Zool. Anz. xxv, pp. 674–679; *A. cochlearis*, as food for various fishes, Arnold, Verh. Congr. Zool. Berlin 1901, pp. 554–563; *A. eichwaldi*, characters and systematic position, Levander, Medd. Soc. Faun. Fenn. xxvii, pp. 51–55, 2 figg.
Asplanchna, as food for fishes, Arnold, Verh. Congr. Zool. Berlin 1901, p. 557.
Brachionus patagonicus, Patagonia, Daday, Termes. Fuzetek xxv, p. 205, pl. ii, fig. 2, n. sp.
Callidina ornata, Scotland, Murray, Ann. Scott. Nat. Hist. 1902, p. 166, pl. iii, n. sp.
Cœlopus uncinatus, Plön, Voigt, Zool. Anz. xxv, pp. 674–679; *C. rousseleti*, Plön, Voigt, t. c. pp. 38 & 674, n. spp.
Diglena rostrata, Lancashire, Dixon-Nuttall, J. Quekett Club (2) viii, pp. 215 & 216, pl. ix, n. sp.
Distyla plœnensis, Plön, Voigt, Zool. Anz. xxv, pp. 674–679, n. sp.
Euchlanis cristata, Patagonia, Daday, Termes. Fuzetek xxv, p. 204, pl. ii, fig. 1, n. sp.

Notommata naias, male, near London, WESCHÉ, J. Quekett Club viii, p. 327, pl. xvii, figg. 2*a* & *b*.
Notops (*Gastropus*) *hyptopus*, male, near London, WESCHÉ, t. c. p. 327, pl. xviii, figg. 3 & 4.
Philodina brevipes, p. 164, *P. acuticornis*, *P. decurvicornis*, *P. obesa*, p. 165, pl. ii, Scotland, characters, MURRAY, Ann. Scott. Nat. Hist. 1902, n. spp.
Rattulidæ, asymmetry, JENNINGS, Science xv, p. 524.
Rhopalosoma n. g. for *R. perlucidum*, n. sp., Plön, VOIGT, Zool. Anz. xxv, pp. 674–678.
Rotifer quadrioculatus, *R. spicatus*, Scotland, characters, MURRAY, Ann. Scott. Nat. Hist. 1902, pp. 166 & 167, pl. iii, n. spp.
Synchæta, characters, composition and history of genus, with 5 n. spp., ROUSSELET, J. R. Micr. Soc. 1902, pp. 269–290, 393–411, pls. iii–viii; *S. pectinata*, p. 276, pl. iii, fig. 1, pl. iv, fig. 7, *S. tremula*, p. 281, pl. iii, fig. 3, *S. oblonga*, p. 284, pl. iii, fig. 2, pl. v, fig. 10, *S. grandis*, p. 287, pl. v, fig. 8, *S. stylata*, p. 289, pl. iv, fig. 4, *S. longipes*, p. 393, pl. iv, fig. 5, *S. tavina*, p. 396, pl. viii, fig. 18, *S. baltica*, p. 399, pl. vi, fig. 11, *S. gyrina*, p. 401, pl. viii, fig. 17, *S. triophthalma*, p. 403, pl. vii, fig. 14, *S. monopus*, p. 404, pl. vi, fig. 12, synonymy, bibliography and anatomy, ROUSSELET, t. c.
S. kitina, Dundee, p. 395, pl. iv, fig. 6, *S. littoralis*, p. 398, pl. vii, fig. 15, *S. cecilia*, Dundee, Great Yarmouth, Margate, p. 406, fig. 16; *S. vorax*, Dundee, p. 408, pl. viii, fig. 19, *S. neapolitana*, Naples Bay, p. 410, pl. v, fig. 9, ROUSSELET, t. c., n. spp.
Triarthra brachiata, notes on, ZACHARIAS, Zool. Anz. xxv, p. 276.
Triarthra longiseta, male, near London, WESCHÉ, J. Quekett Club viii, pp. 325 & 326, pl. xvii, figg. 1*a* & *b*.

GASTROTRICHA.

[The following memoirs relate to *Gastrotricha*, viz.:—COLLIN (97), FRIČ & VAVRA (133), ISSEL (186), VOIGT (446, 447, 448).]
Review of work published in 1894, COLLIN (97).
Bohemia, FRIČ & VAVRA (133).
Plön, 3 n. spp., VOIGT (446, 447, 448).
Euganea, in hot mineral springs, ISSEL (186).
Aspidonotus n. g. for *A. paradoxus*, n. sp., Plön, VOIGT, Zool. Anz. xxv, p. 680, 1 fig., n. sp.
Chætonotus chuni, Plön, VOIGT, t. c., p. 37; *C. linguæformis*, *C. succinctus*, *C. uncinus*, Plön, VOIGT, t. c., pp. 116–118 : n. spp.
Dasydytes stylifer, Plön, VOIGT, t. c., p. 38, n. sp.
Ichthydium forcipatum, Plön, VOIGT, t. c., p. 37, n. sp.

MESOZOA.

(Vacant.)

HEMICHORDA (incl. PHORONIS).

[The following memoirs relate to *Hemichorda*, viz.:—CONTE & VANEY (100), CORI (101), CRAMPTON (103), DAWYDOFF (109), FOWLER (131), IKEDA (185), KLUNZINGER (208), KUWANO (220), MASTERMAN (274, 275), MENON (280), RITTER (351, 352, 353, 354, 355) SCHNEIDER (375), SELYS LONGCHAMPS (246), STEUER (409), VANEY & CONTE (438), VERRILL (441), WILLEY (463).]

General Biology.

General anatomy, development and distribution, Willey (463).
General anatomy and classification, Fowler (131).
Anatomy and histology of *Cephalodiscus dodecalophus*, Masterman (275).
Anatomy and histology of the actinotroch larva of *Phoronis australis*, Menon (280).
Anatomy of *Rhabdopleura normanni*, Vaney & Conte (438).
Anatomy of *Ptychodera erythræa*, Klunzinger (208).
Anatomy of *Rhabdopleura normani*, Conte & Vaney (100).
Development, structure and metamorphosis of *Actinotrocha*, Masterman (274).
Structure and significance of the heart of the *Enteropneusta*, Ritter (355).
Histology, Schneider (375).
Function of the axial skeleton in the *Enteropneusta*, Ritter (352).
Movements, and mechanism of same, in *Enteropneusta*, Ritter (354).
Budding of *Rhabdopleura normanni* All., Vaney & Conte (438).
Regeneration of the acorn-shaped gland, Dawydoff (109).
Development of *Phoronis*, Selys-Longchamps (280).
Classification, Ritter (353).

Distribution.

Gulf of Gascony, *Rhabdopleura normanni*, Vaney & Conte (438).
Triest, *Balanoglossus* (*Ptychodera*), Cori (101).—*Tornaria* larvæ, Steuer (409).
Red Sea, *Ptychodera erythræa*, Klunzinger (208).
Misaki (Japan), *Phoronis australis*, Ikeda (185).—N. sp. of *Balanoglossus*, Kuwano (220).
N. America, Long Island, *Balanoglossus*, Crampton (103).—Southern California, Ritter (351).
Bermudas, 1 sp., Verrill (441).

Systematic.

Hemichorda; classification and general anatomy, Fowler, Encycl. Brit. xxix, pp. 249–252, 7 figg.
Enteropneusta; classification, Ritter, Amer. Natural. xxxvi, pp. 590 & 591.
Balanoglossus, general anatomy, development and distribution, Willey, Encycl. Brit. xxvi, pp. 84–86, 3 figg.; at Long Island, Crampton, Ann. N. York Ac. xiv, p. 138; *B.* (*Ptychodera*), Triest, occurrence and preservation, Cori, Zool. Anz. xxv, pp. 361–365; *B. occidentalis* Ritter, movements and mechanism, Ritter, Biol. Bull. iii, pp. 255–261; *B. occidentalis*, *B.* (*Ptychodera*) *australiensis*, structure and significance of the heart, Ritter, Zool. Anz. xxvi, pp. 1–5, 3 figg.; *B.* n. sp. [unnamed] related to *B. canadensis*, Ritter, Science xv, p. 64.
B. misakiensis, Misaki, anatomy, Kuwano, Annot. zool. Japon. iv, pp. 77–84, 6 figg., n. sp.
Cephalodiscus dodecalophus, anatomy and histology, Masterman, Quart. J. Micr. Sci. xlvi, pp. 715–727, pls. xxxii & xxxiii.
Dolichoglossus (*Balanoglossus*) *otagoensis*, structure and significance of the heart, Ritter, Zool. Anz. xxvi, pp. 1–5; *D. pusillus* Ritter (MS). Southern California, Ritter, Science xv, p. 64 (n. sp.?); movements and mechanism of same, Ritter, Biol. Bull. iii, pp. 255–261.

Phoronis; development, structure and metamorphosis of *Actinotrocha*, MASTERMAN, Quart. J. Micr. Sci. xlv, pp. 485–492; larvæ, histology, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 217–223, figg. 268, 270 & 271; *P. australis*, anatomy and histology of the larva, MENON, Quart. J. Micr. Sci. xlv, pp. 473–484, pl. xxvi; occurrence near Misaki, characters, IKEDA, Annot. zool. Japon. iv, pp. 115–118; *P. kowalevskyi* (*Actinotrocha*), development, SELYS LONGCHAMPS, Arch. Biol. xviii, pp. 495–597, 3 pls.

Ptychodera (*Balanoglossus*) *clavata*, histology, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 225, 672–692, text-figg. 275, 537–546; *P. erythræa*, Red Sea, anatomy, KLUNZINGER, Verh. Deutsch. zool. Ges. 1902, xii, pp. 195–202, 4 figg.; *P. minuta*, regeneration of the acorn-shaped gland, DAWYDOFF, Zool. Anz. xxv, pp. 551–556; *P. occidentalis* Ritter Southern California, RITTER, Science xv, p. 64 (n. sp. ?).

Rhabdopleura normani, anatomy, CONTE & VANEY, C.R. Ac. Sci. cxxxv, pp. 63–65; budding, VANEY & CONTE, t. c., pp. 748–750.

Stereobalanus (*Balanoglossus*) *canadensis*, structure and significance of the heart, RITTER, Zool. Anz. xxvi, pp. 1–5.

XVI. CŒLENTERATA.

By

Alice L. Embleton, B.Sc.

CONTENTS.

	Page
Introduction	1
Titles	3
I. General (= *Cœlenterata* collectively)	13
Subject Index :—	
General Biology	13
Geography	14
II. Hydromedusae (including *Hydrocorallina* and *Siphonophora*) :—	
A. Subject Index :—	
General Biology	14
Geography	15
B. Systematic	15
III. Graptolithida :—	
A. Subject Index :—	
Geography	19
B. Systematic	20
IV. Scyphozoa :—	
A. Subject Index :—	
General Biology	20
Geography	21
B. Systematic	21
V. Anthozoa (including *Alcyonaria* and *Zoantharia*) :—	
A. Subject Index :—	
General Biology	22
Geography	22
B. Systematic	24
VI. Ctenophora :—	
A. Subject Index :—	
General Biology	31
Geography	31
B. Systematic	31

INTRODUCTION.

During the year there has been published Versluy's (181) monograph on the *Chrysogorgiidæ* collected in the East Indian Archipelago by the "Siboga" Expedition, and Alcock's (4) monograph on the *Madreporaria* collected by the same expedition. Studer (164) describes the Alcyonarians collected by the "Hirondelle" expedition. Duerden (39) has

monographed the West Indian Madreporarian polyps, giving attention to their reproductive processes, budding, fission and development, as well as to their comparative anatomy and histology, with descriptions of species.

TORREY (170) has added twenty-two new species, and one new genus to the Hydroida of the Pacific coast of North America, including an account of their distribution. The Medusæ of the Tropical Pacific have been reported on by AGASSIZ & MAYER (3).

A new family of *Scyphomedusæ* from Japan has been erected during the year by KISHINOUYE (94) under the name of *Stenoscyphidæ*. KÜKENTHAL (97) has revised the Alcyonarian family *Xeniidæ*, and LAMEERE (101) has dealt with the origin of Siphonophores. DÖDERLEIN (31) treats of the genus *Fungia*.

Various papers by DUERDEN deal with the morphology of the Madreporaria, especially with the significance of budding and fission (42), and the increase of mesenteries in *Madrepora* beyond the protocnemic stage (41). The monograph on histology by SCHNEIDER (152) includes much interesting information relating to the histology of *Ctenophora*, *Hydrozoa*, and *Anthozoa*.

YERKES (185 & 186) has written on the sensory reactions, and on the physiology of the central nervous system of *Gonionema murbachii*. HYDE (87) also writes on the nervous system of this species, and interesting facts have been published by PERKINS (131) showing that in this species planulæ are budded off asexually.

In another paper (133) he treats of the phenomenon of degeneration in the larvæ of *Gonionema*.

An exhaustive paper by HARM (73) gives an account of the organogenesis of *Clava squamata*, while FRIEDEMANN (52) gives us a study on the development of *Aurelia aurita*. The development of *Gonthyræa loveni* is described by WULFERT (184), and PERKINS' (132) work on the development of *Gonionema murbachii* will no doubt receive the attention it deserves.

Much work has been done again this year on the subjects of regeneration, grafting, and variation. MORGAN'S (115) book on regeneration includes frequent discussions of the phenomenon as occurring in *Cœlenterata*. In a separate paper (116) he contributes to our knowledge of the special facts regarding regeneration of *Tubularia*. GODLEWSKI (61), working on the same genus, deals with regeneration after longitudinal splitting, while DRIESCH (35) describes two new methods of regulation that he has also observed in *Tubularia*. This same genus served as the subject for STEVENS' (160) experiments on regeneration; he also studied its occurrence in *Antennularia* (161). HARGITT (72) performed experiments on *Gonionema* respecting the regeneration of the marginal organs of the medusæ, of the manubrium and of the radial canals. HAZEN (75) has studied the results of rather similar experiments in *Hydractinia* and *Podocoryne*, publishing a separate paper on the regeneration of an œsophagus in *Sagartia* (76). Work on grafting has been done on *Hydra* by HEFFERAN (77 & 78), and PEEBLES (129). ROWLEY (148) describes the histological changes in *Hydra* during regeneration. TORREY (171) has published an interesting account of variation in *Metridium*, and HARGITT (71) deals with the same subject as occurring in *Hydromedusæ*. SCHULTZ (154) discusses the relation of regeneration to development and budding in *Cœlenterata*.

TITLES.*

1. Abbott, J. F. Preliminary notes on *Cœloplana*. Annot. zool. Japon. iv, pp. 103–198. [2 n. spp.]

2. Aders, W. M. Über die Theilung von *Protohydra leuckarti*. Zool. Anz. xxvi, pp. 35–39, 11 text-figg.

3. Agassiz, A. & Mayer, A. G. Medusæ (Reports on the scientific results of the expedition to the Tropical Pacific, in charge of A. Agassiz, by the U. S. Fish. Comm. steamer "Albatross," from August 1899 to March 1900). Mem. Mus. Harvard xxvi, pp. 139–176, pls. i–xiii, 1 fig., 1 map.
Summary, Zool. Centrlbl. ix, p. 763.

4. Alcock, A. Report on the deep-sea *Madreporaria* of the "Siboga"-Expedition. "Siboga"-Expeditie, Monographie xvi A, pp. 1–51, 5 pls., Leiden, edited by Dr Max Weber; and in Tijdschr. Nederland. Dierk. Ver. (2) vii, pp. 89–123.
Summary, Zool. Anz. xxv, p. 568.

5. Almera, D. J. Mas Graptolites en la mole del Tibidabo (Barcelona). Mem. Ac. Barcel. iv, No. 21, 11 pp.

6. Andrews, E. C. Preliminary note on the Geology of the Queensland coast, with references to the Geography of the Queensland and N. S. Wales Plateau. P. Linn. Soc. N. S. Wales xxvii, pp. 146–185. [Unimportant for *Cœlenterata*; coral growths.]

7. Apstein, C. Das Plankton der Ostsee. Abh. deutsch. Seefisch.-Ver. vii. [*Ctenophora*, p. 124.]

Ashworth, J. H. [See Hentschel & Ashworth (83).]

8. Barrois, C. Note sur les Graptolites de la Catalogne et leurs relations avec les étages graptolitiques de France. Bull. Soc. geol. France (4) i, pp. 637–646.

9. Bavay, A. Note sur un Distome parasite d'une Méduse. Arch. parasit. v, pp. 199 & 200.

10. Bedot, M. *Bathyphysa grimaldii* (nova species), Siphonophore bathypélagique de l'Atlantique Nord. Résultats des Compagnes scientifiques accomplies sur son yacht par Albert 1er Prince de Monaco. Fasc. v, 10 pp., 1 pl.

Bedot, M. [See Pictet & Bedot (135).]

11. Bernard, H. M. The species problem in Corals. Nature lxv, p. 560.

12. ——. Nomenclatur und Entwickelungslehre. Int. Zool. Congr. Berlin 1901, pp. 891–896.

13. Billard, A. Recherches sur la *Clava squamata* O. F. Müller. Bull. Mus. Paris viii, pp. 345–349.
Summary, Zool. Centrlbl. ix, 687.

14. Bourne, G. C. *Anthozoa*. Enc. Brit. xxv, pp. 454–464, 20 figg.

* An asterisk prefixed to a quotation indicates that the Recorder has not seen the work referred to.

15. Browne, E. T. Hydrozoa; a preliminary account. "Southern Cross" Collections, London, 1902, pp. 310–316. (= *Anthomedusæ*, *Leptomedusæ*, *Narcomedusæ*, *Stauromedusæ*, *Peromedusæ*, *Discomedusæ*, *Siphonophora*, *Physonectæ*, *Ctenophora*, but no descriptions.)

16. ——. A preliminary report on Hydromedusæ from the Falkland Islands. Ann. Nat. Hist. (7) ix, pp. 272–283.
Summary, Zool. Centrlbl. ix, p. 688.

17. Bütschli, G. Mechanismus und Vitalismus. Int. Zool. Congr. v, Berlin, pp. 212–235. [Mentions *Tabularia*.]

Cantrill, T. C. [See Strahan & Cantrill (162).]

18. *Carlgren, O. Die Actiniarien der Olga Expedition. Zool Ergebnisse einer Untersuchungsfahrt des deutschen Seefischerei Vereins nach der Bäreninsel und Westspitzbergen im Sommer 1898 auf S.M.S. "Olga," ii, Part iv, 1202, pp. 31–56, 1 pl., 10 text-figg.
Brief summary, Zool. Centrlbl. ix, p. 318.

19. ——. Die Actiniarien der Olga-Expedition. Wiss. Meersuntersuch. v, pp. 33–56, 1 pl., 11 text-figg.

20. ——. Jahresbericht für 1889, 1890, und 1891 über die Anthozoen. Arch. Naturg. lxi, pp. 235–298.

——. [See Hemprich & Ehrenberg (81).]

21. Caullery, M. & Mesnil, F. Sur *Staurosoma parasiticum* Will., Copépode gallicole, parasite d'une Actinie. C.R. Ac. Sci. cxxxiv, pp. 1314–1317.

22. Cerfontaine, P. Recherches expérimentales sur la régeneration et l'hétéromophose chez *Astroides calycularis* and *Pennaria cavolinii*. Arch. Biol. xix, pp. 245–315.

23. Citron, E. Beiträge sur Kenntnis des feineren Baues von *Syncoryne sarsii*. Arch. Naturg. lxviii, 1, pp. 1–26, pls. i & ii.

24. Clark, R. Notes on the fossils of the Silurian area of North-East Ireland. Geol. Mag. ix, pp. 497–500.

25. Clubb, J. A. Actiniæ; with an account of their peculiar brood chambers. "Southern Cross" Collections, London, 1902, pp. 294–309, pls. xlviii–lii.

26. Conte, A. [Reviews of papers on regeneration by Morgan, Stevens, Driesh, King, see Zool. Rec. xxxviii (90, 118, 71).] Annee biol. vi, pp. 173–175.

27. Crossland, C. The coral reefs of Zanzibar. P. Cambridge Soc. xi, pp. 493–503.

28. ——. The coral reefs of Pemba Island and of the East African Mainland. Op. cit. xii, pp. 36–43, 2 maps.

29. Daday, E. Mikroskopische Süsswasserthiere aus Patagonien, gesammelt von Dr Filippo Silvestri [im Jahre 1899 und 1900]. Termes. Fuzetek xxv, pp. 201–310, pls. ii–xv, 3 text-figg. [1 sp. mentioned.]

30. Dendy, A. On a free-swimming Hydroid, *Pelagohydra mirabilis*, n. gen. et sp. Quart. J. Micr. Sci. xlvi, pp. 1–24, pls. i & ii.

31. Döderlein, L. Die Korallengattung *Fungia*. Abh. Senckenb. Ges. xxvii, 1, 162 pp., 25 pls.

32. Downing, E. R. Ingestion and digestion in *Hydra*. Science xv, p. 523.

33. Drevermann, F. Die Fauna der Untercoblenzschichten von Oberstadtfeld bei Daun in der Eifel. Palæontogr. xlix, pp. 73–120, pls. ix–xiv. [Unimportant for *Cœlenterata.*]
Summary, Zool. Centrlbl. ix, p. 549.

34. Driesch, H. Über ein neues harmonisch-äquipotentielles System und über solche Systeme überhaupt. Arch. Entwickmech. xiv, pp. 227–246, 7 text-figg. [Unimportant for *Cœlenterata.*]
Summary, Zool. Centrlbl. ix, p. 672.

35. ——. Studien über das Regulationsvermögen der Organismen. 7. Zwei neue Regulationen bei *Tubularia.* T. c. pp. 532–538, 2 text-figg.
Summary, Zool. Centrlbl. ix, p. 765.

36. Duerden, J. E. [Review of Vaughan's work on "Some fossil corals from the elevated reefs of Curaçao, Arube and Bonaire," see Zool. Rec. xxxviii (132).] Science xv, pp. 143–145.

37. ——. Primary hexamerism in the *Rugosa* (*Tetracoralla*). T. c. p. 577.

38. ——. Aggregated colonies in Madreporarian corals. Amer. Natural. xxxvi, pp. 461–471, 3 text-figg.

39. ——. West Indian Madreporarian polyps. Mem. Ac. Washington viii, 7th Memoir, pp. 401–597, pls. i–xxv.

39a. ——. Development of *Gonionema murbachii.* P. Ac. Philad. liv, pp. 750–790, pls. xxxi–xxxiv.

40. ——. Relationships of the *Rugosa* (*Tetracoralla*) to the living Zoantheæ. Ann. Nat. Hist. (7) ix, pp. 381–398, 12 figg. [Also in Johns Hopkins Univ. Circ. xxi, pp. 19–25, 12 figg.]
Summary, Zool. Centrlbl. ix, p. 439, and in J. R. Micr. Soc. p. 437.

41. ——. The morphology of the Madreporaria. ii. Increase of mesenteries in *Madrepora* beyond the protocnemic stage. Op. cit. (7) x, pp. 96–115, 13 text-figg. [Also in Johns Hopkins Univ. Circ. xxi, No. 157, pp. 59–66.]
Summary, Zool. Centrlbl. ix, p. 439.

42. ——. The morphology of the Madreporaria. iii. The significance of budding and fission. T. c. (7) x, pp. 382–393, 4 text-figg.

Ehrenberg, C. G. [See Hemprich & Ehrenberg (81).]

43. Elbert, J. Das untere Angoumien in der Osningbergketen des Teutoburger Waldes. Verh. Ver. Rheinland lviii, pp. 77–164, 4 pls., 12 figg.

44. Elrod, M. J. & Ricker, M. A new Hydra. Tr. Amer. micr. Soc. xxiii, pp. 257 & 258.

45. Etheridge, R. Additions to the Middle Devonian and Carboniferous Corals in the Australian Museum. Rec. Austral. Mus. iv, pp. 253–262, pls. xxxvii–xl.

46. Flamand, G. B. M. Sur la présence du terrain carbonifèrien dans le Tidikelt (Archipel touatien) Sahara. C.R. Ac. Sci. cxxxiv, pp. 1533–1536.

47. Forel, F. A. Le Léman, monographie limnologique. iii. Lausanne, 1902. [*Cœlenterata*, p. 128.]

48. F[owler], G. H. *Cœlenterata.* Enc. Brit. xxvii, pp. 130 & 131.

49. ——. *Ctenophora.* T. c. pp. 300 & 301, 4 figg.

50. Fox, H. On the distribution of fossils on the north coast of Cornwall, south of the Camel. Tr. Geol. Soc. Cornwall xii, pp. 535–545. [List of spp. found—unimportant for *Cœlenterata.*]

51. Frič, A. & Vavra, V. Untersuchungen über die Fauna der Gewässer Böhmens. v. Untersuchungen des Elbeflusses und seiner Altwässer durchgeführt auf der übertragbaren zoologischen Station. Arch. Landesf. Bohmen ii, 3, 1901, 156 pp., 119 text-figg. [*Cœlenterata*, p. 89—unimportant.]
Summary, Zool. Centrlbl. ix, p. 730.

52. Friedemann, O. Untersuchungen über die postembryonale Entwicklung von *Aurelia aurita.* Zeitschr. wiss. Zool. lxxi, pp. 227–267, pls. xii & xiii, and 3 text-figg.
Summary, J. R. Micr. Soc. p. 310.

53. Fuchs, T. Über den charakter der Tiefseefauna des Rothen Meeres auf Grund der von österreichischen Tiefsee-Expeditionen gewonnen Ausbeute. SB. Ak. Wien (Math.) cv, 1, pp. 249–258. [Unimportant.]
Summary, Zool. Centrlbl. ix, p. 758.

54. Gardiner, J. S. On the unit of classification for Systematic Biology. P. Cambridge Soc. xi, pp. 423–427.

55. ——. Some notes on variation and protandry in *Flabellum rubrum*, and senescence in the same and other corals. T. c. pp. 463–471.
[Supplement to "Marine Investigations in S. Africa," published by the Dep. Agric. Cape Colony.]

56. ——. Dangers of coral reefs to navigation. Nature lxv, p. 585.

57. ——. The Maldive and Laccadive Groups, with notes on other Coral Formations in the Indian Ocean (continued). Fauna and Geography of the Maldive and Laccadive Archipelagoes i, 2, pp. 146–183, 33 text-figg., pls. viii–xii.

58. ——. South African Corals of the genus *Flabellum*, with an account of their anatomy and development. Marine Investigations of S. Africa ii, pp. 117–154, pl. iv.

59. Gardiner, C. I. & Reynolds, S. H. The fossiliferous Silurian beds and associated igneous rocks of the Clogher Head district (Co. Kerry). Quart. J. Geol. Soc. lviii, pp. 226–266, and map.

60. Giattini, G. B. Fossili del Lovcen nel Montenegro. Riv. ital. Pal. viii, pp. 62–66, pls. v & vi.

61. Godlewski, E. Regeneration in *Tubularia* after longitudinal splitting. Prelim. Comm. Bull. Ac. Cracovie 1902, No. 7, pp. 387–396, 11 figg.

62. Goldsmith, M. [Review of Pearl's paper, see Zool. Rec. xxxviii (106)]. Annee biol. vi, p. 281.

Grabau, A. W. [See Shimer & Grabau (157).]

Grant, F. E. [See Thiele & Grant (165).]

63. Gravier, C. Sur un *Cérianthaire* pélagique adulte. C.R. Ac. Sci. cxxxv, pp. 591–593.

64. ——. Sur les collections d'Invertébrés rapportées de la Guyane française par M. F. Geay. Bull. Mus. Paris vii, p. 226 [unimportant for *Cœlenterata*].

——. [Cf. Perrier & Gravier (134).]

65. [Bibliographical Notice. Review of the paper by GREGORY (vide Zool. Rec. XXXVIII (43)) on the Jurassic Corals of Cutch.] Ann. Nat. Hist. (7) x, pp. 170–172.

66. HALL, T. S. New or little known fossils from the Tertiaries of Victoria. P. Soc. Victoria xv, pt. 1, pp. 80–85, pl. xi.

67. *——. The Graptolites of New South Wales, in the collection of the Geological Survey. Rec. Geol. Survey N. S. Wales vii, pt. 2, pp. 49–59, pls. xii–xiv.

68. HARGITT, C. W. Notes on a few Medusae new to Woods Holl. Biol. Bull. iv, pp. 13–23, 7 text figg.

69. ——. Notes on the Cœlenterate fauna of Woods Holl. Amer. Natural. xxxvi, pp. 549–560, 4 text figg.

70. ——. Notes on *Cyanea arctica.* Science xv, p. 571.

71. ——. Variation among *Hydromedusæ.* Op. cit. xvi, p. 344.

72. HARGITT, G. T. Notes on the regeneration of *Gonionema.* Biol. Bull. iv, pp. 1–12, 11 text figg.
Experiments upon the regeneration (1) of the marginal organs of the medusae ; (2) of the manubrium ; (3) of the radial canals.

73. HARM, K. Die Entwicklungsgeschichte von *Clava squamata.* Zeitschr. wiss. Zool. lxxiii, pp. 115–165, pls. vii–ix.

74. HARTZ, N. Bidrag til Danmarks senglaciale Flora og Fauna. Danmarks geol. Unders. ii, 11, pp. 1–80, pls. [Mentions some *Hydromedusæ.*]

75. HAZEN, ANNAH P. Regeneration in *Hydractinia* and *Podocoryne.* Amer. Natural. xxxvi, pp. 193–200, 6 text figg.

76. ——. The regeneration of an œsophagus in the anemone, *Sagartia luciæ.* Arch. Entwickmech. xiv, pp. 592–599, pl. xxxi.
Summary, Zool. Centrlbl. ix, pp. 772.

77. HEFFERAN, MARY. Experiments in grafting *Hydra.* Science xv, p. 467.

78. ——. Experiments in grafting *Hydra.* Arch. Entwickmech. xiii, pp. 565–587, pls. xxiii–xxv, 2 text figg.
Summary, Zool. Centrlbl. ix, p. 765.

79. HEIN, W. Bemerkungen zur Scyphomedusen-Entwicklung. Zool. Anz. xxv, pp. 637–640, 641–645.

80. ——. Untersuchungen über die Entwicklung von *Cotylorhiza tuberculata.* Zeitschr. wiss. Zool. lxxiii, pp. 302–320, pls. xx & xxi.

81. HEMPRICH, F. G. & EHRENBERG, C. G. Symbolæ Physicæ [supplement]. Zoologica. Phytozoa, pls. vii–ix & xi ; descriptions of plates vii–ix by O. Carlgren ; of pl. xi, by W. Weltner. Berlin, 1899.
[Previously overlooked.]

82. HENNIG, A. *Leptophyllia baltica*, n. sp. aus der Mammillaten-Kreide des N. Ö. Schonens. Bih. Svenska Ak. xxvi, 17 pp.

83. HENTSCHEL, E. & ASHWORTH, J. H. Cœlenterata. Zool. Jahresber. 1901, 16 pp.
Summary, Zool. Anz. xxv, p. 568.

84. HERDMAN, W. A. Fifteenth annual report of the Liverpool Marine Biology Committee and their biological station at Port Erin. P. Liverp. biol. Soc. xvi, pp. 27–66.

85. [Herdman, W. A.] Guide to the Port Erin Aquarium, t. c. [*Cœlenterata*, pp. 72–78, 4 figg.]

86. Horst, R. On a case of commensalism of a fish (*Amphiprion intermedius* Schleg.) and a large Sea-Anemone (*Discosoma* sp.). Notes Leyden Mus. xxiii, pp. 180–182.

87. Hyde, Ida H. The nervous system in *Gonionema murbachii*. Biol. Bull. iv, pp. 40–45, 3 text figg.

88. Ianischewsky, M. (Die Fauna des Carbonkalks im Gebiete des Flusses Schartymka am östlichen Abfalle des Urals.) Trudui Kazan. Univ. xxxiv. [Summary in German, pp. i–iv.]
Several spp. mentioned—unimportant.

89. Ijima, J. Studies on the Hexactinellida. J. Coll. Japan xv, pp. 1–299, pls. i–xiv.
Includes notes on commensal *Hydrozoa*.

90. Janensch, W. Die Jurensisschichten des Elsass. Abh. geol. Karte Elsass v, pp. 16–129, etc.

91. Jourdan, E. Zoanthaires provenant des campagnes du yacht l'*Hirondelle* (Golfe de Gascogne, Açoes, Terre-Neuve). Résultats des campagnes scientifiques accomplies sur son yacht par Albert 1er Prince de Monaco. Fasc. viii, 36 pp., 2 pls.

92. Kerforne, F. Note sur quelques échantillons de Graptolites de Bretagne intéressants au point de vue de l'organisation et du développement. Bull. Soc. Sci. Med. Ouest France xi, pp. 124–127, 9 figg.

93. ——. Sur le Gothlandien inférieur du massif armoricain. C.R. Ac. Sci. cxxxv, pp. 123 & 124.

94. Kishinouye, K. Some new Scyphomedusæ of Japan. J. Coll. Japan xvii, 7, pp. 1–17, 2 pls.
Stenoscyphidæ, nov. fam.

95. Kükenthal, W. Diagnosen neuer Alcyonarien aus der Ausbeute der Deutschen Tiefseeexpedition. Zool. Anz. xxv, pp. 299–303.

96. ——. Diagnosen neuer Umbelluliden aus der Ausbeute der deutschen Tiefseeexpedition. T. c. pp. 593–597.

97. ——. Versuch einer Revision der Alcyonarien. I. Die Familie der Xeniiden. Zool. Jahrb. Syst. xv, pp. 635–662.
Summary, Zool. Centrlbl. ix, p. 733.

98. ——. Leitfaden für das zoologische Praktikum. Jena, 1901.
[*Cœlenterata*, pp. 45–75, text figg. 37–63.]

99. Labbé, A. [Review of Vignon's paper ; see Zool. Rec. xxxviii (138).] Annee biol. vi, p. 42.

100. Lameere, —. Sur l'origine des Siphonophores. Ann. Soc. malac. Belgique xxxvii, pp. v–xviii.

101. Lebedew, W. [Die Bedeutung der Korallen in den devonischen Ablagerung Russlands.] Trudui geol. Kom. xvii, pp. 1–135. [German summary, pp. 137–186.]

102. Lendenfeld, R. von. Die Arbeiten von Agassiz über die Korallriffe der Fidschiinseln. Biol. Centrbl. xxii, pp. 82–96.

103. Levander, K. M. Förekomsten af Ctenophorer i Östersjön. Medd. Soc. Faun. Fenn. xxv, pp. 104 & 105.
Summary, Zool. Anz. xxv, p. 346.

104. LINKO, A. Beitrag zur Kenntnis der Hydromedusen. Zool. Anz. xxv, pp. 162–164, 2 text figg.
Summary, Zool. Centrlbl. ix, p. 689.

105. MAAS, O. Über Medusen aus dem Solenhofer Schiefer und der unteren Kreide der Karpathen. Palæontogr. xlviii, pp. 297–321, 2 pls. and 9 figg. (3 n. spp., 3 n. g. = *Myogramma*, *Cannostomites*, *Atollites*).
Summary, Zool. Anz. xxv, p. 346.

106. MACMUNN, C. A. On the pigments of certain corals, with a note on the pigment of an Asteroid. Fauna and Geography of the Maldive and Laccadive Archipelagoes i, 2, pp. 184–190, fig. 34.

107. MAGGI, L. La tachigenesi e gli studi universitari. Rend. Ist. Lombardo (2) xxxv, pp. 823–834. [Refers to *Cœlenterata*, p. 828.]

108. MARTELLI, A. Il Devoniano superiore dello Schensi (Cina). Boll. Soc. geol. Ital. xxi [p. 368, pl. xiv, fig. 3 = *Aulopora tubæformis*].

109. ——. I fossili dei Terreni eocenici di Spalato. Palæontogr. ital. viii, pp. 43–97. [Unimportant for *Cœlenterata*.]

110. MAY, W. Die neueren Forschungen über die Bildung der Korallenriffe. Zool. Centrlbl. ix, pp. 229–245.

——. [See PRUVOT (140).]

MAYER, A. G. [See AGASSIZ & MAYER (3).]

——. [See PRUVOT (140).]

111. MENON, K. R. Note on Semper's larvæ. P. Cambridge Soc. xi, pp. 407–417, pl. iv.

MESNIL, F. [See CAULLERY & MESNIL (21).]

112. MOBERG, J. C. Didymograptusskiffer. Geol. Foren. Stockholm Forh. xxiv, pp. 44–48.

113. ——. Om Sularpsbäckens dalgång. T. c. pp. 303–308. [Mentions some Graptolites.]

114. MONROE, C. E. Notes on a collection of Hamilton fossils, from the town of Bethany, Genesee Co. N. Y. Bull. Wisconsin Soc. ii, pp. 57–67. [Corals and *Hydrozoa*.]

115. MORGAN, T. H. Regeneration. Columbia University Biological Series, vii. New York, 1901, xii + 316 pp.
Review by LABBÉ, Annee biol. vi, p. 172.

116. ——. Further experiments on the regeneration of *Tubularia*. Arch. Entwickmech. xiii, pp. 528–544, 25 text-figg.
Summary, Zool. Centrlbl. ix, pp. 766 & 780.

117. MOROFF, T. Aus der Münchener Sammlung. 3. Einige neue Pennatuliden aus der Münchener Sammlung. Zool. Anz. xxv, pp. 579–582.

118. ——. Einige neue japanische Gorgoniaceen in der Münchener Sammlung; gesammelt von Dr Haberer. T. c. pp. 582 & 583.

119. ——. Studien über Octocorallien. Zool. Jahrb. Syst. xvii, pp. 363–410, pls. xiv–xviii.
1. Ueber die Pennatulaceen des Münchener Museums, pp. 363–403.
2. Ueber einige neue Gorgonaceen aus Japan, pp. 404–409.

120. MUNTHE, H. Stratigrafiska studier öfver Gotlands silurlager. Geol. Foren. Stockholm Forh. xxiv, pp. 221–273. [*Cœlenterata* mentioned in the lists of spp.]

121. Nichols, A. R. [*Cœlenterata.*] Rep. Brit. Ass. 1902, pp. 233–236.

122. Nickles, J. M. The geology of Cincinnati. J. Cincinnati Soc. xx, pp. 49–100.

123. Oppenheim, P. Ueber ein reiches Vorkommen oberjurassischer Riffkorallen im norddeutschen Diluvium. Zeitschr. Deutsch. geol. Ges. liv, pp. 84–89.

124. Osasco, E. Contribuzione allo studio dei coralli Cenozoici. Palæontogr. ital. viii, pp. 99–120, pls. viii & ix (n. spp.).

125. Ostroumova, A. *Rhizostoma pulmo-octopus* [in Russian]. Protok. Kazan. Univ. 1897–1898, No. 172.

126. Papp, C. Über triadische Tabulaten. Foldtani Kozl. xxxii, pp. 247–252.

127. Parker, G. H. Contributions from the Zoological Laboratory of the Museum of Comparative Zoology at Harvard College. E. L. Mark, Director. No. 133. Notes on the dispersal of *Sagartia luciæ* Verrill. Amer. Natural. xxxvi, pp. 491–493.

128. Pauly, R. Untersuchungen über den Bau und die Lebensweise der *Cordylophora lacustris* Allman. Jena. Zeitschr. xxxvi, pp. 737–780.

129. Peebles, Florence. Further experiments in regeneration and grafting of Hydroids. Arch. Entwickmech. xiv, pp. 49–64, 36 text-figg.
Summary, Zool. Centrlbl. ix, p. 770.

130. Perkins, H. F. Notes on the anatomy and histology of a new form of *Cladonema* from the Bahamas. Johns Hopkins Univ. Circ. xxi, pp. 25–27, 1 pl.

131. ——. Budding in the larvæ of *Gonionema murbachii.* T. c. pp. 87–89, 10 figg.
Summary, Zool. Centrlbl. ix, p. 690.

132. ——. The development of *Gonionema murbachii.* P. Ac. Philad. liv, pp. 750–790, pls. xxxi–xxxiv.

133. ——. Degeneration phenomena in the larvæ of *Gonionema.* Biol. Bull. iii, pp. 172–180, 7 text-figg.

134. Perrier, E. & Gravier, C. La tachygénèse ou accélération embryogénique, son importance dans les modifications des phénomènes embryogéniques, son rôle dans la transformation des organismes. Ann. Sci. nat. xvi, pp. 133–371, 119 text-figg.

135. Pictet, C. & Bedot, M. Hydraires provenant des compagnes de l'*Hirondelle.* Résultats des campagnes scientifiques accomplies sur son yacht par Albert 1er Prince de Monaco. Fasc. xviii, 60 pp., 10 pls.

136. Poche, F. Ueber zwei neue in Siphonophoren vorkommende Flagellaten nebst Bemerkungen über die Nomenclatur einiger verwandter Former. Arb. Inst. Wien xiv, No. 3, pp. 1–52, 1 pl.

137. Portier, P. & Richet, C. Sur l'hypnotoxine des Cœlentérés et sur son action anaphylactique. Rev. gen. Sci. xiii, p. 281.

138. —— & ——. Sur les effets physiologiques du poison des filaments pêcheurs et des tentacules des Cœlentérés (hypnotoxine). C.R. Ac. Sci. cxxxiv, pp. 247 & 248.

139. Pratt, Edith M. The mesoglœal cells of *Alcyonium.* (Preliminary account.) Zool. Anz. xxv, pp. 545–548, 3 text-figg.

140. PRUVOT, G. [Review of MAY, "La faune des Alcyonaires arctiques, subarctiques et antarctiques." Fauna Arct. Romer Schaudinn i, pp. 379–408; also of MAYER, "Quelques Méduses des iles Tortugas, Floride." Bull. Mus. Harvard xxxvii, No. 2, 82 pp.] Annee biol. vi, pp. 393 & 394.

141. REED, F. R. C. Woodwardian Museum Notes: Salter's undescribed species. VIII. Geol. Mag. ix, pp. 256–259, pl. xvi, and pp. 337–342, pl. xviii.

142. REIS, O. M. Die Korallen der Reiter Schichten. 4 pls. Geognost. Jahresh. ii, 1889, pp. 91–162.
Summary, Zool. Anz. xxv, p. 476.

143. REMES, M. Nachträge zur Fauna von Stramberg. 1. Die Fauna des rothen Kalksteins. (Nesselsdorfer Schichten.) Beitr. Pal. Oesterr.-Ung. xxiv. [*Cœlenterata*, p. 196.]

REYNOLDS, S. H. [See GARDINER & REYNOLDS (59).]

RICHET, C. [See PORTIER & RICHET (137).]

144. RICKER, M. [Red *Hydra* from Montana.] Science xv, p. 388.

——. [See ELROD & RICKER (44).]

145. RITTER, W. E. A summer's dredging on the coast of Southern California. Science xv. [*Cœlenterata*, p. 64.]

146. ROULE, L. *Anthozoa*. Alcyonaria (*Clavularia*). "Southern Cross" Collection. London, 1902, pp. 290–293, pl. xlvii, figg. 1–3.

147. ——. Notice preliminaire sur les Antipathaires provenant des collections du Prince du Monaco. Mem. Soc. zool. France xv, pp. 228–239.

148. ROWLEY, HANNAH T. Histological changes in *Hydra viridis* during regeneration. Amer. Natural. xxxvi, pp. 579–583.

149. SAEMUNDSSON, B. Bidrag til Kundskaben om de islandke Hydroides. Vid. Medd. 1902, pp. 47–74, pls. i & ii. [Danish.]
Summary, Zool. Centrlbl. ix, p. 622.

150. SAINT-REMY, G. [Review of MORGENSTERN'S paper, see Zool. Rec. XXXVIII (91).] Annee biol. vi, p. 84.

151. SCHAFFER, F. Beitrage zur Kenntnis des Miocänbeckens von Cilicien. Jahrb. geol. Reichsanst. lii, pp. 1–38. [Unimportant; mentions several corals.]

152. SCHNEIDER, K. C. Lehrbuch der vergleichenden Histologie der Tiere. Jena, 1902, xiv+988 pp., 691 text-figg.

153. SCHRADER, F. C. Geological section of the Rocky Mountains in Northern Alaska. Bull. Geol. Soc. Amer. xiii, pp. 233–252, pls. xl–xliii.

154. SCHULTZ, E. Ueber das Verhältnis der Regeneration zur Embryonalentwicklung und Knospung. Biol. Centrbl. xxii, pp. 360–368.

155. SCHWARZE, W. Beiträge zur Kenntniss der Symbiose im Tierreich. Hamburg, 1902. Programm (Johanneum) gr. 8vo, 40 pp. [Symbiosis between crabs and *Anthozoa*.]
Summary, Zool. Centrlbl. ix, pp. 331–334.

156. SHERRINGTON, C. S. Swarm of *Velella*. Nature lxv, p. 586.

157. SHIMER, H. W. & GRABAU, A. W. Hamilton Group of Thedford, Ontario. Bull. Geol. Soc. Amer. xiii, pp. 149–186.

158. Skorikow, A. S. Die Erforschung des Potamoplanktons in Russland. Biol. Centrbl. xxii, pp. 551–570.

159. Steuer, A. Mittheilungen aus der k. k. zoologischen Station in Triest. 4. Beobachtungen über das Plankton des Triester Golfes im Jahre 1901. Zool. Anz. xxv, pp. 369–372, 1 pl.
Summary, Zool. Centrlbl. ix, p. 494.

160. Stevens, N. M. Regeneration in *Tubularia mesembryanthemum*. Arch. Entwickmech. xv, pp. 319–326, 13 text-figg.

161. ——. Regeneration in *Antennularia ramosa*. T. c. pp. 429–447, 12 text-figg.

162. Strahan, A. & Cantrill, T. C. The geology of the South Wales coal-field. III. Cardiff. Mem. geol. Surv. U. K. 1902. [Unimportant for *Cœlenterata*.]

163. Strijoff, J. N. Origine des calcaires et formation des recifs de corail [in Russian]. I. Bull. Soc. Oural. xxiii, pp. 1–109.

164. Studer, T. Alcyonaires provenant des campagnes de l'*Hirondelle* (1886–1888). Résultats des campagnes scientifiques accomplies sur son yacht par Albert Ier Prince de Monaco. Fasc. xx, 64 pp., 11 pls.

165. Thiele, E. O. & Grant, F. E. On the fossil contents of the Eocene clays of the Altona Coal Shaft. P. Soc. Victoria xiv, pt. 2, pp. 145–152. [*Actinozoa*, p. 151.]

166. Thiry, G. [Review of Mesnil's paper; see Zool. Rec. xxxviii (86).] Annee biol. vi, p. 67.

167. Thomas, R. H. Swarm of *Velella*. Nature lxv, p. 586.

168. Thompson, I. C. Swarm of *Velella*. Nature lxv, p. 560.

169. Törnquist, S. L. Researches into the Graptolites of the lower zones of the Scanian and Vestrogothian Phyllo-Tetragraptus beds. I. Acta Univ. Lund. 1901, xxxvii, 32 pp., 3 pls.

170. Torrey, H. B. The Hydroida of the Pacific coast of North America. Univ. Calif. Publ. i, pp. 1–104, pls. i–xi.

171. ——. Papers from the Harriman Alaska Expedition. xxx. Anemones, with discussion of variation in *Metridium*. P. Washington Ac. iv, pp. 373–410, pls. xxiv & xxv, text-figg. 5–21.

172. Trouessart, E. Instructions aux naturalistes voyageurs pour la récolte des Arthropodes marins microscopiques. Bull. Soc. zool. France xxvii, pp. 23–27. [Unimportant for *Cœlenterata*.]

173. Vanhöffen, E. Jahresbericht für 1894, 1895 über die Cœlenteraten mit Ausschluss der Spongien und Anthozoen. Arch. Naturg. lxi, pp. 199–234.

174. Vaughan, T. W. Some recent changes in the nomenclature of West Indian corals. P. Soc. Washington xv, pp. 53–58.

175. ——. An addition to the coral fauna of the Aquia Eocene formation of Maryland. T. c. pp. 205 & 206.

176. ——. A redescription of the coral *Platytrochus speciosus*. T. c. pp. 207–209, 5 figg.

Vavra, V [See Frič & Vavra (51).]

177. Verrill, A. E. Additions to the fauna of the Bermudas from the Yale Expedition of 1901, with notes on other species. Tr. Connect. Ac. xi, 1, pp. 47–54, pls.

178. [Verrill, A. E.] Variations and nomenclature of Bermudian, West Indian and Brazilian Reef Corals, with notes on various Indo-Pacific Corals. T. c. pp. 63–168, 8 figg.

179. ——. Comparisons of the Bermudian, West Indian and Brazilian Coral faunae. T. c. pp. 169–206, pls. x–xxxv.

180. ——. Notes on Corals of the genus *Acropora* (*Madrepora* Lam.) with new descripitons and figures of types, and of several new species. T. c. pp. 207–266, pls. xxxvi & xxxvi F.

181. Versluys, J. Die Gorgoniden der Siboga-Expedition. I. Die *chrysogorgiidæ*. Siboga-Expeditie. Monograph xiii, pp. 1–120, 170 text-figg.; Leiden, Edited by Dr Max Weber.
Abstr. Zool. Anz. xxvi, p. 89.

182. Wanner, J. Die Faunen der obersten weissen Kreide in der libyschen Wüste. Palaeontogr. xxx, pp. 91–151. [N. spp. in *Brachycyathus*, *Trochocyathus* 2, *Caryophyllia*, *Oculina*, *Leptoria*, *Cœlosmilia*, *Caryosmilia* n. g., *Oroseris*, *Palæopsammia* n. g. 2.]

Weltner, W. [See Hemprich & Ehrenberg (81).]

183. Wiman, C. Ueber die Borkholmer Schicht im Mittelbaltischen Silurgebiet. Bull. geol. Inst. Upsala v, pp. 149–222, 4 pls., 11 figg.

184. Wulfert, J. Die Embryonalentwicklung von *Gonthyræa loveni* Allm. Zeitschr. wiss. Zool. lxxi, pp. 296–327, pls xvi–xviii.
Summary, Zool. Centrlbl. ix, p. 693 and in J. R. Micr. Soc. p. 311.

185. Yerkes, R. M. A contribution to the physiology of the nervous system of the Medusa *Gonionemus murbachii*. I. The sensory reactions of *Gonionemus*. Amer. J. Physiol. vi, pp. 434–449.

186. ——. A contribution to the physiology of the nervous system of the medusa *Gonionema murbachii*. II. The physiology of the central nervous system. Op. cit. vii, pp. 181–198.

187. Yoshiwara, S. Notes on the raised coral reefs in the islands of the Riukiu Curve. J. Coll. Japan xvi, pp. 1–14, 2 pls.

I. GENERAL

(i.e. works relating to *Cœlenterata* generally).

[The following memoirs refer to *Cœlenterata* generally:—Andrews (6), Fowler (48), Hentschel & Ashworth (83), Herdman (84), Kükenthal (98), Morgan (115), Nickles (122), Perrier & Gravier (134), Portier & Richet (137).]

SUBJECT INDEX (to General).

General Biology.

Review of work for 1901, Hentschel & Ashworth (83).
Structure and classification: General account in text-book, Kükenthal, (98).
General classification and characters, Fowler (48).
Regeneration, Morgan (115 & 116).
Tachygenesis in *Cœlenterata*, Perrier & Gravier (134).
Physiology of the poison of the nematocysts, and of the tentacles of Cœlenterates, Portier & Richet (137).

Geography.

Port Erin, guide to the Aquarium, Herdman (85).
Port Erin, collections, Herdman (84).
†Cincinnati, geology of, including fossil *Cœlenterata*, Nickles (122).
Queensland coast, coral growths, Andrews (6).

II. HYDROMEDUSÆ (or HYDROZOA).

[The following memoirs refer to *Hydromedusæ* :—Aders (2); Agassiz & Mayer (3); Bedot (10); Billard (13); Browne (15 & 16); Bütschli (17); Citron (23); Dendy (30); Downing (32); Driesch (35); Elbert (43); Elrod & Ricker (44); Forel (47); Godlewski (61); Hargitt (68–71); Harm (73); Hartz (74); Hazen (75); Hefferan (77 & 78); Hyde (87); Ijima (89); Lameere (100); Linko (104); Monroe (114); Morgan (116); Pauly (128); Peebles (129); Perkins (130–133); Pictet & Bedot (135); Poche (136); Portier & Richet (137); Ricker (144); Ritter (145); Rowley (148); Saemundsson (149); Schneider (152); Schultz (154); Sherrington (156); Skorikow (158); Steuer (159); Stevens (160 & 161); Thomas (167); Thompson (168); Torrey (170); Vanhöffen (173); Wulfert (184); Yerkes (185 & 186).]

SUBJECT INDEX (*Hydromedusae* specially).

General Biology.

Review of work published in 1894, 1895, Vanhöffen (173).
Habits of the colony in *Syncoryne sarsii*, Citron (23).
Commensalism with *Hexactinellida*, Ijima (89).
Seasonal aspects and life-history of various spp., Hargitt (69).
Parasitism of *Siphonophora* by *Flagellata*, Poche (136).
Origin of *Siphonophora*; individuality of colonies discussed, Lameere (100).
Anatomy, histology and mode of life of *Cordylophora lacustris*, Pauly (128).
Anatomy and histology of a new form of *Cladonema*, Perkins (130).
Anatomy, histology and development of the hydroid and medusoid of *Pelagohydra mirabilis*, n. gen. et sp., Dendy (30).
Anatomy of 22 n. spp. of Hydroida, with some results of experiments on their response to light and tactile stimulation, Torrey (170).
Histology, Schneider (152).
Histology of *Syncoryne sarsii*, Citron (23).
Sexual cells, Linko (104).
Nervous system of *Gonionema murbachii*, Hyde (87).
Histological changes in *Hydra viridis* during regeneration, Rowley (148).
Regeneration in *Gonionema*, Hargitt (72).
Regeneration in *Hydractinia* and *Podocoryne*, Hazen (75).
Regeneration of *Tubularia*, Morgan (116).
Regeneration after longitudinal splitting in *Tubularia*, Godlewski (61).
Regeneration in *Antennularia ramosa*, Stevens (161).
Regeneration in *Tubularia mesembryanthemum*, Stevens (160).
Regeneration, Schultz (154).
Regeneration and grafting in Hydroids, Peebles (129).

† Refers to fossil forms.

Grafting and regeneration experiments on *Clava squamata*, BILLARD (13).
Regulated reduction in *Tubularia*, DRIESCH (35).
Grafting experiments in *Hydra*, HEFFERAN (77 & 78).
Physiology; sensory reactions of *Gonionemus murbachii*, YERKES (185).
Physiology of the central nervous system of *Gonionema murbachii*, YERKES (186).
Ingestion and digestion in *Hydra*, DOWNING (32).
Hypnotic effect of poison contained in the nematocysts of *Physalia* etc., PORTIER & RICHET (137).
Degeneration phenomena in the larvæ of *Gonionema*, PERKINS (133).
Budding of the larvæ of *Gonionema murbachii*, PERKINS (131).
Asexual division in *Protohydra leuckarti*, ADERS (2).
Development of *Gonionema murbachii*, DUERDEN (39A).
Development and organogenesis of *Clava squamata*, HARM (73).
Development and organogenesis of *Gonothyræa loveni*, WULFERT (184).
Variation, HARGITT (71).

GEOGRAPHY.

Iceland, list of 60 spp. collected, SAEMUNDSSON (149).
†Denmark, fossil forms, HARTZ (74).
Lake Geneva, 2 spp., FOREL (47).
Triest, plankton, STEUER (159).
Alassio, swarm of *Velella*, SHERRINGTON (156).
Riviera, Alassio, swarm of *Velella*, THOMAS (167).
Mentone, swarm of *Velella*, THOMPSON (168).
North Atlantic, n. sp., BEDOT (10).
Gulf of Gascony and the Azores, PICTET & BEDOT (135).
North America, Pacific Coast, 22 n. spp., 1 n. g., TORREY (170).
Southern California, RITTER (145).
Woods Holl, 2 n. spp., HARGITT (69); notes on some Medusæ new to this region, HARGITT (68).
Tropical Pacific, 15 n. spp., AGASSIZ & MAYER (3).
Bahamas, new form of *Cladonema*, PERKINS (130).
Falkland Islands, n. spp., BROWNE, Ann. Nat. Hist. (7) ix, pp. 272–283.
New Zealand, South Island, n. gen. et sp., DENDY (30).

SYSTEMATIC.

Hydrozoa, commensal with *Hexactinellida*, IJIMA, J. Coll. Japan xv, pp. 1–299.
Hydrozoa, comparative histology, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 206–212, 572–617, and in general section, pp. 1–176, text-figg.
Hydroids from Iceland, 66 spp., localities and synonymy given, but no descriptions, SAEMUNDSSON, Vid. Medd. 1902, pp. 47–74, pls. i & ii.
Hydroids from the "*Hirondelle*" expedition, descriptions of species, with localities and synonymy, PICTET & BEDOT, Resultats Monaco xx, 60 pp., 10 pls.
Siphonophora, origin of, LAMEERE, Ann. Soc. malac. Belgique xxxvii, pp. v–xviii.
Abyla quincunx, p. 163, pl. xi, figg. 46 & 47, *A. leuckartii*, p. 165, *A. huxleyi*, p. 166, pl. xi, fig. 48, distribution, AGASSIZ & MAYER, Mem. Mus. Harvard xxvi.
Aglaisma quincunx, characters and distribution, AGASSIZ & MAYER, t. c. p. 164, pl. x, fig. 45.
Aglantha conica, Woods Holl (*Aglauridæ*), HARGITT, Biol. Bull. iv, pp. 21 & 22, fig. 7, **n. sp.**

Aglaophenia pluma, figure, TORREY, Univ. Calif. Publ. i, p. 73, pl. x, figg. 90 & 91.

A. diegensis, p. 71, pl. ix, figg. 84–86, *A. inconspicua*, p. 72, figg. 87–89, California, structure, TORREY, t. c. **n. spp.**

Aglauropsis conantii, Falkland Islands (*Petasidæ*), BROWNE, Ann. Nat. Hist. (7) ix, p. 283, **n. sp.**

Amphicodon unicus, Falkland Islands (*Codonidæ*), BROWNE, t. c. p. 276, **n. sp.**

Antenella avalonia, p. 74, pl. x, figg. 92–94, California, TORREY, Univ. Calif. Publ. i, **n. spp.**

Antennularia ramosa, regeneration, STEVENS, Arch. Entwickmech. xv, pp. 429–447, 12 text-figg.

Anthemodes moseri, Funafuti, p. 167, pl. xii, figg. 49–57, AGASSIZ & MAYER, Mem. Mus. Harvard xxvi, **n. sp.**

Apolemia uvaria, histology of the stem, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 605–609, text-figg. 497 & 498.

Bathyphysa grimaldii, N. Atlantic, characters, affinities and locality, BEDOT, Resultats Monaco v, 10 pp., 1 pl., **n. sp.**

Bimeria annulata, figure, TORREY, p. 28, pl. i, figg. 1–3. *B. franciscana*, p. 28, pl. i, fig. 4, San Francisco Bay, *B. robusta*, p. 79, figg. 5–7, San Pedro, characters, TORREY, Univ. Calif. Publ. i, **n. spp.**

Bougainvillia fulva, Funafuti, characters, AGASSIZ & MAYER, Mem. Mus. Harvard xxvi, p. 145, pl. ii, fig. 8.

Calycella syringa, figure, TORREY, Univ. Calif. Publ. i, p. 59, pl. vi, fig. 50.

Campalecium **n. g.** for *C. medusiferum*, **n. sp.**, California, characters, TORREY, t. c. p. 48, pl. iii, figg. 26–29.

Campanularia denticulata, p. 51, pl. iv, fig. 34, *C. everta*, figg. 35–37, *C. pacifica* (=*Laomedea* Ag.), p. 53, figg. 39–41, *C. urceolata*, p. 54, pl. v, figg. 42–47, *C. volubilis*, fig. 48, North America, Pacific Coast, re-described and figured, TORREY, t. c.

C. armata, Gulf of Gascony, STUDER, Resultats Monaco xx, p. 9, pl. i, figg. 3–6. *C. fascia*, p. 52, pl. iv, fig. 38, California, TORREY, t. c. : **n. spp.**

Carmarina hastata, histology, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 594–599, text-figg. 490, 491, 493.

Carmaris rosea, Marquesas Islands, p. 149, pl. iv, fig. 18, AGASSIZ & MAYER, Mem. Mus. Harvard xxvi, **n. sp.**

Cladonema, anatomy and histology of new (unnamed) form from the Bahamas, PERKINS, Johns Hopkins Univ. Circ. xxi, pp. 25–27, 1 pl.

Clava leptostyla, regeneration, TORREY, Univ. Calif. Publ. i, p. 30, pl. i, figg. 5, 8–12. *C. squamata*, grafting and regeneration experiments, BILLARD, Bull. Mus. Paris viii, pp. 345–349. *C. squamata*, development and organogenesis, HARM, Zeitschr. wiss. Zool. lxxiii, pp. 115–165, pls. vii–ix.

Clytia compressa, figure, TORREY, Univ. Calif. Publ. i, p. 88, pl. vi, fig. 49.

Cordylophora lacustris, structure and mode of life, PAULY, Jena. Zeitschr. xxxvi, pp. 737–780.

Corymorpha palma, San Pedro, California, structure, orientation, response to light and tactile stimulation, TORREY, Univ. Calif. Publ. i, p. 37, pl. ii, fig. 21, **n. sp.**

Coryne mirabilis, lack of variation, HARGITT, Science xvi, p. 344.

C. producta, Woods Holl, HARGITT, Amer. Natural. xxxvi, p. 551, fig. 3, **n. sp.**

Diphyopsis appendiculata (=*Diphyes* Huxley), *D. angustata*, p. 162, pls. viii & x, figg. 37 & 42, p. 160, pl. ix, figg. 38 & 39, characters and distribution, AGASSIZ & MAYER, Mem. Mus. Harvard xxvi.

Dipleurosoma pacifica, Tahiti, p. 148, pl. iii, figg. 13 & 14, AGASSIZ & MAYER, t. c. **n. sp.**

Dipurella **n. g.** for *D. clavata*, **n. sp.**, Woods Holl (*Codonidæ*), HARGITT, Biol. Bull. iv, pp. 18–20, fig. 6.

Dysmorphosa tenuis, Falkland Islands (*Margelidæ*), BROWNE, Ann. Nat. Hist. (7) ix, p. 277, **n. sp.**

Eleutheria vallentini, Falkland Islands (*Cladonemidæ*), BROWNE, t. c. p. 279, **n. sp.**

Epenthesis rangiroæ, Paumotus Islands, p. 145, pl. i, fig. 4, AGASSIZ & MAYER, Mem. Mus. Harvard xxvi, **n. sp.**

Ersœa appendiculata, characters, AGASSIZ & MAYER, t. c. p. 161, pl. ix, fig. 40.

E. angustata, Tropical Pacific, p. 163, pl. x, fig. 41, AGASSIZ & MAYER, t. c. **n. sp.**

Eudendrium, regeneration, PEEBLES, Arch. Entwickmech. xiv, pp. 55–63, text-figg.

E. californicum, North American Pacific Coast, characters, TORREY, Univ. Calif. Publ. i, p. 32, pl. ii, figg. 13 & 14, **n. sp.**

Geryones mexicana, Mexican Coast, p. 149, pl. iv, fig. 17, AGASSIZ & MAYER, Mem. Mus. Harvard xxvi, **n. sp.**

Gonionema, regeneration in the marginal organs, manubrium, and radial canals of the medusæ, HARGITT, Biol. Bull. iv, pp. 1–12, 11 text-figg. *G.* degeneration phenomena in the larvæ, PERKINS, Biol. Bull. iii, pp. 172–180, 7 text-figg. *G. murbachii*, nervous system, HYDE, Biol. Bull. iv, pp. 40–45, 3 text-figg. *G. murbachii*, physiology of central nervous system, YERKES, Amer. J. Physiol. vii, pp. 181–198. *G. murbachii*, sensory reactions, YERKES, op. cit. vi, pp. 434–449. *G. murbachii*, budding of larvæ, PERKINS, Johns Hopkins Univ. Circ. xxi, pp. 87–89, 10 figg. *G. murbachii*, development, DUERDEN, P. Ac. Philad. liv, pp. 750–790, pls. xxxi–xxxiv.

Gonothyræa loveni, development and histology, WULFERT, Zeitschr. wiss. Zool. lxxi, pp. 296–327, pls. xvi–xviii. *G. clarki* n. n. for *G. hyalina* Clark, TORREY, Univ. Calif. Publ. i, p. 55.

Halecium nuttingi n. n. for *H. geniculatum* Nutting, TORREY, t. c. p. 50.

H. annulatum, p. 49, pl. iii, figg. 30 & 31, *H. kofoidi*, figg. 32 & 33, California, characters, TORREY, t. c. **n. spp.**

Halicornaria producta, figure and characters, TORREY, t. c. p. 75, pl. x, fig. 95.

Halistemma sp. parasitised by *Flagellata*, POCHE, Arb. Inst. Wien xiv, No. 3, pp. 1–52, 1 pl.

Hippocrene macloviana, Falkland Islands (*Margelidæ*), characters, BROWNE, Ann. Nat. Hist. (7) ix, p. 278.

Hydra; ingestion and digestion, DOWNING, Science xv, p. 523. *H. fusca*, histology, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 572–581, text-figg. 479–483. *H. fusca*, *H. viridis*, experiments in grafting, HEFFERAN, Science xv, p. 467. *H. viridis*, grafting experiments, HEFFERAN, Arch. Entwickmech. xiii, pp. 565–587, pls. xxiii–xxv, text-figg. *H. viridis*, histological changes during regeneration, ROWLEY, Amer. Natural. xxxvi, pp. 579–583.

H. corala, Montana, structure, ELROD & RICKER, Tr. Amer. micr. Soc. xxiii, pp. 257 & 258.

Hydractinia; regeneration, HAZEN, Amer. Natural. xxxvi, pp. 193–200, 6 text-figg.

H. milleri, North America, Pacific coast, TORREY, Univ. Calif. Publ. i, p. 34, pl. ii, figg. 15–20, **n. sp.**

Laodice pulchra, Falkland Islands (*Thaumantidæ*), BROWNE, Ann. Nat. Hist. (7) ix, p. 280, **n. sp.**

Lictorella halecioides Allman. var. *annellata*, n. var., Gulf of Gascony, STUDER, Resultats Monaco xx, p. 17, pl. iii, fig. 6.

L. flexilis, Azores, STUDER, t. c. p. 15, pl. iii, figg. 1–3.

Lizzia formosissima, Falkland Islands (*Margelidæ*), BROWNE, Ann. Nat. Hist. (7) ix, p. 278.

Lymnorea ocellata, Paumotus Islands, p. 144, pl. ii, figg. 9–12, AGASSIZ & MAYER, Mem. Mus. Harvard xxvi, **n. sp.**

Monophyes sp. parasitised by Flagellata, POCHE, Arb. Inst. Wien xiv, No. 3, pp. 1–52, 1 pl.

Monopoma interversa, Gulf of Gascony, STUDER, Resultats Monaco xx, p. 26, pl. vi, fig. 1, **n. sp.**

Nectophysa wyvillei?, characters and distribution, AGASSIZ & MAYER, Mem. Mus. Harvard xxvi, p. 169, pl. viii, fig. 36.

Obelia multicia, Falkland Islands, BROWNE, Ann. Nat. Hist. (7) ix, p. 281, **n. sp.**

Pelagohydra **n. g.** for *P. mirabilis*, South Island, New Zealand, a free-swimming hydroid, anatomy, histology, development and affinities, DENDY, Quart. J. Micr. Sci. xlvi, pp. 1–24, pls. i & ii.

Pennaria, regeneration, PEEBLES, Arch. Entwickmech. xiv, pp. 55–63, text-figg.

Phialella **n. g.** for *P. falklandica*, **n. sp.**, Falkland Islands (*Eucopidæ*), BROWNE, Ann. Nat. Hist. (7) ix, p. 282.

Phialidium simplex, Falkland Islands (*Eucopidæ*), BROWNE, t. c. p. 282, **n. sp.**

Phortis elliceana, Funafuti, p. 146, pl. ii, figg. 5–7, AGASSIZ & MAYER, Mem. Mus. Harvard xxvi, **n. sp.**

Physalia, poison of the nematocysts, PORTIER & RICHET, Rev. gen. Sci. xiii, p. 281. *P. utriculus*, characters and distribution, AGASSIZ & MAYER, Mem. Mus. Harvard xxvi, p. 169, pl. x, fig. 43 & 44.

Physophora hydrostatica, histology, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 581–594, 599–605, text-figg. 484–487, 494.

Plumularia goodei, p. 76, pl. x, fig. 98, pl. xi, figg. 99 & 100, *P. lagenifera* var. *septifera*, p. 78, pl. xi, figg. 101 & 102, *P. plumularoides*, figg. 103 & 104, *P. setacea*, fig. 105, figured and described, TORREY, Univ. Calif. Publ. i.

P. alicia, p. 75, pl. x, figg. 96 & 97, California, TORREY, t. c. **n. sp.**

Podocoryne, regeneration, HAZEN, Amer. Natural. xxxvi, pp. 193–200, 6 text-figg.

Protiara hæckeli, Woods Holl region, HARGITT, Biol. Bull. iv, pp. 16 & 17, fig. 4, **n. sp.**

Protohydra leuckarti, asexual division of, ADERS, Zool. Anz. xxvi, pp. 33–39, 11 text-figg.

Psythia n. g. for *P. prolifera*, **n. sp.**, Paumotus Islands, p. 143, pl. i, fig. 3, AGASSIZ & MAYER, Mem. Mus. Harvard xxvi.

Rhegmatodes tenuis (Leptomedusa), variation, HARGITT, Science xvi, p. 345.

R. lacteus, Tahiti, p. 147, pl. iii, figg. 15 & 16, AGASSIZ & MAYER, Mem. Mus. Harvard xxvi, **n. sp.**

Rhizophysa filiformis, histology of the pneumatophore, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 599–605, text-figg. 495 & 496.

Rhopalonema typicum (= *Homœonema typicum* Maas), structure and distribution, AGASSIZ & MAYER, Mem. Mus. Harvard xxvi, p. 152.

Sarsia gracilis, Falkland Islands (*Codonidæ*), BROWNE, Ann. Nat. Hist. (7) ix, p. 275, **n. sp.**

Sertularella fusiformis, p. 61, pl. vi, figg. 53 & 54, *S. turgida*, p. 64, pl. vii, figg. 59–62, pl. viii, figg. 63–69, figures, TORREY, Univ. Calif. Publ. i.

S. dentifera, p. 61, pl. vi, figg. 51 & 52, *S. halecina*, pl. vi, fig. 55, pl. vii, fig. 56, *S. hesperia*, p. 63, figg. 57 & 58, North America, Pacific coast, characters, TORREY, t. c., **n. spp.**

Sertularia furcata, p. 66, pl. viii, figg. 73–75, *S. argentea*, p. 67, pl. viii, figg. 76 & 77, pl. ix, figg. 78 & 79, *S. filicula*, p. 68, fig. 80, figures and descriptions, TORREY, t. c.

S. desmoidis, p. 65, pl. viii, figg. 70–72, *S. incongrua*, p. 69, pl. ix, figg. 81 & 82, *S. traski*, fig. 83, California, TORREY, t. c. **n. spp.**

Solmaris tetranema, Woods Holl region, Narcomedusa, HARGITT, Biol. Bull. iv, pp. 17 & 18, fig. 5, **n. sp.**

Solmissus marshalli, Marshall Islands, p. 151, pl. v, figg. 23–25, AGASSIZ & MAYER, Mem. Mus. Harvard xxvi, **n. sp.**

Syncoryne sarsii, habits and histology, CITRON, Arch. Naturg. lxviii, i, pp. 1–26, pls. i & ii.

Tiara oceanica, north of the Marquesas, p. 141, pl. i, fig. 1, AGASSIZ & MAYER, Mem. Mus. Harvard xxvi. *T. intermedia*, Falkland Islands (*Tiaridæ*), BROWNE, Ann. Nat. Hist. (7) ix, p. 277 : **n. spp.**

Tiaricodon **n. g.** for *T. cæruleus*, **n. sp.**, Falkland Islands (*Tiaridæ*), BROWNE, t. c. p. 276.

Tiaropsis darisii, Falkland Islands (*Eucopidæ*), BROWNE, t. c. p. 281, **n. sp.**

Trachynema digitale (Trachomedusa), variation, HARGITT, Science xvi, p. 344.

Tubularia, experiments in reduction, DRIESCH, Arch. Entwickmech. xiv, pp. 532–538, 2 text-figg. *T.*, grafting experiments, PEEBLES, Arch. Entwickmech. xiv, pp. 49–55, 23 text-figg. *T. crocea*, reproduction and regeneration, TORREY, Univ. Calif. Publ. i, p. 43, pl. ii, figg. 22 & 23. *T. crocea*, regeneration, MORGAN, Arch. Entwickmech. xiii, pp. 528–544, 25 text-figg. *T. mesembryanthemum*, regeneration, STEVENS, Arch. Entwickmech. xv, pp. 319–326, 13 text-figg. *T. mesembryanthemum*, regeneration after longitudinal splitting, GODLEWSKI, Bull. Ac. Cracovie, No. 7, pp. 387–396, 11 figg. *T. mesembryanthemum*, histology of gonophores, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 609–617, text-figg. 501–504.

T. marina, North America, Pacific Coast, characters, especially of female gonophores, TORREY, Univ. Calif. Publ. i, p. 46, pl. ii, figg. 24 & 25. *T. parasitica*, Woods Holl, on *Corymorpha pendula*, HARGITT, Amer. Natural. xxxvi, p. 549, fig. 1 : **n. spp.**

Turris pelagica, Tropical Pacific, p. 142, pl. i, fig. 2, AGASSIZ & MAYER, Mem. Mus. Harvard xxvi, **n. sp.**

Vallentinia **n. g.** for *V. falklandica*, **n. sp.** (*Petasidæ*), BROWNE, Ann. Nat. Hist. (7) ix, p. 284.

Velella swarm at Mentone, THOMPSON, Nature lxv, p. 560, and at Alassio, SHERRINGTON & THOMAS, t. c. p. 586. *V. spirans*, histology, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, p. 597, text-fig. 492.

Willia mutabilis, Falkland Islands (*Williadæ*), BROWNE, Ann. Nat. Hist. (7) ix, p. 280, **n. sp.**

III. GRAPTOLITHIDA.

[The following memoirs refer to *Graptolithida*: ALMERA (5), BARROIS (8), CLARK (24), HALL (67), KERFORNE (92 & 93), MOBERG (112 & 113), TÖRNQUIST (169), WIMAN (183).]

SUBJECT INDEX.

GEOGRAPHY.

†Baltic, Silurian forms, n. genera and spp., WIMAN (183).
†Sweden, Phyllo-Tetragraptus beds, 8 n. spp., TÖRNQUIST (169).
†Ireland, north-east, Silurian spp., CLARK (24).
†Brittany, *Monograptus convolutus*, and other spp., KERFORNE (92).
†Anjou and Llandovery, KERFORNE (92).
†Barcelona, ALMERA (5).
†Catalonia, BARROIS (8).
†New South Wales, 4 n. spp., HALL (67).

Systematic.

†*Graptolithida*, Silurian, north-east Ireland, Clark, Geol. Mag. ix, pp. 497–500.

†*Graptolithida* of Catalonia and their relations with the graptolitic strata of France, Barrois, Bull. Soc. geol. France (4) i, pp. 637–646.

†*Graptolithida* of Barcelona, Almera, Mem. Ac. Barcel. iv, No. 21, 11 pp.

†*Climacograptus bicornis*, var. *longispina*, var. nov., p. 5, pl. xii, figg. 8 & 9, *C. hastata*, New South Wales, pl. xiv, figg. 1–3, Hall, Rec. Geol. Survey N. S. Wales vii, Pt 2, **n. sp.**

†*Dendrograptus*, **n. sp.**, Baltic, Silurian, Wiman, Bull. geol. Inst. Upsala v, pp. 149–222, figg.

†*Dicellograptus affinis*, New South Wales, Hall, Rec. Geol. Survey N. S. Wales, vii, Pt 2, p. 2, pl. xii, fig. 2; pl. xiii, figg. 1 & 2, **n. sp.**

†*Didymograptus constrictus* (= *Graptolithus* Hall), p. 17, pl. ii, figg. 13–17, Sweden, structure, Törnquist, Acta Univ. Lund. xxxv.

†*D. undulatus*, p. 10, pl. i, figg. 1–7, *D. demissus*, p. 11, figg. 8–11, *D. geometricus*, figg. 12–14, *D. holmi*, p. 12, figg. 15–18, *D. prænuntius*, p. 17, pl. ii, figg. 7–12, *D. validus*, p. 18, figg. 18–20, *D. kurki*, p. 20, pl. iii, figg. 1–5, *D. mobergi*, p. 23, figg. 12–15, Sweden, structure, Törnquist, Acta Univ. Lund. xxxvii, **n. spp.**

†*Diplograptus palmeus*, Anjou and Llandovery, Kelforne, C.R. Ac. Sci. cxxxv, pp. 123 & 124.

†*D. carnei*, New South Wales, Hall, Rec. Geol. Survey N. S. Wales vii, Pt 2, p. 4, pl. xii, fig. 7, **n. sp.**

†*Galeograptus*, **n. g.** and **sp.**, Baltic, Silurian, Wiman, Bull. geol. Inst. Upsala v, pp. 149–222, figg.

†*Inocaulis*, **n. sp.**, Baltic, Silurian, Wiman, t. c.

†*Isograptus gibberulus* Moberg (= *Didymograptus* Elles), p. 23, pl. iii, figg. 16–19, Sweden, structure, Törnquist, Acta Univ. Lund. xxxv.

†*Monograptus* spp., Brittany, Kerforne, Bull. Soc. Sci. Med. Ouest France xi, pp. 124–127, 9 figg. †*M. lobiferus*, Anjou and Llandovery, Kerforne, C.R. Ac. Sci. cxxxv, p. 123.

†*Rastrites linnæi*, Anjou and Llandovery, Kerforne, t. c. pp. 123 & 124.

†*Reticulograptus*, n. n. for *Dictyonema tuberosum*, Baltic, Silurian, Wiman, Bull. geol. Inst. Upsala v, pp. 149–222, figg.

†*Retiolites caudatus*, New South Wales, Hall, Rec. Geol. Survey N. S. Wales vii, Pt 2, p. 7, pl. xiv, fig. 6, **n. sp.**

IV. SCYPHOZOA.

[The following memoirs refer to *Scyphozoa*:—Agassiz & Mayer (3), Bavay (9), Friedemann (52), Hargitt (69 & 70), Hein (79 & 80), Kishinouye (94), Maas (105), Ostroumova (125), Vanhöffen (173).]

SUBJECT INDEX.

General Biology.

Review of work published in 1894, 1895, Vanhöffen (173).

Life-history, including encystment, stolonization, strobilization and development of various spp., Hargitt (69).

Development, Hargitt (70).

Development of *Aurelia aurita*, Friedemann (52), Hein (79).—Of *Cotylorhiza tuberculata*, Hein (80).

Geography.

Black Sea spp., structure of velar lips, Ostroumova (125).
†Carpathians, lower chalk, and Solenhofen slates, 3 n. g. and 4 n. spp., Maas (105).
Woods Holl, n. sp. of *Cubomedusa*, Hargitt (69).
Tropical Pacific, 4 n. spp., Agassiz & Mayer (3).
Japan, 1 nov. fam., 5 n. gen., Kishinouye (94).

Systematic.

†*Atollites* **n. g.** for *A. zitteli*, *A. minor*, **n. spp.**, Carpathians, Maas, Palæontogr. xlviii, p. 319, pl. xxiii, figg. 5 & 6.
Aurelia aurita, development, Hein, Zool. Anz. xxv, pp. 637–640. *A. aurita*, development and histology, Friedemann, Zeitschr. wiss. Zool. lxxi, pp. 227–267, pls. xii & xiii, 3 text-figg.
†*Cannostomites* **n. g.** for *C. multicirrata*, **n. sp.**, Solenhofen, structure, Maas, Palæontogr. xlviii, p. 303, pl. xxiii, fig. 1.
Charybdea grandis, Paumotus Islands, p. 153, pl. vi, figg. 26–31, Agassiz & Mayer, Mem. Mus. Harvard xxvi. *C. verrucosa*, Woods Holl, Hargitt, Amer. Natural. xxxvi, p. 559, fig. 4 : **n. spp.**
Cotylorhiza tuberculata, development, Hein, Zeitschr. wiss. Zool. lxxiii, pp. 302–320, pls. xx & xxi.
Cyanea arctica, development, Hargitt, Science xv, p. 571.
Kuragea **n. g.** [*Discomedusæ*] for *K. depressa*, **n. sp.**, Japan, Kishinouye, J. Coll. Japan xvii, pp. 9 & 10, fig. 7.
Microstylus **n. g.** [*Discomedusæ*] for *M. setouchianus* (= *Cotylorhiza* Kishinouye), Japan, Kishinouye, t. c. pp. 11–13, figg. 8–10.
†*Myogramma* **n. g.** for *M. speciosum*, **n. sp.**, Solenhofen, structure, Maas, Palæontogr. xlviii, p. 298, pl. xxii, figg. 1–4, pl. xxiii, figg. 3 & 4.
Nausithoë punctata var. *pacifica*, characters, Agassiz & Mayer, Mem. Mus. Harvard xxvi, p. 155, pl. vii, fig. 32.
N. picta, Paumotus Islands, p. 154, pl. vii, fig. 33, Agassiz & Mayer, t. c. **n. sp.**
Pelagia tahitiana, Paumotus Islands, p. 158, pl. viii, figg. 34 & 35, Agassiz & Mayer, t. c. **n. sp.**
Perirhiza **n. g.** [*Discomedusæ*] for *P. nematophora*, **n. sp.**, Japan, Kishinouye, J. Coll. Japan xvii, pp. 13–16, figg. 11–13.
Rhizostoma pulmo-octopus, velar lips, Ostroumova, Protok. Kazan. Univ. 1897, 1898, No. 172. *R. cuvieri*, parasitised by *Distomum*, Bavay, Arch. parasit. v, p. 199.
Schizodiscus **n. g.** [*Lucernaridæ*] for *S. nagatensis* (= *Lucernaria negatensis* Oka), Japan, Kishinouye, J. Coll. Japan xvii, pp. 5–9, figg. 3–6.
Stenoscyphidæ **nov. fam.** of *Stauromedusæ*, Kishinouye, t. c. p. 1.
Stenoscyphus **n. g.** [in nov. fam. *Stenoscyphidæ*] for *S. inabai* (= *Depastrum inabai* Kishinouye), Japan, Kishinouye, t. c. pp. 2–5, figg. 1 & 2.
Zonephyra corona, Tropical Pacific, p. 157, pl. iv, figg. 19 & 20, Agassiz & Mayer, Mem. Mus. Harvard xxvi, n. sp.

V. ANTHOZOA.

[The following memoirs refer to *Anthozoa* :— Alcock (4), Bernard (11 & 12), Bourne (14), Carlgren (18, 19, 20), Caullery & Mesnil (21), Clubb (25), Crossland (27 & 28), Döderlein (31), Drevermann (33), Duerden (36–42), Etheridge (45), Flamand (46), Gardiner (54–58), Giattini (60), Gravier (63), Gregory (65), Hall (66), Hazen (76),

Hemprich & Ehrenberg (81), Hennig (82), Horst (86), Ianischewsky (88), Janensch (90), Jourdan (91), Kükenthal (95, 96, 97), Lebedew (101), Lendenfeld (102), MacMunn (106), Martelli (108), May (110), Menon (111), Monroe (114), Moroff (117, 118, 119), Oppenheim (123), Osasco (124), Papp (126), Parker (127), Pratt (139), Reed (141), Reis (142), Remes (143), Roule (146 & 147), Schneider (152), Schrader (153), Schwarze (155), Shimer (157), Strijoff (163), Studer (164), Thiele & Grant (165), Torrey (171), Vaughan (174, 175, 176), Verrill (177–180), Versluys (181), Wanner (182), Yoshiwara (187).]

SUBJECT INDEX.

General Biology.

Review of work published in 1889–1891, Carlgren (20).
Anatomy of the *Chrysogorgiidæ* from the East Indian Archipelago, Versluys (181).
Anatomy of the adult *Cerianthus*, Gravier (63).
Anatomy and histology of Semper's larvæ, Menon (111).
Anatomy of brood chambers of *Actiniæ*, Clubb (25).
Histology, Schneider (152).
Mesoglœal cells of *Alcyonium*, Pratt (139).
†Structure, and relationships of the *Rugosa* to the living *Zoantheæ*, Duerden (40).
Pigments in corals, MacMunn (106).
Anatomy and histology connected with budding and fission in *Madreporaria*, Duerden (42).
Anatomy and development of *Flabellum* spp., S. Africa, Gardiner (58).
Anatomy, classification, and coral formations, Bourne (14).
Mode of formation and development of aggregated colonies of Madreporarian corals, Duerden (38).
Primary hexamerism in *Lophophyllum proliferum*, Duerden (37).
Increase of mesenteries in *Madrepora* beyond the protocnemic stage, Duerden (41).
Origin of calcareous forms, Strijoff (163).
Regeneration of the œsophagus of *Sagartia luciæ*, Hazen (76).
Budding and fission in *Madreporaria*, Duerden (42).
Variations and nomenclature of reef corals, Verrill (178).
Variation of *Metridium*, Torrey (171).
Variation and protandry in *Flabellum rubrum* and senescence in same and other corals, Gardiner (55).
Commensalism between *Discosoma* sp. and fish, Horst (86).
Symbiosis between crabs and *Anthozoa*, Schwarze (155).
Copepod parasite of *Anemonia sulcata*, Caullery & Mesnil (21).
†Raised coral reefs, Yoshiwara (187).
Formation of coral reefs, discussion of recent research, May (110).
Dangers of coral reefs to navigation, Gardiner (56).

Geography.

Distribution of *Acropora*, Verrill (180).
Distribution of the *Xeniidæ*, Kükenthal (97).
†Russia, Devonian spp. of corals, Lebedew (101).
†Sweden, 1 n. sp. of *Leptophyllia* from the mammillated-chalk, Hennig (82).

†Dudley, Wenlock Limestone, REED (141).
†North Germany Upper Jurassic coral reefs, OPPENHEIM (123).
†Alsace, list of spp., JANENSCH (90).
†Vaskóp Triassic, n. sp., PAPP (126).
†Stramberg, red chalk Nesselsdorf, REMES (143).
†Montenegro, n. g. and sp., GIATTINI (60).
†Italy, Cainozoic forms, OSASCO (124).
Gulf of Gascony and the Azores, collection of Alcyonarians, STUDER (164).
Gulf of Gascony, and the Azores, *Zoanthariæ*, JOURDAN (91).
Madeira, Teneriffe and Morocco, n. spp., *Antipatharia*, ROULE (147).
†Libian desert, n. spp., WANNER (182).
East African Coast, n. spp. of *Alcyonacea*, KÜKENTHAL (95).
Pemba Island and East Africa, coral reefs, CROSSLAND (28).
Zanzibar, coral reefs, CROSSLAND (27).
S. Africa, *Flabellum* spp., GARDINER (58).
North America, distribution of *Sagartia luciæ*, PARKER (127).
†Northern Alaska, spp. from Rocky Mountains, SCHRADER (153).
Alaska, 1 n. g. and 2 n. spp., including systematic account of Anemonea collected, TORREY (171).
Behring Island and West Spitzbergen, *Actiniariæ*, CARLGREN (18).
Montana, n. sp., ELROD & RICKER (44).
†New York, Hamilton fossils from Bethany, MONROE (114).
†Ontario, Hamilton Group, SHIMER (157).
Massachusetts, n. sp., *Pennatula*, MOROFF (117).
†Maryland, Eocene spp., VAUGHAN (175).
California, n. g. and n. sp., of *Halcampidæ*, TORREY (171).
California, n. spp. of *Pennatulaceæ*, MOROFF (117 & 119).
†Cutch, Jurassic corals, GREGORY (65).
Indian Ocean, East African coast, *Umbellula*, n. spp., KÜKENTHAL (96).
Maldive and Laccadive Islands, and other groups in the Indian Ocean, coral formations, GARDINER (57).
West Indian Madreporarian polyps monographed including anatomy, reproduction, development, classification and descriptions of species, DUERDEN (39).
West Indies, nomenclature of spp., VAUGHAN (174).
Fiji plants, coral reefs, LENDENFELD (102).
Philippine Islands, n. sp. of *Pennatulaceæ*, and n. sp. of *Virgularia*, MOROFF (117 & 119).
Bermudas, West Indies, Brazil, variation and nomenclature of reef corals, VERRILL (178).
Bermudas, 6 n. spp., VERRILL (177).
East Indian Archipelago, 3 n. genera, 38 n. spp. of *Madreporaria*, ALCOCK (4).
East Indian Archipelago, 1 n. gen., 15 n. spp. of *Chrysogorgiidæ*, VERSLUYS (181).
Santa Cruz, n. sp., *Antipatharia*, ROULE (147).
Japan, n. spp., *Pennatulaceæ*, MOROFF (117).
Japan, 1 n. g. and 4 n. spp. of *Gorgonaceæ*, MOROFF (117 & 119).
Japan, n. spp. of *Gorgonaceæ* and *Pennatulaceæ*, MOROFF (117 & 119).
†S. Japan, islands of the Riukiu Curve, raised coral reefs, YOSHIWARA (187).
†Australia, middle Devonian spp., ETHERIDGE (45).
†Australia, Altona Coal Shaft, 13 fossil corals from the Eocene clays, THIELE & GRANT (165).
†Victoria, Tertiary *Gorgonidæ*, HALL (66).

Systematic.

Systematic Biology, unit of classification, Gardiner (54).
Terminology in Corals, Bernard (11).
Stone-corals, nomenclature, Bernard, Int. Zool. Congr. Berlin 1901, pp. 891–896.

Anthozoa; comparative histology, Schneider, Lehrbuch vergleich. Hist. Jena 1902, pp. 206–212, 617–643; and in general section, pp. 1–176, text-figg.

Acanthoptilus scalpellifolius, California, Moroff, Zool. Anz. xxv, p. 581, and Zool. Jahrb. Syst. xvii, p. 394, pl. xviii, fig. 17, **n. sp.**

Acroporidæ n. n. for *Madreporidæ* Verrill, ex. p., composition, Verrill, Tr. Connect. Ac. xi, p. 163.

Acropora (=*Madrepora* Lam.) distribution and descriptions of **n. spp.**, Verrill, t. c. pp. 207–266, pls. xxxvi & xxxvi F.

Acropora bandensis n. n. for *Madrepora tubigera* Quelch, Verrill, t. c. p. 241.

A. dissimilis (=*Madrepora rosacea* Studer), p. 226, pl. xxxvi, fig. 9, pl. xxxvi A, fig. 9, *A. indurata*, Australia, p. 230, pl. xxxvi, fig. 19, pl. xxxvi C, fig. 6, pl. xxxvi F, fig. 12, *A. luzonica* Luzon, p. 231, pl. xxxvi C, fig. 1, pl. xxxvi F, fig. 9, *A. pachycyathus*, p. 236, pl. xxxvi, fig. 20, pl. xxxvi C, fig. 8, pl. xxxvi F, fig. 6, *A. stellulata*, Zanzibar, p. 238, pl. xxxvi C, fig. 3, pl. xxxvi F, fig. 10, *A. secaloides*, Singapore, p. 245, pl. xxxvi, fig. 15, pl. xxxvi B, fig. 6, *A. fraterna*, Tahiti, p. 247, pl. xxxvi, fig. 18, pl. xxxvi B, fig. 9, *A. wardii*, East Indies, p. 248, pl. xxxvi, fig. 13, pl. xxxvi B, fig. 4, pl. xxxvi B, fig. 4, *A. neglecta*, Singapore, p. 250, pl. xxxvi, fig. 21, pl. xxxvi E, fig. 7, pl. xxxvi F, fig. 5, *A. urceolifera*, East Indies, p. 251, pl. xxxvi D, fig. 3, pl. xxxvi E, fig. 6, pl. xxxvi F, fig. 13, *A. cytherella*, Fiji, p. 253, pl. xxxvi, fig. 7, pl. xxxvi A, fig. 7, pl. xxxvi F, fig. 1, *A. cucullata*, Indo-Pacific, p. 258, pl. xxxvi D, fig. 8, pl. xxxvi E, fig. 1, *A. paniculata*, Fiji, p. 259, pl. xxxvi D, figg. 7–10, pl. xxxvi E, fig. 5, Verrill, t. c. **n. spp.**

Actiniaiæ from Behring Island and W. Spitzbergen, Carlgren, Zool. Ergebn. "Olga," pp. 31–56, 1 pl.

Actinia spp., figures, Hemprich & Ehrenberg (81), pls. viii & ix.

A. melanaster, Bermudas, Verrill, Tr. Connect. Ac. xi, p. 51, pl. vi, figg. 2 & 3, **n. sp.**

Actinodendron loligo, figure, Hemprich & Ehrenberg (81), pl. vii.

Agaricia crassa, Bahamas, p. 145, pl. xxx, fig. 6, pl. xxxiv, fig. 2, *A. nobilis*, West Indies, p. 150, pl. xxviii, figg 1 & 2, Verrill, Tr. Connect. Ac. xi, **n. spp.**

Alcyonarians, descriptions of species, synonymy, and localities collected on the *Hirondelle* expedition, Studer, Resultats Monaco xx, 64 pp., 11 pls.

Alcyonium compressum n. n. for *A. glomeratum* Studer, Gulf of Gascony, Studer, t. c. p. 22, pl. iii, fig. 1. *A. dignitatum*, mesogloeal cells, Pratt, Zool. Anz. xxv, pp. 545–548. *A. palmatum*, histology, Schneider, Lehrbuch vergleich. Hist. Jena 1902, pp. 638–643, text-figg. 517–521.

Amphianthus (*Pennatulidæ*) **n. g.** for *A. abyssorum*, **n. sp.**, East Africa, Kükenthal, Zool. Anz. xxv, p. 303.

Anemonia sulcata, histology, Schneider, Lehrbuch vergleich. Hist., Jena 1902, pp. 617–637, text-figg. 507–511, 513, 515 & 516. *A. sulcata*, parasitised by a Copepod (*Staurosoma parasiticum*), Caullery & Mesnil, C.R. Ac. Sci. cxxxiv, pp. 1314–1317.

A. elegans, Bermudas, Verrill, Tr. Connect. Ac. xi, p. 50, pl. vi, fig. 4, **n. sp.**

Anthea cereus, histology, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 627–632, text-figg. 512–514.

Anthomastus antarcticus, Bouvet Island; *A. elegans*, Agulhas Bank, KÜKENTHAL, Zool. Anz. xxv, p. 301, **n. spp.**

Antipathes viminalis, Morocco, ROULE, Mem. Soc. zool. France xv, p. 233, **n. sp.**

Astræa dipracia, figure, HEMPRICH & EHRENBERG (81), p. xi.

†*Astræopora paniceoides*, Bavaria [undescribed], REIS, Geognost. Jahresh. 1889, ii, p. 98, **n. sp.**

†*Astrocœnia irregularis*, Italy, OSASCO, Palæontogr. ital. viii, p. 112, pl. ix, fig. 1, **n. sp.**

Balanophyllia (subgen. *Thecopsammia*) *fistula*, p. 42, pl. v, fig. 36, East Indian Archipelago, structure, ALCOCK, Siboga Exped. xvi A, **n. sp.**

Bathyactis sibogæ, *B. palifera*, p. 38, pl. v, fig. 34, East Indian Archipelago, ALCOCK, t. c. **n. spp.**

Bolocera multicornis, structure, CARLGREN, Wiss. Meeresuntersuch. v, p. 36, pl. iii, figg. 1 & 2, text figg. 1 & 2.

†*Brachycyathus*, **n. sp.**, Libian desert, WANNER, Palaeontogr. xxx, pp. 91–151, pls.

Callogyra n. g. for *C. formosa*, n. sp., West Indies, VERRILL, Tr. Connect. Ac. xi, p. 86, pl. xxiv, figg. 1 & 2, **n. sp.**

†*Culophyllum tschernyschewi*, Russia, LEBEDEW, Trudui geol. Kom. xvii, pt. II, p. 148, pl. ii, figg. 29–31, **n. spp.**

Caryophyllia cultrifera, p. 7, pl. i, fig. 1, *C. scobinosa*, p. 8, pl. i, fig. 2, *C. panda*, p. 9, pl. i, fig. 3, *C. quadragenaria*, p. 10, pl. i, fig. 4, East Indian Archipelago, structure, ALCOCK, Siboga Exped. xvi A. *C. margaritata*, Gulf of Gascony, JOURDAN, Resultats Monaco viii, p. 13, pl. i, figg. 9 & 10 : **n. spp.**

†*C. oppeli*, Stramberg, red chalk, Nesselsdorf; structure, REMES, Beitr. Pal. Oesterr.-Ung. xxiv, p. 196, pl. xviii, figg. 1–4, **n. sp.** †**n. sp.** Libian desert, WANNER, Palaeontogr. xxx, pp. 91–151, pls.

†*Caryosmilia*, **n. g.** & **sp.** Libian desert, WANNER, t. c.

Cavernularia habereri, Sagamibai, Japan, characters and measurements, MOROFF, Zool. Jahrb. Syst. xvii, p. 402, pl. xviii, figg. 18 A, B, **n. sp.**

Ceratotrochus venustus, p. 10, pl. i, fig. 5, *C.* (*Conotrochus*) *funicolumna*, p. 11, fig. 6, *C.* (*Phlæocyathus*) *hospes*, p. 12, pl. ii, fig. 8, East Indian Archipelago, structure, ALCOCK, Siboga Exped. xvi A, **n. spp.**

Cerianthus, anatomy of adult pelagic form, GRAVIER, C.R. Ac. Sci. cxxxv, pp. 591–593.

C. natans, Bermudas, VERRILL, Tr. Connect. Ac. xi, p. 47, pl. ix, fig. 6, **n. sp.**

Cespitularia, characters of genus, pp. 643–645, descriptions of 5 spp., pp. 657–660, KÜKENTHAL, Zool. Jahrb. Syst. xv.

Charisea **n. g.** for *C. saxicola*, **n. sp.**, Sitka, Alaska, TORREY, P. Washington Ac. iv, pp. 388–390, pl. xxiv, figg. 6–9, text-figg. 18 & 19.

Chrysogorgiidæ, characters, composition, and anatomy of spp. including 15 **n. spp.**, VERSLUYS, Siboga Exped. xiii, pp. 1–120, 170 figg.

Chrysogorgia; 15 spp. re-described and figured, and removed from genus *Dasygorgia* Wright & Studer, VERSLUYS, t. c. pp. 40–86. *C.* composition and characters; anatomy of 36 spp. (14 n. spp.) VERSLUYS, t. c. pp. 17–87, figg. 20–146.

C. lata, p. 33, figg. 32–36, *C. tetrasticha*, p. 36, figg. 38–43, *C. pusilla*, p. 38, figg. 44, *C. pentasticha*, p. 48, figg. 66–72, *C. anastomosans*, p. 51, figg. 73–77, *C. orientalis*, p. 53, figg. 78–82, *C. mirta*, p. 58, figg. 87–91, *C. intermedia*, p. 61, figg. 92–96, *C. octagonos*, p. 65, figg. 99–103, *C. curvata*, p. 67, figg. 104–108, *C. pendula*, p. 73, figg. 114–118, *C. sibogæ*, p. 74, figg. 199–123, *C. rigida*, p. 81, figg. 137–142, *C. ramosa*,

p. 83, figg. 143–146, East Indian Archipelago, structure, VERSLUYS, t. c., **n. spp.**

Chunella **n. g.** for *C. gracillima*, **n. sp.** (*Pennatulidæ*), East Africa, KÜKENTHAL, Zool. Anz. xxv, p. 302.

Chunellidæ **n. fam.** (*Pennatulidæ*) for *Chunella* and *Amphianthus*, **n. g.** KÜKENTHAL, t. c. p. 302.

Citharocyathus n. g. for *C. conicus*, pl. iii, fig. 18, *C. venustus*, fig. 19, p. 22, East Indian Archipelago, structure, ALCOCK, Siboga Exped. xviA, **n. spp.**

Clavularia frankliniana, Franklin Island, structure, ROULE, "Southern Cross," pp. 290–293, pl. xlvii, figg. 1–3, **n. sp.**

†*Cœlosmilia*, **n. sp.** Libian desert, WANNER, Palæontogr. xxx, pp. 91–151, pls.

Cœnopsammia willeyi, *C. nigrescens*; analysis of pigment, MACMUNN, Fauna Maldive i, 2, pp. 184–186, fig. 34.

†*Comoseris distincta*, Italy, OSASCO, Palæontogr. ital. viii, p. 119, pl. ix, fig. 10, **n. sp.**

†*Confusastræa costulata*, Italy, OSASCO, t. c. p. 113, pl. ix, fig. 2, **n. sp.**

Cyathoceras tydemani, East Indian Archipelago, ALCOCK, Tijdschr. Nederland. Dierk. Ver. (2) vii, p. 93, **n. sp.**

†*Cyathophora minor*, Italy, OSASCO, Palæontogr. ital. viii, p. 112, pl. viii, fig. 13, **n. sp.**

Cyphastræa nodulosa, Bahamas, VERRILL, Tr. Connect. Ac. xi, p. 107, pl. xxxi, figg. 2–2*b*.

Deltocyathus lens, p. 19, pl. ii, fig. 16, *D. fragilis*, p. 21, pl. ii, fig. 15, **n. spp.**, *D. magnificus* var. *suluensis*, n. var., p. 20, ALCOCK, Siboga Exped. xviA.

†*Dendracis distincta*, Italy, OSASCO, Palæontogr. ital. viii, p. 120, pl. ix, fig. 11.

Dendrophyllia ramea, analysis of pigment, MACMUNN, Fauna Maldive i, 2, p. 186.

D. florulenta, East Indian Archipelago, ALCOCK, Tijdschr. Nederland. Dierk. Ver. (2) vii, p. 111. *D.* (*Cœnopsammia*) *amphelioides*, p. 43, pl. v, fig. 37, *D.* (*Cœnopsammia*) *pusilla*, p. 44, fig. 38, East Indian Archipelago, structure, ALCOCK, Siboga Exped. xviA, **n. spp.**

†*Desmidopora nicholsoni*, Australia, Middle Devonian, structure, ETHERIDGE, Rec. Austral. Mus. iv, p. 260, pl. xl, fig. 2, **n. sp.**

Desmophyllum alabastrum, East Indian Archipelago, structure, ALCOCK, Siboga Exped. xviA, p. 28, pl. iv, fig. 27, **n. sp.**

†*Desmopsammia* **n. g.** for *D. perlonga*, **n. sp.**, Bavaria, REIS, Geognost. Jahresh. ii, p. 108, pl. iv, figg. 17 & 18.

†*Dimorphastræa monticularia*, Italy, OSASCO, Palæontogr. ital. viii, p. 119, pl. ix, fig. 9, **n. sp.**

†*Diphyphyllum gemmiformis*, Australia, Middle Devonian, structure, ETHERIDGE, Rec. Austral. Mus. iv, pp. 253–255, pl. xxxvii, fig. 1; pl. xxxix, figg. 1 & 2; pl. xl, fig. 1, **n. sp.**

Discosoma sp., Sabang Bay, commensal with *Ampiphrion intermedius*, HORST, Notes Leyden Mus. xxiii, pp. 180–182.

Discotrochus dentatus, East Indian Archipelago, structure, ALCOCK, Siboga Exped. xviA, p. 27, pl. iv, fig. 26, **n. sp.**

†*Dyctyaræa superficialis*, Italy, OSASCO, Palæontogr. ital. viii, p. 120, pl. ix, fig. 12, **n. sp.**

Echinopora elegans, Samoa, *E. concinna*, Pelew Island, VERRILL, Tr. Connect. Ac. xi, pp. 138 & 139, pl. xxix, figg. 3 & 4, **n. spp.**

Edwardsia; characters; *E. sipunculoides*, structure and affinities, TORREY, P. Washington Ac. iv, pp. 376–383, figg. 5–15, and pl. xxiv, figg. 1–3.

Endopachys weberi, East Indian Archipelago, ALCOCK, Tijdschr. Nederland. Dierk. Ver. (2) vii, p. 109, **n. sp.**

Endopsammia poculum, East Indian Archipelago, ALCOCK, t. c. p. 113, **n. sp.**
Epiactis prolifera, characters and distribution, TORREY, P. Washington Ac. iv, p. 392, pl. xxv, figg. 4 & 5, text-fig. 20.
E. ritteri, Alaska, Popof Island, TORREY, t. c. pp. 393 & 394, pl. xxv, figg. 6 & 7, text-figg. 21, **n. sp.**
Epicladia quadrangula, figure, HEMPRICH & EHRENBERG (81), pl. vii.
Eunicea atra, Bermudas, VERRILL, Tr. Connect. Ac. xi, p. 52, pl. ix, figg. 4 & 5, **n. sp.**
Favia whitfieldi, West Indies, VERRILL, t. c. p. 132, pl. xxv, fig. 5, **n. sp.**
Favitinæ nom. nov., composition, VERRILL, t. c. pp. 87–92, pls.
Flabellum pavoninum, pp. 123 & 137, pl. iv, figg. 18–21, *F. rubrum*, pp. 125–152, pl. iv, figg. 22–34, S. Africa, anatomy and development, GARDINER, Marine Investigations of S. Africa ii. *F. rubrum*, variation, protandry and senescence, GARDINER, P. Camb. Soc. xi, pp. 463–471.
F. lamellulosum, p. 30, pl. iv, figg. 28, 28A, B, *F. suluense*, p. 31, pl. iv, figg. 29, 29A, B, *F. dens*, p. 32, pl. iv, fig. 30, East Indian Archipelago, structure, ALCOCK, Siboga Exped. xviA. *F. weberi*, East Indian Archipelago, ALCOCK, Tijdschr. Nederland. Dierk. Ver. (2) vii, p. 107 : **n. spp.**
Fungia, monograph on genus, with descriptions of spp., DÖDERLEIN, Abh. Senckenb. Ges. xxvii, 1, pp. 1–162, 25 pls. *F. fungites* var. *plicata*, nov. var. p. 149, pl. xx, fig. 9, pl. xxiii, fig. 4; var. *incisa* nov. var. p. 150, pl. xx, figg. 7 & 8; var. *indica* nov. var. p. 152, pl. xxi, fig. 4; var. *grandis* nov. var. p. 153; var. *stylifera* nov. var. p. 155, pl. xxiv, figg. 1, 3–5; var. *columnifera* nov. var. p. 156. *F. patella* var. *filigrana* nov. var. *dubia* nov. var., *F. danai*, var. *vitiensis* nov. var. p. 132, pl. xviii, fig. 4, *F. scruposa* var. *ternatensis* nov. var. p. 135, pl. xix, fig. 2, DÖDERLEIN, t. c. p. 73, pls. ii, 8 figg.
†*Haimesiastræa conferta*, Alabama, VAUGHAN, P. Soc. Washington xv, pp. 205 & 206.
Harenactis n. g. for *H. attenuata*, n. sp., California, TORREY, P. Washington Ac. iv, pp. 384–387, pl. xxiv, figg. 4 & 5, text-figg. 16 & 17.
†*Heliastræa dal lagoi*, *H. cylindrica*, p. 106, pl. viii, figg. 5 & 6, Italy, characters, OSASCO, Palæontogr. ital. viii, **n. spp.**
†*Heliolites cæspitosa*, Dudley, Wenlock Limestone, REED, Geol. Mag. ix, pp. 256–259, pp. 337–343, pls. xvi–xviii.
Heliopora cærulea, analysis of pigment, MACMUNN, Fauna Maldive i, 2, p. 188.
†*Heterastræa* **n. g.** for *H. tenuilamellosa* Gümbel, Bavaria, REIS, Geognost. Jahresh. ii, p. 150.
Heterodactyla hemprichii, figure, HEMPRICH & EHRENBERG (81), pl. vii.
Heteropsammia pisum, East Indian Archipelago, ALCOCK, Tijdschr. Nederland. Dierk. Ver. (2) vii, p. 110, **n. sp.**
†*Hydnophora contorta*, Italy, characters, OSASCO, Palæontogr. ital. viii, p. 110, pl. viii, fig. 12, **n. sp.**
†*Hydnophyllia* **n. g.** for *H. eocænica* (= *Leptoria* Reuss), Bavaria, REIS, Geognost. Jahresh. ii, p. 130, pl. ii, figg. 3–6, pl. iv, fig. 29.
†*H. curvicollis*, *H. mirabilis*, p. 138, pl. iii, fig. 9, *H. connectens*, p. 139, figg. 1–3, Bavaria, REIS, t. c. p. 136, pl. iii, figg. 5–8, **n. spp.**
Leiopathes grimaldii, Madeira, ROULE, Mem. Soc. zool. France xv, p. 236, **n. sp.**
Lepidogorgia petersi, p. 7, figg. 4–14, *L. verrilli*, p. 12, figg. 15–17, *L. challengeri*, p. 14, figg. 18 & 19, *L. gracilis*, *L. fragilis*, p. 16, East Indian Archipelago, re-described, VERSLUYS, Siboga Exped. xiii.
†*Leptophyllia baltica*, Sweden, mammillated-chalk, structure, HENNIG, Bih. Svenska Ak. xxvi, 17 pp. †*L. zitteli*, Bavaria, REIS, Geognost. Jahresh. ii, p. 125, pl. i, figg. 19 & 20 : **n. spp.**

†*Leptoria*, **n. sp.** Libian desert, WANNER, Palaeontogr. xxx, pp. 91–151, pls.
Lochmæotrochus **n. g.** for *L. oculeus*, **n. sp.**, East Indian Archipelago, structure, ALCOCK, Siboga Exped. xviA, p. 12, pl. ii, fig. 9.
†*Lophophyllum proliferum*, primary hexamerism, DUERDEN, Science xv, p. 577. †*L. proliferum*, structural relations to living *Zoantheæ*, DUERDEN, Johns Hopkins Univ. Circ. xxi, pp. 19–25, 12 figg.
†*Lovcenipora* **n. g.** for *L. vinassai*, **n. sp.**, Montenegro, GIATTINI, Riv. ital. Pal. viii, p. 64, pls. v & vi.
Madreporaria, West Indies, monographed; anatomy, reproduction, development, classification and descriptions of species, DUERDEN, Mem. Ac. Washington viii, 7th memoir, 597 pp., 25 pls.
Madreporaria; budding and fission, DUERDEN, Ann. Nat. Hist. (7) x, pp. 382–393, 4 text-figg.
Madrepora; increase of mesenteries, DUERDEN, t. c. pp. 96–115, 13 text-figg.
Mæandra (= *Mæandra* Oken, ex. p.), revision of genus, VERRILL, Tr. Connect. Ac. xi, pp. 66–84, pls.
Mæandridæ nom. nov. for *Mæandrinidæ* Verrill, p. 65, sub. fam. *Mæandrinæ* nom. nov. p. 66, VERRILL, t. c.
Megalactis hemprichii, figure, HEMPRICH & EHRENBERG (81), pl. vii.
†*Melitodes* (?) sp., Victoria Tertiary, HALL, P. Soc. Victoria xv, Pt I, p. 80, pl. xi, figg. 1–3.
Metallogorgia **n. g.** for *Dasygorgia melanotrichos* Wright & Studer, VERSLUYS, Siboga Exped. xiii, p. 87, figg. 147–155.
Metridium, variation, TORREY, P. Washington Ac. iv, pp. 395–406. *M. rhodostomum*, figure, HEMPRICH & EHRENBERG (81), pl. vii.
†*Monotrypa pethöi*, Vaskóh, Triassic chalk, PAPP, Foldtani Kozl. xxxii, p. 251, 5 figg., **n. sp.**
†*Montlivaultia fungiformis*, Italy, characters, OSASCO, Palæontogr. ital. viii, p. 103, pl. viii, fig. 2.
Mussa (*Symphyllia*) *hispida*, West Indies and Brazil, VERRILL, Tr. Connect. Ac. xi, p. 127, pl. xxi, figg. 2–2c. *M.* (*Symphyllia*) *annectens*, Bermudas, VERRILL, t. c. p. 178, pl. xxxv, figg. 1 & 2. *M.* (*Isophyllia*) *multiflora*, Bermudas, VERRILL, t. c. pp. 125, 180, pl. xx, fig. 1, pl. xxv, fig. 1 : **n. spp.**
†*Mycethoseris incerta*, Italy, OSASCO, Palæontogr. ital. viii, p. 118, pl. ix, fig. 8. †*M. pseudohydnophora*, Bavaria, REIS, Geognost. Jahresh. ii, p. 121 : **n. spp.**
Mycedium tenuicostatum, Singapore, VERRILL, Tr. Connect. Ac. xi, p. 137, pl. xxix, figg. 2–2c, **n. sp.**
Nephthya rugosa, South Africa, KÜKENTHAL, Zool. Anz. xxv, p. 299, **n. sp.**
†*Oculina*, **n. sp.** Libian desert, WANNER, Palaeontogr. xxx, pp. 91–151, pls.
Odontocyathus sexradiis, p. 23, pl. iii, fig. 20, *O. stella*, p. 24, figg. 21A & B, East Indian Archipelago, structure, ALCOCK, Siboga Exped. xviA, **n. spp.**
Orbicella hispidula, Florida Reefs, VERRILL, Tr. Connect. Ac. xi, p. 100, pl. xv, figg. 3–3B, **n. sp.**
O. braziliana n. n. for *O. cavernosa* Quelch, VERRILL, t. c. p. 101.
†*Oroseris regularis*, Italy, OSASCO, Palæontogr. ital. viii, p. 117, pl. ix, fig. 6.
†*Palæopsammia*, **n. g.** & **sp.** Libian desert, WANNER, Palaeontogr. xxx, pp. 91–151, pls.
†*Paracyathus marylandicus*, Maryland, Eocene, VAUGHAN, P. Soc. Washington xv, p. 205.
P. pruinosus, East Indian Archipelago, structure, ALCOCK, Siboga Exped. xviA, p. 18, pl. iii, fig. 17, **n. sp.**
Paramuricea procera (*Gorgonaceæ*), Sagamibai, Japan, MOROFF, Zool. Jahrb. Syst. xvii, p. 407, pl. xvi, fig. 17, pl. xviii, fig. 21. *P. procerus* Japan, MOROFF, Zool. Anz. xxv, p. 583 : **n. spp.**

Paraspongodes antarctica, Bouvet Island, KÜKENTHAL, Zool. Anz. xxv, p. 300, **n. sp.**

Pavonaria dofleini, *P. californica*, Californica, MOROFF, Zool. Anz. xxv, p. 581. *P.*, p. 390, pl. xviii, figg. 16 & 16A, *P. californica*, p. 393, characters and measurements, MOROFF, Zool. Jahrb. Syst. xvii : **n. spp.**

Pennatula phosphora var. *longispinosa*, n. var., p. 380, pl. xiv, fig. 6, pl. xviii, fig. 15, *P. murrayi* var. *japonica*, n. var., p. 383, Japan, MOROFF, t. c. *P. phosphorea* var. *longispinosa*, n. var., *P. murrayi* var. *japonica*, n. var., Japan, MOROFF, Zool. Anz. xxv, pp. 579 & 580.

P. americana, Massachusetts, MOROFF, t. c. p. 580 and Zool. Jahrb. Syst. xvii, pp. 381–383, **n. sp.**

Phellia simplex, Bermudas, VERRILL, Tr. Connect. Ac. xi, p. 48, n. sp.

Phelliomorpha **n. g.** for *P. crassa* (=*Phellia* Dan.), structure, CARLGREN, Wiss. Meeresuntersuch. v, p. 44, text-figg. 7–11.

Phlæocyathus n. n. for *Ceratotrochus hospes*, **n. sp.**, ALCOCK, Siboga Exped. xviA, p. 12.

Placotrochides **n. g.** for *P. dentiformis*, p. 33, pl. iv, fig. 31, *P. scaphula*, p. 34, pl. iv, fig. 32, **n. spp.**, East Indian Archipelago, structure, ALCOCK, t. c.

†*Platytrochus speciosus*, redescribed, VAUGHAN, P. Soc. Washington xv, pp. 207–209, 5 figg.

Pleurocorallium (*Gorgonaceæ*) **n. g.** for *P. confusum*, **n. sp.**, Sagamibai, Japan, p. 404, pl. xvii, fig. 8, pl. xviii, fig. 19, MOROFF, Zool. Jahrb. Syst. xvii.

P. confusum, Japan, MOROFF, Zool. Anz. xxv, p. 582, **n. sp.**

Pleurocoralloides **n. g.** for *P. formosus*, **n. sp.**, Japan, MOROFF, t. c. p. 583 and Zool. Jahrb. Syst. xvii, p. 406, pl. xvii, fig. 10, pl. xviii, fig. 20.

Pleurogorgia **n. g.** for *P. plana*, **n. sp.**, p. 93, figg. 156–162, East Indian Archipelago, structure, VERSLUYS, Siboga Exped. xiii.

Plexauroides asper, Japan, MOROFF, Zool. Anz. xxv, p. 583 and Zool. Jahrb. Syst. xvii, p. 408, pl. xvii, fig. 9, pl. xviii, fig. 22, **n. sp.**

Porites, increase in mesenteries, DUERDEN, Ann. Nat. Hist. (7) x, pp. 96–115, 13 text-figg.

Pourtalosmilia dumosa, East Indian Archipelago, structure, ALCOCK, Siboga Exped. xviA, p. 36, pl. v, fig. 33, **n. sp.**

†*Prionastræa taramellii*, Italy, characters, OSASCO, Palæontogr. ital. viii, p. 108, pl. viii, fig. 8, **n. sp.**

Pteroides sagomiense, *P. rhomboidale*, Japan (*Pennatulaceæ*), MOROFF, Zool. Anz. xxv, p. 579, and p. 336, pl. xviii, figg. 11 & 12, p. 369, pl. xviii, fig. 13, pl. xiv, fig. 2, Zool. Jahrb. Syst. xvii, **n. spp.**

Ptilosarcus quadrangularis, California, MOROFF, Zool. Anz. xxv, p. 580, and Zool. Jahrb. Syst. xvii, p. 385, pl. xv, figg. 5 & 6, **n. sp.**

Rhodactinia crassicornis, structure and synonymy, CARLGREN, Wiss. Meeresuntersuch. v, p. 40, text-figg. 3–6.

Rhodopsammia corniculans, East Indian Archipelago, ALCOCK, Tijdschr. Nederland. Dierk. Ver. (2) vii, p. 114, **n. sp.**

? *Sabinotrochus flatiliseptis*, p. 26, pl. iv, fig. 24, ? *S. bipatella*, p. 27, pl. iv, fig. 25, East Indian Archipelago, ALCOCK, Siboga Exped. xviA, **n. spp.**

Sagartia luciæ, HAZEN, Arch. Entwickmech. xiv, pp. 592–599, pl. xxxi. *S. luciæ*, distribution in North America, PARKER, Amer. Natural. xxxvi, pp. 491–493.

Siderastræa radians, mode of formation and growth of aggregated colonies, DUERDEN, Amer. Natural. xxxvi, pp. 461–471.

†*Siderofungia* **n. g.** for *S. bella*, **n. sp.**, Bavaria, REIS, Geognost. Jahresh. ii, p. 110, pl. iv, fig. 19.

Stephanophyllia fungulus, p. 40, pl. v, figg. 35, 35A–B, East Indian Archipelago, structure, ALCOCK, Siboga Exped. xviA, **n. sp.**

Stephanotrochus weberianus, p. 25, pl. iii, fig. 22, *S. sibogæ*, p. 25, pl. iii,

fig. 23, East Indian Archipelago, structure, ALCOCK, t. c. *S. crassus*, Azores, JOURDAN, Resultats Sci. Monaco viii, p. 21, pl. ii, figg. 17–19 : **n. spp.**

Stichopathes flagellum, p. 229, *S. dissimilis*, p. 230, *S. richardi*, p. 231, *S. abyssicola*, p. 232, Madeira, ROULE, Mem. Soc. zool. France xv, **n. spp.**

†*Stylocœnia minuscola*, Italy, OSASCO, Palæontogr. ital. viii, p. 114, pl. ix, fig. 3, **n. sp.**

†*Stylophora parva*, Italy, definition, OSASCO, t. c. p. 103, pl. viii, fig. 1, **n. sp.**

†*Syringopora spelæanus*, Australia, Middle Devonian, structure, ETHERIDGE, Rec. Austral. Mus. iv, p. 258, pl. xxxvii, fig. 2, pl. xxxviii, **n. sp.**

Tealia crassicornis, histology, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, p. 617, fig. 505. *T. lofotensis* (=*Madoniactis* ex p. Dan.), structure, CARLGREN, Wiss. Meeresuntersuch. v, p. 42.

†*Thamnastræa concinna*, characters, OPPENHEIM, Zeitschr. Deutsch. geol. Ges. liv, p. 86.

†*Thecocyathus mactra*=n. n. for *Cyathophyllum* Goldf., JANENSCH, Abh. geol. Karte Elsass v, p. 16.

Trochocyathus caryophylloides, p. 14, pl. ii, fig. 10, *T. pileus*, p. 15, pl. ii, fig. 11, East Indian Archipelago, structure, *T.* (*Theococyathus*) *rhombocolumna*, pl. ii, fig. 12, *T.* (*Theococyathus*) *virgatus*, p. 16, pl. ii, fig. 13, East Indian Archipelago, structure, ALCOCK, Siboga Exped. xviA. *T. weberi*, p. 95, *T. cavatus*, p. 97, East Indian Archipelago, ALCOCK, Tijdschr. Nederland. Dierk. Ver. (2) vii : **n. spp.**

†*T. guembeli*, Bavaria, REIS, Geognost. Jahresh. ii, p. 156, pl. iv, figg. 3–6, **n. sp.** 2 **n. spp.**, Libian desert, WANNER, Palæontogr. xxx, pp. 91–151, pls.

†*Trochoseris*? *lævicostata*, Italy, OSASCO, Palæontogr. ital. viii, p. 115, pl. ix, fig. 5, **n. sp.**

Tylopathes grayi, Morocco, p. 234, *T. atlantica*, Teneriffe, p. 235, *T.*? *hirta*, Santa Cruz, p. 238, ROULE, Mem. Soc. zool. France xv, **n. spp.**

†*Ulophyllia distincta*, Italy, characters, OSASCO, Palæontogr. ital. viii, p. 109, pl. viii, fig. 11, **n. sp.**

Umbellula encrinus var. *antarctica*, n. var., Bouvet Island, KÜKENTHAL, Zool. Anz. xxv, p. 596.

U. pellucida, *U. spicata*, *U. valdiviæ*, *U. rigida*, *U. köllikeri*, East African Coast, anatomy, KÜKENTHAL, t. c. pp. 593–596, **n. spp.**

Urticina sulcata, *U. carlgeni*, Cape Adare, structure, especially of food chambers, CLUBB, pp. 295–306, pls. xlviii & xlix.

Verrucella grandis, Bermudas, VERRILL, Tr. Connect. Ac. xi, p. 53, pl. ix, figg. 1–3, **n. sp.**

Virgularia rigida, Philippines, *C. hubereri*, Japan, MOROFF, Zool. Anz. xxv, p. 582, and Zool. Jahrb. Syst. xvii, p. 389, pl. xiv, fig. 1, **n. sp.**

Xeniidæ, characters, composition, distribution, and definitions of genera, KÜKENTHAL, Zool. Jahrb. Syst. xv, pp. 635–662.

Xenia, table of spp., p. 642, characters of 26 spp., pp. 646–657, KÜKENTHAL, t. c.

X. uniserta, *X. antarctica*, South African Coast, KÜKENTHAL, Zool. Anz. xxv, p. 299, **n. spp.**

Zoanthella, anatomy and histology of larva, MENON, P. Cambridge Soc. xi, pp. 407–417, pl. iv.

VI. CTENOPHORA.

[The following memoirs deal with *Ctenophora*:—ABBOTT (1), AGASSIZ & MAYER (3), APSTEIN (7), FOWLER (49), LEVANDER (103), RITTER (145), SCHNEIDER (152), STEUER (159), VANHÖFFEN (173).]

SUBJECT INDEX.

GENERAL BIOLOGY.

Review of work published in 1894, 1895, VANHÖFFEN (173).
General classification and anatomy, FOWLER (49).
Histology, SCHNEIDER (152).

GEOGRAPHY.

Gotland, APSTEIN (7).
Heligoland, occurrence of *Pleurobrachia pileus*, LEVANDER (103).
Triest, occurrence of *Beroë*, STEUER (159).
Southern California, RITTER (145).
Tropical Pacific, 2 n. spp., AGASSIZ & MAYER (3).
Misaki (Japan), 2 n. spp., *Cœloplana*, ABBOTT (1).

SYSTEMATIC.

Ctenophora; general classification and anatomy; FOWLER, Enc. Brit xxvii, pp. 300 & 301, 4 figg.
Ctenophora; comparative histology, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 183–186, 274–293; and in general discussion, pp. 1–176, text-figg.
Beroë ovata, histology, SCHNEIDER, t. c. pp. 274–293, text-figg. 304–306, 308–313, 315.
Cœloplana willeyi, *C. mitsukurii*, Misaki, [preliminary account], ABBOTT, Annot. zool. Japon. iv, pp. 103–108, **n. spp.**
Cydippe hormiphora, histology, SCHNEIDER, Lehrbuch vergleich. Hist. Jena 1902, pp. 274–293, figg. 302 & 303, 307.
Lampetia fusiformis, Paumotus Islands, p. 171, pl. xiii, figg. 59 & 60, AGASSIZ & MAYER, Mem. Mus. Harvard xxvi, **n. sp.**
Pleurobrachia ochracea, Tropical Pacific, p. 170, pl. xiii, fig. 58, AGASSIZ & MAYER, t. c. **n. sp.**
Pleurobrachia pileus, Gotland, occurrence, APSTEIN, Abh. deutsch. Seefisch.-Ver. vii, p. 124. *P. pileus*, Heligoland, LEVANDER, Medd. Soc. Faun. Fenn. xxv, p. 104.

XVII. SPONGIÆ.

BY

PROFESSOR E. A. MINCHIN.

CONTENTS.

Page

INTRODUCTION 4

CORRIGENDA AND ADDENDA TO PREVIOUS RECORDS . . . 5

I. TITLES 6

II. BIOLOGY.

A. Evolution.

(i) General Principles 11
(ii) Relations of Sponges 12
(iii) Phylogeny (vacant).

B. Morphology.

(i) General Accounts 12
(ii) External Characters 12
(a) Orientation, Attachment 12
(b) Form and Mode of Growth . . . 13
(c) Colour 13
(iii) Anatomy of Soft Parts. Canal-System . . 13
(iv) Skeletal System 13
(a) General Accounts 13
(b) Material of the Skeleton 13
(c) Skeletal Elements, Morphology, Development, and Nomenclature of . . . 13
(d) Skeletal Anatomy 14
(v) Histology 14
(a) General Accounts 14
(b) Special Organs or Tissues . . . 14
(vi) The Germ-Layer Question 14

C. Physiology.

(i) General Accounts (vacant).
(ii) Nutrition 14
(iii) Respiration (vacant).
(iv) Secretion and Excretion, Pigments, Ferments, etc.
(v) Irritability, Contractility, etc. (vacant).
(vi) Individuality 15
(vii) Miscellanea and Experimental (vacant).

Page

D. Bionomics 15

(i) General Accounts (vacant).
(ii) Special Habits 15
(iii) Habitat 15
(iv) Defence and Protection, Mimicry . . . 15
(v) Enemies (vacant).
(vi) Commensals and Parasites 15
(vii) Sponges as Geological Agents, Fossilization . 16

E. Reproduction and Development 16

(i) Germ-Cells, Fertilization 16
(ii) Embryology 16

(a) General Accounts 16
(b) Early Stages, Larvæ, and Metamorphosis 16
(c) Post-Larval Development, Organogeny (vacant).

(iii) Asexual Reproduction 16

(a) Fission and Vegetative Budding . . 16
(b) Germinal Budding and Gemmule-Formation 16
(c) Regeneration (vacant).

F. Miscellanea 17

(i) Technique 17
(ii) Economics 17
(iii) Bibliography 17

III. Distribution.

A. Geographical 17

a. Marine 17

(i) General 17
(ii) Atlantic Ocean and Adjacent Seas . . . 17
(iii) Indian Ocean and Adjacent Seas . . . 17
(iv) Pacific Ocean and Adjacent Seas . . . 18
(v) Arctic Seas (vacant).
(vi) Antarctic Seas 18

β. Freshwater 18

(i) Europe 18
(ii) Asia 18
(iii) Africa 18
(iv) Australian Region (vacant).
(v) America 18

B. Geological 18

(i) General 18

(ii) Cainozoic 19

(a) General (vacant).
(b) Pleistocene (vacant).
(c) Pliocene 19
(d) Miocene 19
(e) Oligocene (vacant).
(f) Eocene (vacant).

Page

(iii) Mesozoic 19
(a) General (vacant).
(b) Cretaceous 19
(c) Jurassic 19
(d) Lias (vacant).
(e) Trias (vacant).

(iv) Palæozoic 19
(a) General (vacant).
(b) Permian 19
(c) Permo-Carboniferous (vacant).
(d) Coal-Measures (vacant).
(e) Lower Carboniferous 19
(f) Devonian (vacant).
(g) Silurian 19
(h) Ordovician 19
(k) Cambrian (vacant).
(l) Pre-Cambrian (vacant).

IV. Systematic.

A. Porifera, general 20

B. Calcarea (including *Astroscleridæ*) 20

(i) Homocœla 20
(ii) Heterocœla 20

C. Hexactinellida 21

(i) Lyssacina 22
(ii) Dictyonina 23

D. Demospongiæ 26

(i) Tetraxonida 26

(a) Carnosa 26
(b) Tetractinellida 27

(1) Choristida 27
(2) Lithistida 28

(ii) Monaxonida 30

(a) Hadromerina 30

(1) Aciculina 30
(2) Clavulina 30

(b) Halichondrina 31
(c) Incertæ Sedis 37

(iii) Keratosa 37

(a) Dictyoceratina 37
(b) Dendroceratina (vacant).

(iv) Myxospongida (vacant).

E. Octactinellida (vacant).

F. Heteractinellida (vacant).

G. Incertæ Sedis 38

INTRODUCTION.

I. The Zoological Record of Sponges for 1902 includes 76 publications, exclusive of abstracts or reviews. Of this total, which is practically the same as last year, one (No. 68) dates from 1897, one from 1899, and seven from 1901, leaving 67 titles belonging strictly to 1902.

II. In Biology there are no very extensive or detailed memoirs in the Record. BIDDER (4) brings forward interesting observations on reaction to environment in some familiar sponges of the littoral zone. VOSMAER and VERNHOUT (65, 66) contribute valuable studies upon the morphology and development of certain types of monaxon spicules. The statement of SCHRAMMEN (55) to the effect that in palæozoic Hexactinellida the skeleton consists entirely or in great part of stauractins, i.e. 4-rayed cruciform spicules, is of great interest in view of the discovery of IJIMA [Zool. Rec. 1901, Sponges, p. 14] that in Hexactinellid larvæ the spicules first formed are all stauractins. Schrammen regards the stauractin as an adaptive modification ("Umbildung") of the hexactin, but it is possible that the former may have preceded the latter in phylogeny, just as in Calcarea the triradiate forms precede the quadriradiate. COTTE (7) throws some new light upon the mysterious boring habit of *Cliona* and (8, 9) adds to our knowledge of the physiology of nutrition and excretion in sponges. WILSON (72) advocates again his theory of the occurrence of "gemmule-larvæ," basing his arguments upon the discoveries of IJIMA recorded last year. COTTE (10) has observed reproduction by fission to occur in the gemmules of *Suberites domuncula*. A feature of this year's Record is the comparatively large number of text-books or treatises containing general accounts of sponges or of their structure.

III. Under the heading of Geographical Distribution the most important memoirs are those of LUNDBECK (38) on the Monaxonida of the North Atlantic, of WILSON (71) on the sponges of Porto Rico, of SCHULZE (56) on the Hexactinellids of the Indian Ocean, and of SOLLAS (58) and VOSMAER & VERNHOUT (66) on the sponges of the Malayan Region. KIRKPATRICK (28) adds to our knowledge of the South African sponge-fauna, and SVARTZEVSKY (59, 60) gives an exhaustive account of the *Spongillinæ* of Lake Baikal. Under Palæontology SCHRAMMEN (55) contributes a valuable monograph of the Cretaceous Hexactinellids of Hanover, and UNGERN-STERNBERG (63) describes others from the same horizon in Prussia.

IV. The most important systematic works on sponges are those of SCHULZE (56), LUNDBECK (38), SOLLAS (58), WILSON (71), SCHRAMMEN (55), UNGERN-STERNBERG (63) and KIRKPATRICK (28) already mentioned above, and of IJIMA (21), TOPSENT (62), and WHITELEGGE (69). VOSMAER & VERNHOUT settle decisively the vexed question of the systematic position of the *Placospongidæ*. WHITELEGGE (69) continues the examination of the types of Australian sponges and the exposure of the errors made in the original descriptions of them, a subject upon which ETHERIDGE (14) also has some remarks. URBAN (64) describes a new genus and species of calcareous sponges, but by far the greater number of this year's novelties

are amongst the fossil Hexactinellida and recent Monaxonida. The following table is a summary of the new genera, etc., recorded below.

	New genera	New species	New varieties
Calcarea	1	1	
Hexactinellida	12†	1+25†	2+2†
Demospongiæ			
(1) Tetraxonida ...	2	10	1
(2) Monaxonida ...		49	5
(3) Keratosa ...		4	3
(4) Myxospongida ...			
Incertæ Sedis		1†	
Total	3+12†	65+26†	11+2†

† Extinct forms.

CORRIGENDA and ADDENDA to previous Records of Spongiæ.

SCHULZE, F. E. (61) and (62) Zool. Rec. 1900. The volume of the Denk. Ak. Wien, in which these memoirs are published, having now reached English libraries, it is now possible for the Recorder to quote the original pagination. SCHULZE (61) is Denk. Ak. Wien lxix, pp. 497–506; SCHULZE (62) is t. c. pp. 311–324; hence 496 should be added to the number of each page cited, in the case of the former, and 310 in the case of the latter.

TOPSENT, E. (60) Zool. Rec. 1901. This memoir was included in the Record for 1901 on the evidence of a copy received from the author, which bore that date. In the series of the "Expédition Antarctique Belge," however, it is dated 1902.

Ephydatia olchonensis n. sp., p. 37, and *Spongilla microgemmata* n. sp., p. 38, Zool. Rec. 1901, Sponges. These two nn. spp. were wrongly attributed to KOROTNEFF (33) Zool. Rec. 1901, in whose memoir they were mentioned as new. They should be attributed to SVARTZEVSKY (59) and (60) of the present Record, whose memoirs were not accessible to the Recorder before this year.

I. TITLES.*

1. ALCOCK, A. A Naturalist in Indian Seas, or Four Years with the Royal Indian Marine Survey Ship "Investigator." London, John Murray, 1902, xxiv+328 pp., frontispiece and 98 figg. in the text. [II, D, iii; vi.]

2. ALLEN, E. J. & TODD, R. A. The Fauna of the Exe Estuary. J. Mar. Biol. Ass. vi, 3, pp. 295–335 with chart. [III, A, *a*, ii.]

BAUER, M. Vide HANSSEN (18).

3. BENEDICT, J. E. Four new symmetrical Hermit Crabs (Pagurids) from the West India Region. P. U. S. Mus. xxiii, 1901, pp. 771–778. [II, D, vi.]

4. BIDDER, G. Notes on Plymouth Sponges. J. Mar. Biol. Ass. vi, 3, pp. 376–382.
Abstract in J. R. Micr. Soc. 1902, p. 190.
[II, A, i: B, iv, d: D, iii; iv; IV, D, ii, b.]

5. BLANCKENHORN, M. Neues zur Geologie und Palæontologie Aegyptens. IV. Das Pliocän- und Quartärzeitalter in Aegypten ausschliesslich des Rothen Meergebietes. Zeitschr. Deutsch. geol. Ges. liii, pp. 307–502, pls. xiv, xv. [III, B, ii, c.]

6. BLASIUS, W. Süsswasserschwämme, Spongillen, bei Braunschweig. Jahresber. Ver. Braunschweig 12, pp. 80–82. [III. A, β, i.]

BÜTSCHLI, O. (9) Zool. Rec. 1901. Abstract by MAAS (39).

CHADWICK, H. C. Vide HERDMAN & CHADWICK (19).

7. COTTE, J. Note sur la mode de perforation des Cliones. C.R. Soc. Biol. liv [(2) iv], pp. 636 & 637 (May 27th 1902). [II, B, v, b: D, ii.]
Abstract by LENDENFELD in Zool. Zentrlbl. ix, pp. 759 & 760.

8. ——. Comment les choanocytes de *Sycandra raphanus* absorbent-ils les particules alimentaires? C.R. Soc. Biol. liv [(2) iv], pp. 1315–1317 (18th Nov. 1902). [II, B, v, b: C, ii.]

9. ——. Note sur la nature des produits de désassimilation chez les Spongiaires. C.R. Soc. Biol. liv [(2) iv], pp. 1317 & 1318 (18th Nov. 1902). [II, C, iv.]

10. ——. Observations sur les gemmules de *Suberites domuncula*. C.R. Soc. Biol. liv [(2) iv], pp. 1493–1495 (16th Dec. 1902). [II, E, iii, b.]

——. (13) Zool. Rec. 1901. Abstract by MAAS (39).

——. (14) Zool. Rec. 1901. Abstract in J. R. Micr. Soc. 1902, p. 56.

CUÉNOT, L. Vide TOPSENT, E.

11. DEECKE, W. Neue Materialien zur Geologie von Pommern. Mt. Ver. Vorpomm. xxxiii, 1901 (1902), pp. 64–131. [III, B, iii, b.]

12. DEYDIER, —. Notice géologique et agronomique de la région de Cucuron. Mem. Ac. Vaucluse (2) ii, pp. 297–303 (1902). [III, B, ii, d.]

---

* An asterisk prefixed to a quotation indicates that the recorder has not seen the Paper or Work referred to.

The Symbols in [ ] refer to the divisions of the Subject-Index II, III, IV. Those referring to the Systematic portion, IV, A–G, are inserted only when some question of definite importance to the systematist is dealt with in the work.

13. Elbert, —. Das untere Angoumien in den Osningbergketten des Teutoberger Waldes. (Zweite Hälfte). Verh. Ver. Rheinland 58, 2, pp. 97–167, pls ii–v. [III, B, iii, b.]

14. Etheridge, R. Junr. Report for the Year 1901. Rec. Austral. Mus. iv, 6, pp. 217–252 (Sponges, pp. 245–247). [II, D, vi: F, ii. IV, D.]

15. Girty, G. H. The upper Permian in Western Texas. Amer. J. Sci. (4) xiv, pp. 363–368. [III, B, iv, b.]

16. Goette, A. Lehrbuch der Zoologie. Leipzig, W. Engelmann, 8vo, 504 pp., 512 figg., 1902. (Poriferi, Schwämme, pp. 95–99, figg. 77–81.) [II, A, ii: B, i; V. IV, A.]

17. Haller, B. Lehrbuch der vergleichenden Anatomie. Erste Lieferung. Jena (Gustav Fischer), 1902, pp. vi–424, 412 figg. in text. [II, A, ii: B, i; ii, b; iii; iv, *a*; v, a; vi: C, vi: E, ii, a. IV, A.]

18. Hanssen, H. Die Bildung des Feuersteins in der Schreibkreide. Schr. Ver. Schleswig-Holst. xii, 2, pp. 197–240, 1 pl. [II, D, vii.]
Abstract by Max Bauer, Centrbl. Mineral. 1902, 21, pp. 659–661.

Heath, H. Vide Jordan & Heath (24).

Hecht, E. Vide Topsent, E.

19. Herdman, W. A. & Chadwick, H. C. Porifera, in:—Guide to the Port Erin Aquarium. P. Liverp. biol. Soc. xvi, pp. 71 & 72, fig. ii. [II, B, i.]

20. Hutchinson, A. On the mineralogical character of the skeleton of *Astrosclera*. Willey's Zoological Results vi, p. 735. Cambridge University Press, Aug. 1902. [II, B, iv, b.]

21. Ijima, I. Studies on the Hexactinellida. Contribution II. (The genera *Corbitella* and *Heterotella*.) J. Coll. Japan xvii, Article 9, 36, pp. 1 pl.
Abstracts in J. R. Micr. Soc. 1902, p. 656; by Lendenfeld in Zool. Zentrlbl. ix, p. 760. [III, A, *a*, iii; iv. IV, C, i.]

22. ——. Ueber die von mir in der Sagami-See gesammelten Hexactinelliden. Verh. V int. Congr. Zool. Berlin 1901 [1902], pp. 689–692. [III, A, *a*, iv.]

23. ——. Note on *Walteria leuckarti* Ij. Annot. zool. Japon. iv, 4, pp. 119–122. [II, B, iii. IV, C, i.]

——. (29) Zool. Rec. 1901. Abstract by Maas (39).

24. Jordan, D. S. & Heath, H. Animal Forms. A Second Book of Zoology. London (Hirschfeld Bros.), 1902, vii+259 pp., 1 p. blank, 140 text-figg.
Reviews in Knowledge xxv [n.s. xvii], p. 257; in Nature lxvi, p. 605. [II, A, ii: B, i; iv, a: E, ii, a. III, A, *a*, i.]

25. —— & Kellogg, V. L. Animal Life. A First Text-Book of Zoology. London (Harry Kempton), 1901, ix+329 pp., 1 p. blank, 180 text-figg.
Review in Knowledge xxxv [n. s. xvii], p. 12. [II, A, ii: B, i.]

Kellogg, V. L. Vide Jordan & Kellogg (25).

26. Kerville, H. Gadeau de. Recherches sur les Faunes Marine et Maritime de la Normandie. 3e Voyage, Region d'Omonville-la-Rogue (Manche) et Fosse de la Hague. Bull. Soc. Rouen (4), xxxvi, 1901, pp. 143–224. [III. A, *a*, ii.]

27. KIRKPATRICK, R. Porifera, in :— Report on the Collections of Natural History made in the Antarctic Regions during the Voyage of the "Southern Cross." British Museum of Nat. Hist. London, 1902, Article xx, pp. 317–319. [III, A, *a*, vi.]

28. ——. Descriptions of South African Sponges. Cape of Good Hope, Department of Agriculture [Bulletin ?] No. 4, 1902. Marine Investigations in South Africa i, pp. 219–232, 3 pls.
[II, D, vi. III, A, *a*, iii. IV, C, i: D, i, b, 1.]

29. KOORDERS, S. H. Notiz über Symbiose einer Cladophora mit Ephydatia Fluviatilis, in einem Gebirgssee in Java. Ann. Jardin Botanique Buitenzorg [xviii], (2) iii, 1, pp. 8–16, pls. i, ii. [II, D, vi.]

30. LAMEERE, A. De l'origine des Éponges. Bull. Soc. malac. Belgique xxxvi, pp. vii & viii. [II, A, ii: B, vi: E, ii, a.]

31. LANDACRE, F. L. Sponges and Bryozoans of Sandusky Bay. Ohio Natural. i, 6 (April 1901), pp. 96 & 97. [III, A, β, v.]

32. LAUTERBORN, R. Ein für Deutschland neuer Süsswasserschwamm (*Carterius stepanowi* Dyb.). Nebst Beobachtungen über eine mit demselben symbiotisch lebenden Alge (*Scenedesmus quadricauda* Bréb.). Biol. Centrbl. xxii (1902), 16, 17, pp. 519–535, 5 text-figg.
Abstract by LENDENFELD in Zool. Zentrlbl. ix, pp. 760 & 761.
[II, D, iii; vi: E, iii, b. III, A, β, i. IV, D, ii, b.]

33. LEBOUR (Miss) M. V. Marine Mollusca of Sandsend, Yorkshire. Naturalist 1902, No. 544, pp. 171–176. [II, D, iv.]

LENDENFELD, R. v. Vide COTTE (7), IJIMA (21), LAUTERBORN (32), LUNDBECK (38), SCHRAMMEN (55), SCHULZE (56), TOPSENT (62), URBAN (64), and VOSMAER (65).

34. LENEY, F. A list of the "Type," Figured, and Described Fossils in the Norwich Castle Museum. (Concluded.) Geol. Mag. (4) ix, pp. 220–231 (Sponges, p. 230).

35. LEVANDER, K. M. Übersicht der in der Umgebung von Esbo-Löfö im Meerwasser vorkommenden Thiere. Acta Soc. Faun. Fenn. xx, 6, 20 pp. [II, D, iii. III, A, β, i.]

36. ——. Beiträge zur Fauna und Algenflora der süssen Gewässer der Murmanküste. Acta Soc. Faun. Fenn. xx, No. 8, 35 pp.
[III, A, β, i.]

37. LUBOSCH, W. Ueber die Eireifung der Metazoen, insbesondere über die Rolle der Nucleolarsubztanz und die Erscheinungen der Dotterbildung. Anat. Hefte, Ergebn. xi, pp. 709–783. [II, E, i.]

38. LUNDBECK, W. Porifera. (Part I.) Homorrhaphidæ and Heterorrhaphidæ. The Danish Ingolf-Expedition, VI, Copenhagen, Bianco Luno, 1902, 4to, 108 pp., 19 pls. with explanations, 1 text-fig.
Criticism by LENDENFELD in Zool. Zentrlbl. ix, p. 761. [II, B, ii, b; iii; iv, c; v, b: D, vi: E, ii, b; iii, b. III, A, *a*, ii. IV, D, ii, b.]

39. MAAS, O. Porifera. Zool. Jahresber. 1901 [1902], pp. 1–7 (sep. pag.). Titles of 23 memoirs, with abstracts of No. 44, Zool. Rec. 1900, and Nos. 9, 13, 29, 37, 38, 50, 56, 57, 62, and 64, Zool. Rec. 1901. [II, F, iii.]

——. (37) & (38) Zool. Rec. 1901. Abstract by MAAS (39).

——. (38) Zool. Rec. 1901.
Abstract by G. SAINT-REMY in Annee biol. vi, p. 133; in J. R. Micr. Soc. 1902, pp. 55 & 56.

——. Vide WILSON (72).

MACKAY, A. H. (44) Zool. Rec. 1900. Abstract by MAAS (39).

40. MADDOCK, H. E. The Formation of Flint. Tr. Hull. Geol. Soc. v, 2, pp. 42–45. [II, D, vii.]

41. MASTERMAN, A. T. Elementary Text-Book of Zoology. 2nd Edition. Edinburgh, E. & S. Livingstone, 1902, 8vo, 628 pp., 411 figg. [II, A, ii: B, i: D, iv: E, ii, a. IV, A.]

42. MINCHIN, E. A. Sponges. Encyclopædia Britannica. 10th Edition, xxxii [viii of new volumes], pp. 811–814, 5 text-figg. [II, A, ii: B, i; V, a; vi: E, ii, a: F, ii.]

43. MOORE, J. E. S. The Tanganyika Problem. An account of the Researches undertaken concerning the existence of Marine Animals in Central Africa. London, Hurst and Blackett, 1903 [1902], pp. xxiii + 371, 1 p. blank, illustrated. [III, A, β, iii. IV, D, ii, b.]

44. NUTTING, C. C. The Colour of Deep-Sea Animals. P. Iowa Ac. vi, 1898 (1899), pp. 27–36. [II, B, ii, c: D, iv.]

45. PEACH, B. N. Appendix, Part I, Palæontological in: Geikie, the Geology of Eastern Fife. Mem. geol. Surv. Scotland 1902, pp. 353–385. [III, B, iv, e.]

46. PERON, A. Les Étages Crétaciques supérieurs des Alpes-Maritimes. Bull. Soc. geol. France (4) i, 4, pp. 505–536, 2 text-figg. [III, B, iii, b.]

47. PRATT, H. S. A course in Invertebrate Zoology. Ginn and Co. (Boston, U.S.A. and London 1902), 210 pp.
Reviews in Amer. Natural. xxxvi, pp. 502 & 503; in Nature lxvi, p. 292. [II, B, i.]

48. QUAAS, A. Beitrag zur Kenntniss der Fauna der obersten Kreidebildungen in der libyschen Wüste. II. Die Fauna der Oberwegischichten und der Blätterthone in der libyschen Wüste. Palæontogr. xxx, II Abth., 4, pp. 153–336, with index, tables, and pls. xx–xxxiii. [III, B, iii, b. IV, C, ii.]

49. REED, F. R. C. Woodwardian Museum Notes: Salter's undescribed Species. ix. Geol. Mag. (4) ix, pp. 337–342, pl. xviii. [IV, C, i: G.]

50. REMEŠ, M. Die Fauna des Kalkes von Skalička. Verh. Geol. Reichsanst. 1902, 5, pp. 135–141. [III, B, iii, b.]

51. ——. Nachträge zur Fauna von Stramberg. I. Die Fauna des rothen Kalksteins (Nesselsdorfer Schichten). Beitr. Pal. Oesterr.-Ung. xiv, pp. 195–217, pls. xviii–xx, 2 text-figg. [III, B, iii, c.]

SAINT-REMY, G., vide MAAS, O.

52. SCHLOSSER, M. Die Fauna der Lias und Dogger in Franken und der Oberpfalz. Zeitschr. Deutsch. geol. Ges. liii, pp. 513–569, pl. xvi. [III, B, iii, c.]

53. SCHMIERER, T. Das Altersverhältnis der Stufen ε und ζ des weissen Jura. Zeitschr. Deutsch. geol. Ges. liv, pp. 525–607. [III, B, iii, c.]

54. SCHNEIDER, K. C. Lehrbuch der vergleichenden Histologie der Tiere. Jena (Gustav Fischer) 1902, pp. xiv + 988, 691 figg. Review in Nature lxvii, pp. 98 & 99. [II, B, i; V, a: E, ii, a; iii, b.]

55. SCHRAMMEN, A. Neue Hexactinelliden aus der oberen Kreide. Mt. Mus. Hildesheim 15 (Jan. 1902), 26 pp., 4 pls. with explanations, 4 text-figg.
Abstract by LENDENFELD in Zool. Zentrlbl. ix, pp. 110 & 111. [II, B, iv, c. III, B, i; iii, b. IV, C, ii.]

——. (50) Zool. Rec. 1901. Abstract by MAAS (39).

56. SCHULZE, F. E. An Account of the Indian Triaxonia collected by the Royal Indian Marine Survey Ship Investigator. Translated by R. von Lendenfeld. Calcutta: printed by Order of the Trustees of the Indian Museum, 1902, 113 pp., 23 pls. with explanations.
Abstract by LENDENFELD in Zool. Zentrlbl. ix, p. 761.
[II, B, iv, c. III, A, *a*, iii. IV, C, i; ii: D, ii, a, 2; b.]

57. SIMROTH, H. Uber den Ursprung der Wirbelthiere, der Schwämme, und der geschlechtlichen Fortpflanzung. Verh. Deutsch. zool. Ges. xii, 1902, pp. 152–162. [II, A, ii.]

58. SOLLAS, (Miss) IGERNA B. J. On the Sponges collected during the "Skeat Expedition" to the Malay Peninsula, 1899–1900. P. Zool. Soc. London 1902, ii, pt. I, pp. 210–221, pls. xiv & xv.
[II, B, iv, c; v, b: D, vi: E, iii, b. III, A, *a*, iii. IV, D, i, a; b, 1; ii, a, 1, 2; iii, a.]

59. SVARTZEVSKY, B. A. O ghubkakh Baĭkalskago ozera (Sur les Spongiaires du Lac de Baikal.) Zapiski Kiev. Obshch. xvii, 2 (1901), pp. ix–xiv, 1 pl. [III, A, *β*, ii. IV, D, ii, b.]

60. ——. Materialui po faunye ghubok Baĭkalskago ozera. T. c. pp. 329–352, pls. iii–vi. [III, A, *β*, ii. IV, D, ii, b.]

TODD, R. A., vide ALLEN & TODD (2).

61. TOPSENT, E. Sur l'orientation des *Crinorhiza*. C.R. Ac. Sci. cxxxiv, i (6th Jan. 1902). [II, B, ii, a. III, A, *a*, ii. IV, D, ii, b.]

62. ——. Les Asterostreptidæ. Bull. Soc. Sci. Med. Ouest France xi (1902), No. 2, 18 pp.
Abstract by LENDENFELD in Zool. Zentrlbl. ix, pp. 762 & 763.
[II, D, vi. III, A, *a*, ii. IV, D, i, b, 1.]

——. (56) & (57) Zool. Rec. 1901.
Abstract by MAAS (39).

——. (57) Zool. Rec. 1901.
Notice by CUÉNOT in Annee biol. vi, p. 388.

——. (58) Zool. Rec. 1901.
Notice by E. HECHT in Annee biol. vi, p. 388.

——. (59) Zool. Rec. 1901.
Abstract in J. R. Micr. Soc. 1902, p. 562.

——. (60) Zool. Rec. 1901.
Abstract by LENDENFELD in Zool. Zentrlbl. ix, pp. 761 & 762.

63. UNGERN-STERNBERG, E. v. Die Hexactinelliden der senonen Diluvialgeschiebe in Ost- und Westpreussen. Schr. Ges. Konigsb. 43, 1902, pp. 132–150, pls. iv–vi. [III, B, iii, b. IV, C, ii.]

64. URBAN, F. *Rhabdodermella nuttingi* nov. gen. et nov. spec. Zeitschr. wiss. Zool. lxxi (2) (1902), pp. 268–275, pl. xiv, 1 text-fig.
Abstract in J. R. Micr. Soc. 1902, p. 312; by LENDENFELD in Zool. Zentrlbl. ix, p. 247. [II, B, iii; v, b: E, i. III, A, *a*, iv. IV, B, ii.]

65. VOSMAER, G. C. J. On the shape of some siliceous spicules of sponges. P. Ac. Amsterdam v, 1902, pp. 104–114. [II, B, iv, c.]
Abstract by LENDENFELD in Zool. Zentrlbl. ix, p. 763.

66. —— & VERNHOUT, J. H. The Porifera of the Siboga-Expedition. I. The Genus *Placospongia*. Monogr. vi*a*, Uitkomst. H. M. Siboga ...uitgegeven Max Weber. 4to, 17 pp., 5 pls.
[II, B, ii, c; iii; iv, c. III, A, *a*, iii. IV, D, ii, a, 2.]

67. WANNER, J. Die Fauna der obersten weissen Kreide der libyschen Wüste. Palæontogr. xxx, ii Abth. 3 (1902), pp. 91–151, pls. xiii–xix. [III, B, iii, b. IV, C, ii.]

WELTNER, W. (62) Zool. Rec. 1901. Abstract by MAAS (39).

68. WHITEAVES, J. F. The fossils of the Galena-Trenton and Black River formations of Lake Winnipeg and its vicinity. Geol. Survey of Canada, Palæozoic Fossils, III, iii (1897), pp. 129–242, pls. xxi & xxii. [III, B, iv, h. IV, C, i: D, i, b, 2: G.]

69. WHITELEGGE, T. Notes on Lendenfeld's Types described in the Catalogue of Sponges in the Australian Museum. Rec. Austral. Mus. iv, 7 (25th Aug. 1902), pp. 274–288. [IV, D, ii, b.]

——. (64) Zool. Rec. 1901. Abstract by MAAS (39); in J. R. Micr. Soc. 1902, p. 190; by LENDENFELD in Zool. Zentrlbl. ix, p. 247.

70. WILLEY, A. Contribution to the Natural History of the Pearly Nautilus. I. Personal Narrative. Willey's Zoological Results, Part vi, pp. 691–734, 18 figg., Cambridge University Press, Aug. 1902. [II, D, iii. III, A, *a*, iv.]

71. WILSON, H. V. The Sponges collected in Porto Rico in 1899 by the U. S. Fish Commission Steamer Fish Hawk. Bull. U. S. Fish Comm. for 1900, 2 (1902), pp. 375–411, 30 text-figg. [II, F, i. III, A, *a*, ii. IV, B, ii: C, ii: D, i, a; b, 1; ii, a, 1; b; iii, a.]

72. ——. On the Asexual Origin of the Ciliated Sponge Larva. Amer. Natural. xxxvi, No. 426, pp. 451–459.
Abstract in J. R. Micr. Soc. 1902, p. 562; by MAAS in Zool. Zentrlbl. ix, pp. 620 & 621. [II, E, iii.]

73. WIMAN, C. Über die Borkholmer Schicht im Mittelbaltischen Silurgebiet. Bull. Geol. Inst. Upsala v, 2, No. 10, pp. 149–222, pls. v–viii. [III, B, iv, g.]

74. WOLLEMANN, A. Das Senon von Biewende. Jahresber. Ver. Braunschweig 12, pp. 56–59. [III, B, iii, b.]

75. ZAHÁLKA, Č. Pásmo IV, křidového útvaru v Pojizeří. (Die IV Zone der Kreideformation im Isergebiete.) SB. Bohmisch. Ges. 1902, Memoir xvi, 22 pp., 2 pls. [III, B, iii, b.]

76. *ZEHFUSS, —. Preparieren von Spongillenskeletten. Natur und Haus, Berlin, ix, 1901, pp. 204–206. [II, F, i.]

II. BIOLOGY.

A. EVOLUTION.

(i) *General Principles.*

Sycon [*Grantia*] *compressum* Fabr., bionomical significance of specific characters [vide II, D, iv], pp. 376–380: variation in *Suberites domuncula* and *Halichondria panicea* as the direct result of external conditions: the word "metampy" suggested for such definite divergence from the type, when known to be due to post-natal influence, pp. 380–382; BIDDER (4).

(ii) *Relations of Sponges.*

Relations of Sponges to Protozoa; JORDAN & HEATH (24) pp. 19–21, 27 & 28).—The "spongocœle," lined by *ectoderm*, is clearly not homologous with the "gastrocœle," hollowed out in the *endoderm*, of other animals; it is a question whether the Sponges and the "Monostomes" are descended from a common stock, or from separate groups of Protozoa. Sponges are to be regarded as descended from the Choanoflagellata, and the parenchymula larva is directly comparable to *Protospongia* [= *Proterospongia*] *haeckeli*. The analogy of the parenchymula with the planula is, however, evident, and the Monostomes might be regarded as derived also from *Protospongia* by the hollowing out of a cavity in the endoderm. In any case, "Sponges ought to be separated radically from veritable animals, but it is probable that they form part of the same kingdom;" LAMEERE (30).—Position of Sponges in the Animal Kingdom discussed; MINCHIN (42) p. 812.—Sponges derived from an Acœlous Turbellarian ancestor, which left the land and became adapted to sessile marine life; SIMROTH (57) pp. 156–158.

Sponges as a stem (Stamm) of the Radiata, the other stem being the Cnidaria; GOETTE (16).—Porifera placed under Metazoa as the first group of the Achorodata [sic], of equal value with Cœlenterata (Cnidaria), Echinodermata, Vermes, etc.; HALLER (17) pp. 62–67.—Porifera as a "Branch" of the Animal Kingdom, distinct from Protozoa, Cœlenterata, etc.; JORDAN & KELLOGG (25) p. 307.—Porifera as a separate phylum; MASTERMAN (41).

(iii) *Phylogeny.*

Vacant.

B. MORPHOLOGY.

(i) *General Accounts.*

HALLER (17) pp. 62–77, figg. 74–89: JORDAN & HEATH (24) pp. 23–27: MINCHIN (42).—General account of sponge organisation; GOETTE (16).—Popular account of the Porifera; HERDMAN & CHADWICK (19).—Structure of sponges in general, with figures of *Calcolynthus primordialis* and *Prophysema primordiale*, after Haeckel; JORDAN & KELLOGG (25) pp. 32–37.—Description of *Sycandra* [*Grantia*] *compressa* as a type of the Porifera, and general account of the Calcarea; MASTERMAN (41) pp. 103–110, figg. 37–41.—General morphology of sponges; SCHNEIDER (54) pp. 177–183, figg. 231–237.—Structure of *Grantia* as a type of the Porifera; PRATT (47) pp. 161–163.

(ii) *External Characters.*

(a) **Orientation, Attachment.**—On the orientation of the *Crinorhiza*-form of the genera *Cladorhiza*, *Axoniderma*, and *Chondrocladia*. Ridley & Dendy considered the peripheral fringe of spiculo-fibrous filaments as directed downwards, like the ribs of an umbrella; a new species, to be named *Cladorhiza flos abyssi*, shows that the orientation formerly accepted must be reversed, and that the fringe is in reality inclined upwards, like an expanded corolla. The true lower surface bears a stalk of attachment in some forms, in others the base is conical; TOPSENT (61).

(b) **Form and Mode of Growth.**—General account; HALLER (17) pp. 65–68.—*Hamacantha implicans*, n. sp., "generally spreads over the body on which it is growing, grows round it, and embodies it completely," p. 105: yearly rings of growth in *Chalininæ*, p. 5; LUNDBECK (38).

(c) **Colour.**—Significance of colours in deep-sea sponges; NUTTING (44).—Colour of *Placospongia* due to the possession of coloured spicules (sterrospires); VOSMAER & VERNHOUT (66) pp. 3 & 9.

(iii) *Anatomy of the Soft Tissues. Canal-System.*

Anatomy of sponges in general; HALLER (17) pp. 72–75.

Canal-System of *Rhabdodermella nuttingi*, n. sp.; URBAN (64) pp. 271 & 272.

Oscula and excurrent system of *Walteria leuckarti* Ij.; IJIMA (23).

Anatomy of *Placospongia melobesioides* Gray and *P. carinata* (Bwk.) Rdl.: the name "mastichore" proposed for a region bearing choanocytes, as in *Leucosolenia*, and "mastichorions" for "the localized small regions, known as ciliated or flagellated chambers;" VOSMAER & VERNHOUT (66) pp. 4–6.

Dermal membrane, oscula and pores, homologies of, and application of the terms, p. 2; structure of the papillæ of *Eumastia sitiens*, pp. 32 & 33; canal-system of *Oceanapia robusta*, p. 80: LUNDBECK (38).

(iv) *Skeletal System.*

(a) **General Accounts.**—HALLER (17) pp. 75–77: JORDAN & HEATH (24) pp. 26 & 27.

(b) **Material of the Skeleton.**—"The conclusion.....that the skeleton of *Astrosclera* is not calcite, is.....satisfactorily confirmed. Its properties.....agree with those of conchite, but until the independence of conchite and aragonite is more definitely established, the mineral element present in *Astrosclera* may best be regarded as aragonite;" HUTCHINSON (20).

(c) **Morphology, Development and Nomenclature of Skeletal Elements.**—The stauractins of the *Stauractinophora* regarded as a modification of the hexactine adapted to support the very thin body-wall of these sponges; SCHRAMMEN (55) p. 8.

Silica pearls in *Hyalonema masoni*, p. 14: in *H. martabanense*, p. 23; SCHULZE (56).—Peculiar globules in the gemmule of *Tethya ingalli*; SOLLAS (58) p. 215.

Growth of spicules by apposition; LUNDBECK (38) pp. 3 & 53.—Development of the sterrospiræ of *Placospongia* from spinispiræ; VOSMAER & VERNHOUT (66) pp. 6–9, pl. iv, figg. 5, 9, 10, 14, 15, pl. v, figg. 1–4.

"Paradiscs," a peculiar form of Z-shaped spicules (amphidiscs) occurring in *Hyalonema alcocki*, and in *H. investigatoris*, pp. 25 & 26, pl. vi, figg. 4*a*, 4*b*, 11 16: "codonhexasters" for hexasters in which the marginal teeth form a deep bell, p. 72, pl. xii, figg. 13–15: "drepanocom" for a form of hexaster in which the branch-rays are curved like a scythe, p. 73, pl. xii, figg. 16 & 17: "sigmatocoms" for hexasters with S-shaped branch-rays, pp. 73 & 74, pl. xii, figg. 18 & 19; SCHULZE (56).

The varieties and nomenclature of certain forms of monaxon siliceous spicules and of some hitherto considered as polyaxons: two fundamental subdivisions in the group of monaxons are distinguished; I, *Pedinaxons*, the axis of which lies in one plane; II, *Spiraxons*, the axis of which is a screw helix: the latter type may be further subdivided into *a*-spiraxons,

in which the axis is a line drawn on a circular cylinder, and β-spiraxons, in which the axis is a line drawn on an elliptic cylinder: the α-spiraxons include:—(1) the *sigmaspira*, pp. 3–5, (2) the *spirula*, p. 5, (3) the *spinispira*, pp. 5–7, (4) the *microspira*, pp. 7 & 8, and (5) the *sterrospira*, p. 8: the β-spiraxons include:—(1) the *sigma*, pp. 8 & 9, (2) the *chela*, p. 9, (3) the *diancistra*, p. 9; VOSMAER (65).—The name "commata" proposed for small comma-shaped styli which apparently occur in all species of *Desmacella*, p. 89; diancistra, development and varieties of, pp. 102 & 103; LUNDBECK (38).

(d) **Skeletal Anatomy.**—Skeletal anatomy of *Sycon compressum* [*Grantia compressa*], *Halichondria panicea*, and *Suberites domuncula*, in relation to their conditions of life; BIDDER (4).

(v) *Histology.*

(a) **General Accounts.**—HALLER (17) pp. 69–75.—General account of sponge histology; "muscles and nerves are not developed in the tissues of sponges;" GOETTE (16) pp. 96 & 97.—Recent discoveries in sponge histology; MINCHIN (42) pp. 812 & 813.—General histology of *Sycon raphanus*, pp. 253–261, figg. 288–293; of *Oscarella lobularis*, pp. 262–264, fig. 294; of *Chondrosia reniformis*, and other forms, pp. 264–272, figg. 295–300: SCHNEIDER (54).

(b) **Histology of Special Organs or Classes of Cells.**—Collar-cells of *Sycandra raphanus*; COTTE (8), vide II, C, ii.—Collar-cells of *Rhabdodermella nuttingi* n. sp., connected by basal processes; URBAN (64) p. 273.—Sollas's membrane in the flagellated chambers of *Tetilla ridleyi*; SOLLAS (58) p. 219.

Cellules sphéruleuses of *Cliona vastifica*; COTTE (7), vide II, D, ii: of *Phlœodictyon elongatum* (Tops.), p. 61: of *Gellius luridus*, n. sp., pp. 66 & 67: of *Gellius microtoxa*, n. sp., p. 68: of *Oceanapia robusta*, p. 82: of *Hamacantha implicans*, n. sp., p. 107; LUNDBECK (38).

Peculiar vesiculate tissue in *Halichondria* (?) *difficilis*, n. sp.; LUNDBECK (38) p. 30.

(vi) *The Germ-Layer Question.*

Sponges regarded as composed of ectoderm, endoderm, and mesoderm; HALLER (17) pp. 63 & 64.—The gastral layer of sponges compared with the ectoderm, the dermal with the endoderm, of other Metazoa [vide II, A, ii]; LAMEERE (30).—Homologies of germ-layers discussed; MINCHIN (42) pp. 812 & 813.

C. PHYSIOLOGY.

(i) **General Accounts.**—Vacant.

(ii) **Nutrition.**—On the mechanism of absorption of food-particles by the collar-cells of *Sycandra raphanus*: the movements of the flagella in the flagellated chambers cause suspended particles to be driven against the walls of the chambers, thus giving rise to phenomena of thigmotaxy. Experiments show that the collar-cells can ingest grains (of starch) of a bulk exceeding that of the cell itself. When such a grain touches a collar-cell, the latter adheres to it, and sends creeping pseudopodial expansions over it, until the protoplasm of the cell is moulded on the foreign body, and is reduced to a thin layer completely or partially investing it. The collar disappears during these changes. Ingestion can

probably take place over the whole surface of the active cell, but small particles seem generally to be absorbed in the space between the flagellum and the base of the collar, i.e. at the apex of the funnel formed by the collar. Hence the most perfect chambers are those which possess a Sollas's membrane; COTTE (8).

(iii) **Respiration.**—Vacant.

(iv) **Secretion and Excretion.**—Catabolic products of *Suberites domuncula*: precise determinations not obtained, but it is shown that nitrogen is excreted by sponges "sous forme d'ammoniaques composées;" COTTE (9).

(v) **Irritability, Contractility, etc.**—Vacant.

(vi) **Individuality.**—HALLER (17) p. 68.

(vii) **Miscellanea.—Experimental Physiology.**—Nothing.

D. BIONOMICS.

(i) **General Accounts.**—Vacant.

(ii) **Special Habits.**—Perforation of rocks, etc., by *Cliona vastifica*: the "cellules sphéruleuses" send out protoplasmic processes which pass through the intercellular gaps in the flat epithelium, penetrate into the solid substance, and detach "lunules" of calcareous matter. Although no acid secretion was detected, it probably takes place, and there is perhaps also the action of a ferment: the action of the "cellules sphéruleuses" is analogous to that of osteoclasts in higher animals; COTTE (7).

(iii) **Habitat.**—Relations to habitat of *Sycon compressum* [*Grantia compressa*], *Halichondria panicea*, and *Suberites domuncula*; BIDDER (4).—Habitat of *Astroselera willeyana* Lister; WILLEY (70) p. 733. Habitats and mode of occurrence of Hexactinellida in the Indian Ocean; ALCOCK (1) pp. 146, 153 & 294–296.—Habitat of *Carterius stepanowi* Dyb.; LAUTERBORN (32) pp. 532–534.—*Ephydatia fluviatilis* occurring in sea-water; LEVANDER (35) p. 9.

(iv) **Defence and Protection, Mimicry.**—Experiments on the endurance of *Sycon compressum* [*Grantia compressa*] under exposure: the spicules, especially the cortical layer of club-shaped radial monaxon spicules, probably serve to check evaporation, and to enable the sponge to resist the entrance of rain-water, when exposed on the rocks at low tide: the flattened, compressed form prevents the formation of an air-bubble in its gastral cavity as the result of such evaporation as still takes place; BIDDER (4) pp. 376–380.

Significance of colours in deep-sea sponges; NUTTING (44).—*Doris johnstoni* mimicking *Halichondria panicea*; LEBOUR (33) p. 171.—*Chondrocladia* "shows a remarkable protective resemblance to a bleached skeleton of a gadoid fish;" MASTERMAN (41) p. 110.

(v) **Enemies of Sponges.**—Vacant.

(vi) **Parasitism and Commensalism.**—A Hermit Crab (*Cancellus spongicola*, n. sp.) inhabiting a sponge; BENEDICT (3) pp. 773 & 774, figg. 3 & 4.—Association of *Hyalonema* with *Palythoa*, and of *H. masoni* F. E. S. with *Scalpellum squamuliferum* and with *Richardina*, sp.; ALCOCK (1) pp. 295 & 296, fig. 96, and p. 273.—Cirripedes (*Scalpellum squamuliferum* and *Megelasma carino-dentatum*) replacing the *Palythoa*-crust on the peduncle of *Hyalonema masoni* F. E. S.; SCHULZE (56) p. 14.

Pachastrella isorrhopa, n. sp., associated with an encrusting Lithistid and with barnacles; KIRKPATRICK (28) p. 228.—*Pœcillastra symbiotica*, n. sp., living in *Spongosorites placenta*, sunk in it but not attached to its support: TOPSENT (62) p. 13.—Amphipods (*Aristias tumidus*) in the oscular papillæ of *Eumastia sitiens* O. S.; LUNDBECK (38) p. 34.—*Gellius* commensal with an alga; ETHERIDGE (14) p. 247.—The canals of *Desmacella fortis* inhabited by 6-rayed Ophiuroidea in various stages of regeneration following fission; SOLLAS (58) p. 214.—Symbiosis of *Carterius stepanowi* Dyb. and *Scenedesmus quadricauda*; LAUTERBORN (32) pp. 528–532, fig. 5.—Symbiosis of *Ephydatia fluviatilis* with *Cladophora spongophila*; KOORDERS (29).—A filamentous alga (? *Oscillaria spongeliæ*) in *Spongelia digitata*, n. sp.; SOLLAS (58) p. 221.

(vii) **Sponges as Geological Agents, Fossilization.**—Relation of sponges to flints; HANSSEN (18): MADDOCK (40).

E. REPRODUCTION AND DEVELOPMENT.

(i) *Germ-Cells, Fertilization.*

Maturation of the egg *Sycandra* [Summary and review of MAAS (25) Zool. Rec. 1899]; LUBOSCH (37). Ova of *Rhabdodermella nuttingi*, n. sp.: URBAN (64) p. 273.

(ii) *Embryology.*

(a) **General Accounts.**—HALLER (17) pp. 62–68, fig. 74.—General development of a sponge; JORDAN & HEATH (24) p. 21. General embryonic development of sponges; SCHNEIDER (54) pp. 178–180.—Development of *Sycandra* as a type of the Porifera; MASTERMAN (41) pp. 105 & 106.

Comparison of parenchymula and planula larvæ [vide II, A, ii]; LAMEERE (30).—Recent discoveries in sponge-embryology, with figures of the larvæ of *Clathrina*, *Leucosolenia*, *Sycon*, *Oscarella*, and *Myxilla*; MINCHIN (42) pp. 811 & 812.

(b) **Early stages, larvae, and metamorphosis.**—Embryos in *Gellius luridus*, n. sp.; LUNDBECK (38) p. 67.

(c) **Post-Larval Development, Organogeny.**—Vacant.

(iii) *Asexual Reproduction.*

(a) **Fission and Vegetative Budding.**—Vide COTTE (10), in following section.

(b) **Germinal budding.**—The observations of Ijima [see Zool. Rec. 1901, Spong. pp. 17 & 19] give support to the former conclusions of Wilson, with regard to the frequent asexual origin of sponge-larvæ, which have been the subject of adverse criticism by certain reviewers. Gemmule-larvæ are to be distinguished from egg-larvæ; the former are derived from undifferentiated archæocytes, either from a single one, or from a number. The single cell which gives rise to a gemmule is not to be classed as an ovum but as a spore; the same view must be entertained regarding the coöperative archæocyte. "In the one case we have a single spore producing the individual, while in the other case several spores unite;" WILSON (72).

The gemmules of *Suberites domuncula*, normally destined to germinate and to produce new individuals of the sponge, may also multiply under

the form of gemmules, giving rise to new gemmules without passing through the adult condition. The resistance of the gemmules to external conditions is very great. Their power of reproduction is not indefinite; COTTE (10).

Gemmules in *Tethya ingalli*; SOLLAS (58) p. 215.—Gemmules of *Pachychalina caulifera* O. S., p. 9: in *Desmacella peachii*, p. 92: in *Desmacella hamifera*, n. sp., p. 95; in *Desmacella grœnlandica*, p. 97; LUNDBECK (38).—Gemmules of *Carterius stepanowi* Dyb.; LAUTERBORN (32) pp. 523–528, figg. 2–4.—Gemmule formation in *Ephydatia blembingia* [after Evans, (15) Zool. Rec. 1900]; SCHNEIDER (54) pp. 272–274, fig. 301.

(c) **Regeneration.**—Vacant.

F. MISCELLANEOUS.

(i) **Technique.**—Methods of studying sponge-skeletons; WILSON (71) p. 378.—*Preparation of skeletons of *Spongilla*; ZEHFUSS (76).

(ii) **Economics.**—A commercial sponge (*Euspongia irregularis* var. *pertusa*), at Manahiki, or Humphrey Island; ETHERIDGE (14) p. 246.—Recent advances in spongiculture, and in our knowledge of commercial sponges; MINCHIN (42) pp. 813 & 814.

(iii) **Bibliography.**—MAAS (39).

III. DISTRIBUTION.

A. GEOGRAPHICAL.

α. MARINE.

(i) **General.**—General distribution of sponges; JORDAN & HEATH (24) pp. 22 & 23.

(ii) **Atlantic Ocean and Adjacent Seas.**—Exe Estuary, *Leucosolenia*, *Sycon*, *Grantia*, and *Halichondria*; ALLEN & TODD (2) pp. 310, 314, 317.—Coast of Normandy, *Leucosolenia*, *Sycon*, *Grantia*, *Stelletta*, *Halichondria*, *Reniera*, *Esperella*, *Plumohalichondria*, *Hymeniacidon*, *Raspailia*, *Spongelia*; KERVILLE (25) pp. 165, 175.—Sponges from "the eastern part of Davis Strait and the sea north of a line through the southernmost station of the Ingolf at about 57° L.N. across to the south of the Faroe Islands, that is to say, from the whole of the North Atlantic," exclusive of the Norwegian Fiords; *Pachychalina*, *Chalina*, *Siphonochalina*, *Halichondria*, *Eumastia*, *Reniera*, *Metschnikowia*, *Petrosia*, *Phlœodictyon*, *Gellius*, *Gelliodes*, *Oceanapia*, *Biemma*, *Desmacella*, and *Hamacantha*, in all 56 spp., of which 25 are new; LUNDBECK (38).—Azores, *Pœcillastra symbiotica*, n. sp.; TOPSENT (62) p. 13.—Cape Verde Islands, 3890 metres, *Cladorhiza flos abyssi*, n. sp.; TOPSENT (61).—Porto Rico; *Pericharax*, *Margaritella*, *Chrotella*, *Pilochrota*, *Tribrachium*, *Caminus*, *Chondrilla*, *Coppatias*, *Tethya*, *Tuberella*, *Petrosia*, *Foliolina*, *Pachychalina*, *Siphonochalina*, *Spinosella*, *Oceanapia*, *Tedania*, *Microciona*, *Clathria*, *Agelas*, *Phakellia*, *Axinella*, *Thrinacophora*, *Chalinopsilla*, *Euspongia*, *Hippospongia*, *Cacospongia*, *Stelospongus*, *Hircinia*, *Aplysina*, *Dendrospongia*, *Spongelia*; in all 45 species, including 14 nn. spp. and 6 new varr.; WILSON (71).

(iii) **Indian Ocean and Adjacent Seas.**—Indian Ocean, complete list of Hexactinellids, collected by the Investigator and by previous

expeditions, with tables of localities of all the specimens; SCHULZE (56) pp. 101–113.

Island of Bourbon, *Heterotella corbicula*; IJIMA (21).—Indian Archipelago, *Placospongia carinata* and *P. melobesioides*; VOSMAER & VERNHOUT (66).—Malay Peninsula, Pulau Bidang, off the West Coast, and Great Redang, off the East Coast, *Amorphina*, *Reniera*, *Gellius*, *Esperella*, *Biemna*, *Desmacella*, *Ciocalypta*, *Tethya*, *Hymedesmia*, *Spirastrella*, *Suberites*, *Pseudosuberites*, *Terpios*, *Dercitus*, *Samus*, *Tetilla*, *Cinachyra*, *Euspongia*, *Stelospongia*, *Spongelia*, in all 30 spp., of which 11 are new; SOLLAS (58).

South Africa, Cape of Good Hope and Natal, *Rhabdocalyptus*, *Craterromorpha*, *Tetilla*, *Spongocardium*, n. g., *Pachastrella*, and *Stelletta*, in all eight spp., of which six are described as new; KIRKPATRICK (28).

(iv) **Pacific Ocean and Adjacent Seas.**—Hexactinellida collected in the Sagami-Sea, Japan, general account of; IJIMA (22).—Moluccas, *Corbitella speciosa* and *C. elegans*; IJIMA (21).—Lifu, Loyalty Islands, the finding of *Astrosclera willeyana* Lister; WILLEY (70) p. 733.—Monterey Bay, California, *Rhabdodermella nuttingi*, n. g., n. sp. occurring between tide-marks; URBAN (64) p. 269.

(v) **Arctic Seas.**—Vacant.

(vi) **Antarctic Seas.**—Sponges of "Southern Cross" Expedition, *Leucosolenia*, *Halichondria*; KIRKPATRICK (27).

β. FRESHWATER SPONGES.

(i) **Europe.**—Rhenish Palatinate, *Carterius stepanowi* Dyb., new to the fauna of Germany; LAUTERBORN (32) pp. 532–534.—Spongillinæ from Brunswick, *Euspongilla lacustris* and *Ephydatia fluviatilis*; BLASIUS (6).—Esbo-Löfö (Finland), *Ephydatia fluviatilis* occurring in sea-water; LEVANDER (35) p. 9.—Murmanian Coast, freshwater fauna, *Euspongilla lacustris*; LEVANDER (36) pp. 6, 17.

(ii) **Asia.**—Lake Baikal, *Lubomirskia*, 4 spp., 4 varr., and *Ephydatia olchonensis*, n. sp.; SVARTZEVSKY (59).

Lake Baikal, *Veluspa*, *Lubomirskia*, *Ephydatia*, and *Spongilla*, 10 spp. (5 new) and 12 varr. (3 new); SVARTZEVSKY (60).

(iii) **Africa.**—Lake Nyassa, "one very inconspicuous spongillid of doubtful affinity," p. 125: Lake Tanganyika, *Spongilla tanganyikæ* Evans, *S. moorei* Evans, and *Potamolepis weltneri* Moore, p. 138, pp. 309–324, and p. 331; MOORE (43).

(iv) **Australia.**—Vacant.

(v) **America.**—Sandusky Bay, Lake Erie, *Spongilla* spp.; LANDACRE (31).

B. GEOLOGICAL.

(i) GENERAL.

Distribution in time of the Hexactinellida. The suborder *Stauractinophora* appears to have died out before the commencement of the mesozoic epoch. The oldest *Lychniskophora* appear in the Upper Jurassic and reach their highest development in the Upper Cretaceous, only a few forms persisting to the present day. The *Hexactinophora* are modern forms; fossil *Amphidiscophora* are not known, since the root-tufts found in various deposits, even so far back as Silurian, are just as likely to

belong to other suborders. Most fossil Dictyonina, so called, belong to the tribes *Uncinataria* and *Inermia*, but *Hexasterophora* also occur in the chalk; SCHRAMMEN (55) pp. 8 & 9.

(ii) CAINOZOIC.

(a), (b) Vacant.

(c) Pliocene:—Pliocene of Egypt, *Cliona globulifera* Hanc.; BLANCKENHORN (5) pp. 364, 379.

(d) Miocene:—Tortonian of Cucuron (Vaucluse), 1st zone, *Dendrina europæa* Fischer, and *Cliona falunica* Fischer; DEYDIER (12) p. 326.

(e), (f) Vacant.

(iii) MESOZOIC.

(a) Vacant.

(b) Cretaceous:—Cretaceous of the Iser region, *Amorphospongia*; ZAHÁLKA (75) p. 17.—Cretaceous of the Island Rugen, Pomerania, sponge spicules; DEECKE (11) p. 81 & fig.—Angoumien of the Teutoberger Wald, list of fossil sponges; ELBERT (13).—Senonian of Biewende, list of fossil sponges; WOLLEMANN (74).—Senonian of Konigsberg and West Prussia, *Craticularia*, *Ventriculites*, *Rhizopoterion*, and *Plocoscyphia*, in all 6 spp. (5 new) and 2 varr. (nn.); UNGERN-STERNBERG (63).—Upper Cretaceous of Hanover; *Polyblastidium*, *Lepidospongia*, *Ventriculites*, *Leiostracosia*, n. g., *Plectodermatium*, n. g., *Pachylepisma*, n. g., *Microblastidium*, n. g., *Eudictyon*, n. g., *Kentrosia*, n. g., *Plocoscyphia*, *Becksia*, *Eubrochis*, n. g., *Proeurete*, n. g., *Leptophragma*, *Guettardia*, *Balantionella*, n. g., *Typhlopleura*, n. g., *Andreæa*, n. g., and *Polyopesia*, n. g., in all 21 nn. spp.; SCHRAMMEN (55).—Chalk of Skalička, *Thalamopora*, *Eudea*, *Peronidella*; REMEŠ (50) pp. 136 & 137.—Cretaceous of the Alpes-Maritimes, Sponges; PERON (46) pp. 515 & 516.—Upper Cretaceous of Libyan Desert, *Ventriculites* and *Schizorhabdus*; QUAAS (48) pp. 156 & 157: WANNER (67) pp. 97 & 98.

(c) Jurassic:—Brown Jura of the Hesselberg, Bavaria, *Achilleum*, *Porocypellia*, *Corynella*; SCHLOSSER (52) p. 553.—Jurassic of Swabia, Franconia, and Aargau, list of sponges; SCHMIERER (53) pp. 573, 574, 576, 582, 585, & 589.—Tithonian of Stramberg (Nesselsdorf), list of sponges; REMEŠ (51) p. 197.

(d), (e) Vacant.

(iv) PALÆOZOIC.

(a) Vacant.

(b) Permian:—Permian of Western Texas, sponges "remarkably abundant.....chiefly Calcispongiæ," also *Bothroconis* and *Mammillopora*; GIRTY (15) p. 364.

(c), (d) Vacant.

(e) Lower Carboniferous:—Carboniferous of Eastern Fife, *Cliona*, *Hyalostelia*; PEACH (45) p. 361.

(f) Vacant.

(g) Silurian:—Silurian of Mid-Baltic, list of sponges; WIMAN (73) pp. 196–198.

(h) Ordovician:—Ordovician of Lake Winnipeg, *Receptaculites*, *Ischadites*, *Pasceolus*, *Aulocopella*, *Trichospongia*; WHITEAVES (68) pp. 142–148.

(k), (l) Vacant.

IV. SYSTEMATIC.

[A name of a species, followed only by a reference to a name from the list of titles, is a record of occurrence pure and simple. The locality (or horizon) can be found by looking up the reference letters of section III, following the title in the list above (section I).]

A. PORIFERA, GENERAL.

Sponges divided into Ceratospongiæ, Silicispongiæ, and Calcispongiæ; GOETTE (16) pp. 97–99. Sponges classified into (1) Calcarea, divided further into Ascons, Sycons, Leucons: (2) Acalcaria, comprising (a) Silicispongiæ (Monactinellida, Tetractinellida, Hexactinellida, Lithistida), (b) Ceraospongiæ, (c) Myxospongiæ; HALLER (17) p. 69. Sponges divided into two classes, Calcarea and Non-calcarea; MASTERMAN (41) p. 110.

B. CALCAREA.

(i) *HOMOCŒLA.*

Family CLATHRINIDÆ.

Ascetta primordialis H., figured; GOETTE (16) p. 98, fig. 81. (*Leucosolenia*) *coriacea* (Mont.); KERVILLE (26) pp. 165, 174.

Family LEUCOSOLENIIDÆ.

Leucosolenia variabilis (H.); KIRKPATRICK (27) p. 318.

(ii) *HETEROCŒLA.*

Family SYCETTIDÆ.

Sycon seu *Sycandra*, *S. ciliatum*; ALLEN & TODD (2) pp. 314, 317: KERVILLE (26) pp. 165, 174. *S. raphanus* O. S.; KERVILLE (26) pp. 165, 174 [vide II, C, ii].

Family AMPHORISCIDÆ.

Pericharax carteri, var. *homorhaphis* Pol. described; WILSON (71) p. 382.

Family GRANTIDÆ.

Grantia compressa (Fabr.); KERVILLE (26) p. 175: ALLEN & TODD (2) pp. 314, 317: MASTERMAN (41) [vide II, B, i]: BIDDER (4) [vide II, A, i].
Rhabdodermella, **n. g.** of "*Sylleibidæ*," intermediate between *Vosmaeria* Lend. and *Polejna* Lend., for *R. nuttingi*, **n. sp.**, from Monterey Bay, California; URBAN (64).

Family Pharetronidæ seu Pharetrones.

(1) *Dialytinæ.*

†*Blastinia alata* (Qu.), p. 573; †*B. costata* (Gf.), pp. 573, 576, 582, 585, 589; Schmierer (53).
†*Corynella astrophora*, pp. 573, 589; †*C. quenstedtii* Z., pp. 573, 589; Schmierer (53). *C.* sp.; Schlosser (52) p. 553. †*C. stolata* Z.; Schmierer (53) p. 573.
†*Crispispongia pezizoides* Z.; Schmierer (53) p. 573.
†*Eudea globata* (Qu.); Remeš (50) p. 137: (51) p. 197: Schmierer (53) p. 573. †*E. hirsuta* (Qu.), p. 573; †*E. perforata* (Qu.), pp. 573, 576, 589; Schmierer (53).
†*Eusiphonella bronni* (Mnst.); Schmierer (53) p. 574: Remeš (51) p. 197.
Mammillopora sp.; Girty (15) p. 364.
Myrmecidium seu *Myrmecium*, †*M. chadwicki* (Hinde), †*M. grande*, and †*M. hemisphæricum*; Remeš (51) p. 197: Schmierer (53) p. 574. †*M. indutum*; Remeš (51) p. 197: Schmierer (53) pp. 574, 589. †*M.* sp.; Remeš (51) p. 197.
Peronella seu *Peronidella*, †*P. nodulosa* (Qu.), p. 574; †*P. radiciformis* (Gf.), pp. 574, 576; Schmierer (53). †*P.* sp.; Remeš (51) p. 197 and (50) p. 137. †*P. squamata* (Qu.); Schmierer (53) p. 574. †*P. tithonica*; Remeš (51) p. 197.
†*Rauffia clavata* ?; Remeš (51) p. 197.
†*Sestrostomella cribrata* (Qu.); Schmierer (53) p. 574.
†*Stellispongia glomerata* (Qu.), pp. 574, 576; †*S. semicincta* (Qu.), pp. 574, 576, 582, 585, 589; Schmierer (53).
†*Strambergia* spp.; Remeš (51) p. 187.
†*Thalamopora zitteli* Zeise; Remeš (50) p. 136.

(2) *Lithoninæ.*

†*Porosphæra globosa* v. Hag.; Peron (46) pp. 516–536: Wollemann (74) p. 58.

Family Astroscleridæ.

Astrosclera willeyana Lister, habitat; Willey (70) p. 733: nature of the skeleton; Hutchinson (20): figured; Minchin (42) p. 812, fig. 3.

C. HEXACTINELLIDA.

Hexactinellida divided into

(1) Suborder *Stauractinophora*, "the supporting skeleton of which consists of unconnected or easily separated stauractins"; for families *Protospongidæ* Hinde, *Dictyospongidæ* Hall, and *Plectospongiadæ* Rauff.

(2) Suborder *Lychniskophora*, "the supporting skeleton of which consists of lychnisks (i.e. hexactines with octahedrally perforated nodal points), usually united into a more or less regular lattice work"; for families *Mæandrospongidæ*, *Ventriculitidæ*, *Callodictyonidæ*, *Cœloptychidæ*, etc.

(3) Suborder *Hexactinophora*, "the supporting skeleton of which consists of hexactines" to include the four tribes *Amphidiscophora* F. E. S., *Hexactinophora* F. E. S. [sic, errore pro *Hexasterophora*], *Uncinataria* F. E. S. and *Inermia* F. E. S.; Schrammen (55) pp. 7 & 8.

(i) *LYSSACINA.*

Family Euplectellidæ.

Corbitella Gray, diagnosed, p. 31; *C. speciosa* Q. & G., diagnosed, p. 31, described, pp. 2–10, figg. 1 & 2; *C. elegans*, for *Eudictyon elegans* Marshall, diagnosed, p. 31, described, pp. 11–16, figg. 13–15; *C. pulchra*, for *Tægeria pulchra* F. E. S., diagnosed, pp. 31 & 32, described, pp. 16–18: Ijima (21).

Corbitellinæ, nom. nov. for subfamily *Tægerinæ* F. E. S., to include the genera *Corbitella*, *Heterotella*, *Regadrella*, *Walteria*, *Dictyaulus*, and *Dictyocalyx*, diagnosed; Ijima (21) p. 30.

Dictyaulus elegans F. E. S., described; Schulze (56) pp. 70–75, pl. xii: occurrence; Alcock (1) p. 296, fig. 97.

Eudictyon elegans Marshall to be *Corbitella elegans*; Ijima (21) p. 11.

Euplectella, characters of the genus, p. 51; *E. aspera* F. E. S., described, pp. 59–61, pl. xi; *E. regalis* F. E. S., described, pp. 61–67, pl. xxii, figg. 1–9; *E. simplex* F. E. S. described, pp. 51–59, pl. x: Schulze (56).

Heterotella Gray to include one species: *H. corbicula* (Bwk.), diagnosed, p. 32, described, pp. 18–29, figg. 16–23; Ijima (21).

Holascus F. E. S., characters of the genus, pp. 46 & 47; *H. robustus* F. E. S., described, pp. 47–50, pl. ix, figg. 1–10; *H. tener* F. E. S., described, pp. 50 & 51: Schulze (56).

Regadrella O. S., characters of the genus, p. 67; *R. decora* F. E. S., described, pp. 67–70, pl. xxii, figg. 10–18: Schulze (56).

Saccocalyx, the genus removed from *Asconematidæ* to *Euplectellidæ*; *S. pedunculata* F. E. S., described; Schulze (56) pp. 75–78, pl. xiii: occurrence etc.; Alcock (1) p. 295, fig. 95.

Tægeria F. E. S. a, synonym of *Corbitella* Gray; *T. pulchra* F. E. S., to be *Corbitella pulchra*; Ijima (21) p. 16.

Walteria leuckarti Ij., description of the oscula and excurrent system; Ijima (23).

Family Rossellidæ.

Bathydorus F. E. S., characters of the genus, p. 78; *B. lævis* F. E. S., described, pp. 78–80, pl. xiv, figg. 1–10: Schulze (56).

Crateromorpha lankesteri, **n. sp.**, from near East London, South Africa, 250–300 fathoms; Kirkpatrick (28) pp. 222–224, pl. i, figg. 1–11.

Lophocalyx spinosa F. E. S., described; Schulze (56) pp. 82–85, pl. xxiii.

Placoplegma solutum F. E. S., described; Schulze (56) pp. 80–82, pl. xiv, figg. 11–17.

Rhabdocalyptus plumodigitatus **nom. nov.** for *R. lophodigitatus* Kirkpatrick [(32) Zool. Rec. 1901], redescribed; Kirkpatrick (28), pp. 220–222.

Family Eubrochidæ.

Eubrochidæ, **n. fam.** of *Hexasterophora*; Schrammen (55) p. 19.

Eubrochis, **n. g.** for †*E. senonica*, **n. sp.**, from the Quadrata-chalk of Oberg; Schrammen (55) pp. 19–21, pl. i, fig. 1, text-figg. 3 & 4, and p. 4.

Family HYALONEMATIDÆ.

Hyalonematidæ, the family to comprise five genera, *Pheronema* Leidy, *Poliopogon* Wyv. Thoms., *Hyalonema* Gray, *Lophophysema* F. E. S., and *Semperella* Gray, the subfamilies *Hyalonematinæ* and *Semperellinæ* to be abolished; SCHULZE (56) p. 4.

Hyalonema Gray, remarks on, p. 10; *H. aculeatum* F. E. S., described, a doubtful species, based on specimens which are evidently young forms, pp. 31–33, pl. ii, figg. 1–14; *H. affine* Marsh, described, includes *H. apertum* F. E. S. and *H. mœhrenthali* F. E. S, pp. 27–30, pl. vii; *H. alcocki* F. E. S., described, pp. 23–26, pl. vi, figg. 1–8; *H. heideri* F. E. S., described, a doubtful species, p. 34, pl. ii, figg. 15–22; *H. heymonsi* F. E. S., described, perhaps a young form of *H. indicum* F. E. S., p. 36, pl. iii, figg. 14–18; *H. indicum* F. E. S., described, with two varieties, *laccadivense* and *andamanense*, n. varr. (formerly considered to be distinct species); perhaps includes *H. pirum* and *H. heymonsi*, pp. 10–13, pl. iii, figg. 1–3, pl. iv, figg. 1–14; *H. investigatoris* F. E. S., described, pp. 26 & 27, pl. vi, figg. 9–17; *H. lamella* F. E. S., described, pp. 15–18, pl. xix; *H. mœhrenthali* F. E. S., proves to be a young form of *H. affine* Marsh, p. 10; *H. martabanense* F. E. S., described, pp. 21–23, pl. xviii; *H. masoni* F. E. S., described, pp. 13–15, pl. v (vide etiam II, D, vi); *H. pirum* F. E. S., described, perhaps a young form of *H. indicum* F. E. S., pp. 34 & 35, pl. ii, figg. 23–30; *H. rapæ* F. E. S., described, pp. 18–21, pl. xvii; *H. weltneri* F. E. S., described, pp. 36 & 37, pl. iv, figg. 15–24: SCHULZE (56). *H. masoni* F. E. S., occurrence, etc. [vide II, D, vi]; ALCOCK (1).

Lophophysema inflatum F. E. S., described; SCHULZE (56) pp. 38–41, pls. xx & xxi.

Pheronema Leidy, characters of the genus, pp. 4 & 5; *P. circumpalatum* F. E. S., proves to be a young *P. raphanus* F. E. S., p. 5; *P. raphanus* F. E. S., described, includes *P. circumpalatum* F. E. S., pp. 5–10, pl. i, SCHULZE (56). *P. raphanus*, occurrence; ALCOCK (1), p. 146, fig. 18 and p. 295.

Semperella cucumis F. E. S., described; SCHULZE (56) pp. 41–46, pl. viii: occurrence; ALCOCK (1) p. 146.

Family RECEPTACULITIDÆ.

†*Ischadites iowensis* (Owen); WHITEAVES (68) pp. 143 & 144.

†*Pasceolus gregarius* Billings; WHITEAVES (68), pp. 144 & 145. †*P.* (?) *hospitalis* for †*Sphærospongia hospitalis* Salter, described; REED (49) pp. 338 & 339, pl. xviii, figg. 6 & 7.

†*Receptaculites oweni* Hall; WHITEAVES (68) pp. 142 & 143.

†*Sphærospongia hospitalis*, vide *Pasceolus*.

Family POLLAKIDÆ.

†*Hyalostelia parallela* McCoy, and †*H. smithi* Young; PEACH (45) pp. 361, 380, & 381.

(ii) *DICTYONINA.*

Family FARREIDÆ.

Farrea Bwk., characters of the genus, p. 85; *F. occa* Bwk. (Carter) described, pp. 86 & 87; SCHULZE (56).

Family Euretidæ.

Proeurete, **n. g.** for †*P. plicata*, **n. sp.**, from the Quadrata-chalk of Oberg; Schrammen (55) pp. 21 & 22, pl. i, fig. 6, and p. 4.

†*Sporadopyle*, sp.; Remeš (51) p. 197. †*S. texturata* (Gf.); Schmierer (53) pp. 574 & 576.

†*Tremadictyon reticulatum* (Qu.); Schmierer (53) pp. 574 & 576.

†*Verrucocœlia tabulata* Smith; Elbert (13) p. 156. †*V. verrucosa* Z.; Schmierer (53) pp. 574 & 576.

Family Craticularidæ.

Craticularidæ, to include *Craticularidæ* Rauff and *Coscinoporidæ* Zitt.; Ungern-Sternberg (63) pp. 133–135.

Craticularia Z., diagnosis of the genus, p. 135; †*C. micropora*, **n. sp.** = *Cribrospongia beaumonti* Roemer non Reuss, from the Senonian near Königsberg, pp. 136 & 137, pl. v, figg. 7–9, pl. vi, fig. 1; Ungern-Sternberg (63).

†*Cribrospongia beaumonti* Roem. vide *Craticularia micropora.*

Polyopesia, **n. g.** for †*P. angustata*, **n. sp.**, from the Quadrata-chalk of Oberg, pp. 25 & 26, pl. ii, fig. 1, and *P. radiciformis*, **n. sp.**, from the Mucronata-chalk of Misburg, p. 26, pl. iii, fig. 4; Schrammen (55).

Family Mellittionidæ.

Andreæa, **n. g.** for †*A. hexagonalis*, **n. sp.**, from the Quadrata-chalk of Misburg; Schrammen (55) p. 25, pl. i, fig. 4.

Aphrocallistes, characters of the genus; Schulze (56) p. 87. †*A. alveolites* (Roem.); Schrammen (55) pp. 4 & 5: Wollemann (74) p. 58. *A. beatrix* Gray, described, pp. 87–93, pl. xv, figg. 1–13; *A. bocagei* Wright, described, pp. 93–97, pl. xvi; *A. ramosus* F. E. S., described; pp. 97–99, pl. xv, fig. 14: Schulze (56).

Family Coscinoporidæ.

Balantionella, **n. g.** for †*B. elegans*, **n. sp.**, from the Quadrata-chalk of Oberg and Misburg; Schrammen (55) pp. 23 & 24, pl. iv, figg. 1*a–c*, and p. 4.

†*Coscinopora infundibuliformis* Goldf.; Elbert (13), pp. 98 & 155: Schrammen (55) pp. 4–6: Wollemann (74) p. 58.

†*Guettardia stellata* Mich.; Elbert (13) p. 155. †*G. stümpeli*, **n. sp.**, from the Quadrata-chalk of Oberg and Misburg; Schrammen (55) pp. 22 & 23, pl. iv, fig. 3.

†*Leptophragma murchisoni* Goldf.; Elbert (13) p. 155: Schrammen (55) pp. 5 & 6: Wollemann (74) p. 58. †*L. pusilla*, **n. sp.**, from the Quadrata-chalk of Oberg and Misburg; Schrammen (55) p. 22, pl. iii, fig. 6, and pp. 4 & 5.

†*Pleurostoma radiata* Roem.; Schrammen (55) pp. 4 & 5.

Typhlopleura, **n. g.** for †*T. dichotoma*, **n. sp.**, from the Mucronata-chalk of Misburg; Schrammen (55) p. 24, pl. i, fig. 3.

Family Mæandrospongidæ.

Aulocystis Gray, to be removed from the *Inermia* and placed amongst the sub-order *Lychniskophora*; Schrammen (55) p. 8.

†*Becksia augustæ*, **n. sp.**, from the Quadrata-chalk of Misburg; SCHRAMMEN (55) p. 18, pl. ii, fig. 2. †*B. sœckelandi* Schlüt; SCHRAMMEN (55) p. 5: WOLLEMANN (74) p. 58.
†*Camerospongia campanulata* Smith; ELBERT (13) p. 155. †*C. fungiformis* Roem.; ELBERT (13) p. 150: SCHRAMMEN (55) pp. 4 & 5. †*C. subrotunda* Mant.; ELBERT (13) p. 155.
†*Cystispongia subglobosa* Roem.; ELBERT (13) p. 155.
Margaritella cœloptychioides O. S., described; WILSON (71) pp. 382 & 383.
†*Plocoscyphia acinosa*, **n. sp.**, from the Quadrata-chalk of Oberg; SCHRAMMEN (55) p. 17, pl. iv, fig. 2, and p. 4. †*P. convoluta* Smith, p. 156; †*P. flexuosa* Mant., p. 156; †*P. labyrinthica* Rss., p. 102: ELBERT (13). †*P.* aff. *pertusa* Gein., Senonian of East Prussia, described; UNGERN-STERNBERG (63) pp. 147–149, pl. v. †*P.* sp.; SCHRAMMEN (55) p. 6.
†*Tremabolites megastoma* (Roem.); SCHRAMMEN (55) p. 4.

Family STAURODERMIDÆ.

†*Casearia* aff. *articulata*; REMEŠ (51) p. 107. †*C. articulata* (Qu.); SCHMIERER (53) pp. 573 & 576.
†*Placotrema cretaceum* Hinde; ELBERT (13) p. 155.
†*Porocypellia*, sp.; SCHLOSSER (52) p. 553.
†*Porospongia impressa* (Mnst.); SCHMIERER (53) pp. 574 & 576.

Family CALLODICTYONIDÆ.

†*Callodictyon infundibulum* Z.; SCHRAMMEN (55) pp. 4 & 5.
†*Marshallia alternans* (Roem.), described, is the type of a distinct genus, yet to be named, pp. 18 & 19, pl. ii, fig. 4; †*M. tortuosa* (Roem.): SCHRAMMEN (55) p. 5.
†*Pleurope lacunosa* (Roem.); SCHRAMMEN (55) pp. 4 & 5.

Family CŒLOPTYCHIDÆ.

†*Cœloptychium agaricoides* Gf.; SCHRAMMEN (55) pp. 5 & 6: WOLLEMANN (74) p. 58. †*C. deciminum* Roem., pp. 4–6; †*C. incisum* Roem., p. 6; †*C. lobatum*, Gf., pp. 5 & 6: SCHRAMMEN (55). †*C. lobatum* Goldf.; WOLLEMANN (74) p. 58. †*C. rude* v. Sub.; SCHRAMMEN (55) p. 6. †*C.* sp.; WOLLEMANN (74) p. 58. †*C. sulciferum* Roem.; SCHRAMMEN (55) pp. 4 & 6.

Family VENTRICULITIDÆ.

Ventriculitidæ T. Smith, notes on the family; UNGERN-STERNBERG (63) pp. 137 & 138.

†*Cephalites ellipticus* Roem., see *Polyblastidium racemosum* (T. Sm.).
Eudictyon, **n. g.** [*non* Marshall 1875] for †*E. striatum*, **n. sp.**, from the Quadrata-chalk of Misburg and Oberg, p. 15, pl. ii, fig. 5, text-fig. 2, and pp. 4 & 5: †*E. diagonale*, **n. sp.**, from the same locality, p. 16, pl. i, fig. 5, and p. 4; SCHRAMMEN (55).
Leiostracosia, **n. g.** for †*L. punctata*, **n. sp.**, from the Quadrata-chalk of Misburg; SCHRAMMEN (55) p. 12, pl. iii, fig. 3.
†*Lepidospongia brandesi*, **n. sp.**, from Quadrata-chalk of Hanover; SCHRAMMEN (55) p. 11, pl. iii, figg. 1 & 2, and pp. 4 & 5.
Microblastidium, **n. g.** for †*M. decurrens*, **n. sp.**, from the Quadrata-chalk of Oberg and Misburg; SCHRAMMEN (55) p. 15, pl. iv, fig. 5, and pp. 4 & 5.

Pachylepisma, **n. g.** for †*P. robusta*, **n. sp.**, from the Quadrata-chalk of Misburg; SCHRAMMEN (55) p. 14, pl. i, fig. 2.

Plectodermatium, **n. g.** for †*P. fragile*, **n. sp.**, from the Quadrata-chalk of Misburg and Oberg, and the Mucronata-chalk of Misburg; SCHRAMMEN (55) pp. 12 & 13, pl. iv, figg. 4*a* & *b*, text fig. 1, and p. 4.

†*Polyblastidium luxurians* Z., pp. 4 & 5; †*P. racemosum* (T. Sm.), described, includes *Cephalites ellipticus* Roem., p. 10, pl. ii, fig. 3, and pp. 4 & 5: SCHRAMMEN (55).

†*Retispongia radiata* Roem.; ELBERT (13) pp. 103 & 150.

Rhizopoterion Z., to be regarded as a sub-genus of *Ventriculites*, pp. 138 & 140–143; †*R. cervicorne* (Goldf.), described, pp. 143 & 144, pl. iv, figg. 1–4, pl. vi, figg. 4 & 5; †*R. cervicorne* var. *profunda*, **n. var.**, pp. 144 & 145; †*R. regulare*, **n. sp.**, Senonian of Prussia, pp. 146 & 147, pl. iv, fig. 11; †*R. zitteli*, **n. sp.**, Senonian of Prussia, p. 145, pl. iv, figg. 5–8, pl. vi, figg. 6–8; †*R. zitteli*, var. *angulosa*, **n. var.**, pp. 145 & 146, pl. iv, figg. 9 & 10: UNGERN-STERNBERG (63). †*R. cervicorne* (Gf.); SCHRAMMEN (55) p. 4.

†*Schizorhabdus libycus* Z., described; QUAAS (48) p. 157: WANNER (67) pp. 97 & 98, pl. xiii, figg. 7–9.

†*Sporadoscinia dechenii* Gf., †*S. micrommata* (Roem.), and †*S. venosa* (Roem.); SCHRAMMEN (55) p. 4.

†*Ventriculites alcyonoides* Mant., p. 156; †*V. angustatus* Roem., pp. 98 & 156: ELBERT (13). †*V. borussicus*, **n. sp.**, from Senonian of Konigsberg, etc., pp. 138 & 139, pl. v, figg. 1–3, pl. vi, fig. 2; †*V.* ? *cavernosus*, **n. sp.**, from Senonian of Konigsberg and West Prussia, pp. 139 & 140, pl. v, figg. 4–6, pl. vi, fig. 3: UNGERN-STERNBERG (63). †*V. cribrosus* Phil., p. 159; †*V. decurrens* Smith, p. 156; †*V. impressus* Smith, p. 156: ELBERT (13). †*V. infundibuliformis* Woodw.; LENEY (34) p. 230. †*V. mammillaris* Smith, p. 156; †*V. marginatus* Počta, p. 103; †*V.* aff. *moduliferus* Roem., p. 159: ELBERT (13). †*V. poculum* Z., described; QUAAS (48) pp. 156 & 157, pl. xxxi, figg. 1 & 2: WANNER (67) p. 97, pl. xiii, figg. 5 & 6. †*V.* sp.; ELBERT (13) p. 160. †*V. stellatus*, **n. sp.**, from the Quadrata-chalk of Misburg; SCHRAMMEN (55) p. 11, pl. iii, fig. 5. †*V. striatus* Z.; SCHRAMMEN (55) pp. 4 & 5: WOLLEMANN (74) p. 58.

Family KENTROSIDÆ.

Family *Kentrosidæ*, **n. fam.** of *Lychniskophora*, diagnosed; SCHRAMMEN (55) p. 16.

Kentrosia, **n. g.** for †*K. incrustans*, **n. sp.**, from the Quadrata-chalk of Misburg and Oberg; SCHRAMMEN (55) pp. 16 & 17, pl. iv, fig. 6, and p. 4.

D. DEMOSPONGIÆ.

(i) *TETRAXONIDA.*

(a) Order CARNOSA.

Chondrilla O. S., diagnosed; *C. nucula* O. S., described: WILSON (71) pp. 386 & 387.

Dercitus plicatus Tops., redescribed, p. 218; *D. pauper*, **n. sp.**, from Great Redang, Malay Peninsula, p. 218, pl. xv, fig. 1: SOLLAS (58).

Samus anonyma Gray; SOLLAS (58) p. 218.

(b) Order TETRACTINELLIDA.

(1) Sub-order CHORISTIDA.

Tribe SIGMATOPHORA.

Family TETILLIDÆ.

Chrotella Soll., diagnosed; *C. minuta*, **n. sp.**, from Mayaguez Harbour, Porto Rico, 220–225 fathoms; WILSON (71) p. 383.

Cinachyra Soll., diagnostic list of known species, p. 219; *C. malaccensis*, **n. sp.**, from Pulau Bidang, Malay Peninsula, pp. 219 & 220, pl. xiv, fig. 2, pl. xv, fig. 5: SOLLAS (58).

Spongocardium, **n. g.**, allied to *Cinachyra* Sollas, for *S. gilchristi*, **n. sp.**, from Cape Natal, South Africa, 185–200 fathoms; KIRKPATRICK (28) pp. 224 & 225, pl. ii, figg. 1 & 1*a*, pl. iii, fig. 1.

Tetilla bonaventura, **n. sp.**, from False Bay, South Africa, 22 fathoms, p. 226, pl. ii, fig. 2, pl. iii, fig. 2; *T. casula* (Crtr.), from False Bay, South Africa, 22 fathoms, redescribed, pp. 226 & 227, pl. ii, figg. 3 & 3*a*: KIRKPATRICK (28). *T. ridleyi* Soll., redescribed; SOLLAS (58) pp. 218 & 219.

Tribe ASTROPHORA.

Family ASTEROSTREPTIDÆ.

Asterostreptidæ, **n. fam.** of *Choristida*, characterised by streptasters, equivalent to the group *Streptastrosa* Sollas after subtracting the genera *Placinastrella* F. E. S., *Dercitus* Gray (incl. *Stœba* Soll. and *Calcabrina* Soll.) and *Corticella* Soll. (incl. *Calthropella* Soll.); comprising (1) subfamily *Thenenæ*, **n. subfam.** (9), for the genera *Thenea* Gray, *Sphinctrella* Schmidt, and *Pœcillastra* Soll.; (2) subfamily *Pachastrellinæ*, **n. subfam.** (p. 10), for the genera *Pachastrella* Schmidt, *Nethea* Soll., *Characella* Soll., and *Triptolemus* Soll.: TOPSENT (62).

Characella Soll., diagnosed, p. 11; the genus comprises *C. pachastrelloides* (Crtr.), (incl. *C. sollasi* Tops., and perhaps *C. aspera* Soll.), *C. stellettodes* (Crtr.), *C. agassizi* Soll., and *C. saxicola* Tops., pp. 15 & 16: TOPSENT (62).

Nethea Soll., diagnosed, p. 11; the genus includes three species, *N. nana* (Crtr.), *N. amygdaloides* (Crtr.), and *N. connectens* Schmidt, p. 15: TOPSENT (62).

Pachastrella Schmidt, diagnosed, p. 10; the genus includes only two known species, *P. lithistina* Schmidt, and *P. monilifera* Schmidt; the latter is the type-species and includes *P. abyssi* Schmidt and *P. ovisternata* Lend.; *P. lesinensis* Lend. is a Sanidasterine (vide *Dercitancorina*), pp. 13–15: TOPSENT (62). *P. caliculata*, **n. sp.**, from off Durnford Point, Natal, 90 fathoms, pp. 227 & 228, pl. ii, fig. 4, pl. iii, fig. 4; *P. isorrhopa*, **n. sp.**, from Cone Point, Natal, 34 fathoms, pp. 228 & 229, pl. ii, fig. 5, pl. iii, fig. 5 [vide etiam II, D, vi]: KIRKPATRICK (28). †*P. primæva* Z., SCHRAMMEN (55) pp. 3 & 6. *P. stylifera* Lend. is a synonym of *Pœcillastra compressa* Bwk.; TOPSENT (62) p. 12.

Pœcillastra Soll., diagnosed, p. 10; *P. amygdaloides* Soll. belongs to the genus *Nethea*, p. 12; *P. compressa* Bwk. includes *Pachastrella stylifera* Lend., p. 12; *P. symbiotica*, **n. sp.**, a small species from the Azores, living symbiotically with *Spongosorites placenta*, p. 13: TOPSENT (62).

Sphinctrella Schmidt, diagnosed, p. 10; *S. annulata* (Crtr.), diagnosed, p. 11; *S. cribrifera* Soll., diagnosed, p. 12; *S. gracilis* Soll., diagnosed, p. 12; *S. horrida* Schmidt, diagnosed, p. 11; *S. ornata* Soll., diagnosed, p. 12: TOPSENT (62).

Thenea Gray, diagnosed; TOPSENT (62) p. 10.

Triptolemus Soll., diagnosed, p. 11; the genus comprises three species, *T. intextus* (Crtr.), *T. parasiticus* (Crtr.), and *T. cladosus* Soll., p. 16: TOPSENT (62).

Family STELLETTIDÆ.

Dercitancorina, **n. g.** of *Sanidasterina* for *Pachastrella lesinensis* Lend.; TOPSENT (62) p. 15.

Pilochrota Soll., diagnosed, p. 384; *P. fibrosa* (O. S.) var. *globulariformis* **n. var.** from off St. Thomas, Sail Rock, Porto Rico, p. 385; *P. variabilis*, **n. sp.**, from off St. Thomas, Sail Rock, and off Culebra, Culebritas Light-House, Porto Rico, pp. 384 & 385: WILSON (71).

Stelletta grubei O. S.; KERVILLE (26) pp. 165 & 175. *S.* (*Astrella*) *horrens*, **n. sp.**, from off Durnford Point, Natal, 90 fathoms; KIRKPATRICK (28) pp. 229, pl. ii, fig. 6, pl. iii, fig. 6.

†*Stolleya microtulipa* Schrm. and †*S. ornatissima* Schrm.; SCHRAMMEN (55) p. 3.

†*Tethyopsis steinmanni* Z.; SCHRAMMEN (55) p. 3.

Tribrachium Weltner, diagnosed; *T. schmidtii* Weltner, described: WILSON (71) pp. 385 & 386.

Family GEODIDÆ.

Caminus O. S., diagnosed; *C. sphæroconia* Soll., described: WILSON (71) p. 386.

†*Geodia cretacea* Schrm.; SCHRAMMEN (55) p. 3.

Tribe OPHISCLEROPHORA.

Family RAPHIDIDÆ.

†*Cephaloraphidites cavernosus* Schrm. and †*C. milleporatus* Schrm.; SCHRAMMEN (55) p. 3.

†*Ophiraphidites cylindricus* Schrm., pp. 3 & 6; †*O. infundibuliformis* Schrm., p. 3; †*O. tuberosus* Schrm., p. 3: SCHRAMMEN (55).

(2) LITHISTIDA.

Family TETRACLADIDÆ.

†*Acrochordonia dichotoma* Schrm.; SCHRAMMEN (55) p. 3.

†*Astrocladia subramosa* (Roem.), pp. 3 & 46; †*A. verrucosa* (Roem.), p. 5: SCHRAMMEN (55): WOLLEMANN (74) p. 58.

†*Aulaxinia sulcifera* (Roem.); SCHRAMMEN (55) pp. 3, 5 & 6: WOLLEMANN (74) p. 58.

†*Aulocopella winnipegensis* Rff., described; WHITEAVES (68) pp. 145–147, pl. xvi, figg. 1–3, and text-fig. 9.

†*Aulocopium cylindraceum* Roem. and †*A.* sp.; WIMAN (73) p. 198.

†*Callopegma acaule* Z.; SCHRAMMEN (55) pp. 3, 4 & 6.

†*Craterella tuberosa* Schrm.; SCHRAMMEN (55) p. 3.

†*Discodermia antiqua* Schrm.; SCHRAMMEN (55) p. 3.

†*Jerea* cf. *elongata* Mich.; PERON (46) p. 516.
†*Pachycalymma subglobosa* Schrm.; SCHRAMMEN (55) p. 3.
†*Phymaraphinia infundibuliformis* Schrm.; SCHRAMMEN (55) pp. 3 & 6.
†*Phymatella bulbosa* Z.; SCHRAMMEN (55) pp. 3, 4 & 5. †*P. intumescens* Roem.; ELBERT (13) p. 98: SCHRAMMEN (55) p. 6. †*P. tuberosa* (Qst.), pp. 3 & 5; †*P. tubulosa* (Roem.), pp. 3–6; SCHRAMMEN (55).
†*Plinthosella squamosa* Z.; ELBERT (13) p. 155: SCHRAMMEN (55) pp. 3, 4 & 6.
†*Procaliapsis cylindrica* Schrm.; SCHRAMMEN (55) p. 3.
†*Rhagadinia rimosa* (Roem.); SCHRAMMEN (55) pp. 3, 4 & 6.
†*Siphonia coronata* Grif.; WOLLEMANN (74) p. 58. †*S. kœnigi* (Mant.) and †*S. radiciformis* (Phill.); PERON (46) p. 516.
†*Turonia constricta* Z.; SCHRAMMEN (55) p. 6.

Family PLEROMIDÆ seu MEGAMORINIDÆ.

†*Amphilectella piriformis* Schrm.; SCHRAMMEN (55) p. 6.
†*Asteroderma conica* Schrm. p. 3; †*A. expansa* Schrm., p. 6: SCHRAMMEN (55).
†*Carterella spiculigera* (Roem.); SCHRAMMEN (55) pp. 3, 4 & 6.
†*Doryderma cylindrica* Z., p. 3; †*D. dichotoma* (Roem.) pp. 3 & 6: SCHRAMMEN (55). †*D. ramosum* (Mant.); WOLLEMANN (74) p. 58: SCHRAMMEN (55) p. 5.
†*Isoraphinia texta* Qu.; ELBERT (13) p. 98.
†*Megalithista foraminosa* Z.; SCHMIERER (53) p. 574.
†*Pachycothon giganteum* Schrm.; SCHRAMMEN (55) p. 3.

Family AZORICIDÆ.

†*Amphithelion circumporosum* Qu.; ELBERT (13) p. 98. †*A. macrommata* Roem.; SCHRAMMEN (55) pp. 3 & 6. †*A. miliaris* (Rss.); WOLLEMANN (74) p. 58. †*A. tenue* Qu.; ELBERT (13) pp. 102, 103, 106 & 150.
†*Chonella auriformis* (Roem.), pp. 3 & 5; †*C.* sp., p. 6; †*C. tenuis* (Roem.), pp. 3 & 5: SCHRAMMEN (55).
†*Jereica multiformis* (Roem.) and †*J. polystoma* (Roem.); SCHRAMMEN (55) pp. 3, 5, & 6. †*J.* cf. *punctata* Qu.; ELBERT (13) p. 103.
†*Leiochonia cryptoporosa* Schrm.; SCHRAMMEN (55) pp. 3, 5 & 6.
†*Seliscothon explanatum* (Roem.), pp. 3, 5, & 6; †*S. giganteum* (Roem.), p. 5: SCHRAMMEN (55). † cf. *S. giganteum* (Roem.); WOLLEMANN (74) p. 58. †*S. mantelli* (Gf.), pp. 3 & 5; †*S. marginatum* (Roem.), p. 5: SCHRAMMEN (55): WOLLEMANN (74) p. 58. †*S. roemeri* Pom.; SCHRAMMEN (55) p. 5: WOLLEMANN (74) p. 58.
†*Verruculina aurita* (Roem.); SCHRAMMEN (55) pp. 3, 5, & 6: WOLLEMANN (74) p. 58. †*V. marginata* (Phill.); SCHRAMMEN (55) pp. 3 & 5: WOLLEMANN (74) p. 58.

Family ANOMOCLADIDÆ.

†*Astylospongia præmorsa* (Gf.); WIMAN (73) p. 196.
†*Carpospongia globosa* (Eichw.); WIMAN (73) p. 197.
†*Caryospongia diadema* (Kloden), p. 197; †*C. juglans* (Qu.), p. 196; †*C. juglans* var. *basiplana* Rff., p. 196: WIMAN (73).
†*Cylindrophyma milleporata* (Gf.); SCHMIERER (53) pp. 573, 576 & 578.
†*Hindia sphæroidalis* Dunc.; WIMAN (73) p. 197.
†*Lecanella peteræformis* Z.; SCHMIERER (53) p. 574.
† cf. *Mastosia*, sp.; ELBERT (13) p. 103.
†*Melonella radiata* (Gf.); SCHMIERER (53) pp. 574 & 576.

†*Neohindia cylindrica* Schrm.; SCHRAMMEN (55) p. 3.
†*Scytalia annulata* (Roem.); SCHRAMMEN (55) pp. 3, 5 & 6: WOLLEMANN (74) p. 58. †*S. fastigiata* Hinde, pp. 3 & 5; †*S. turbinata* (Roem.), pp. 3, 5 & 6: SCHRAMMEN (55).

Family CORALLISTIDÆ.

†*Procorallistes polymorphus* Schrm., †*P. tuberosus* Schrm.; SCHRAMMEN (55) p. 3.

Family RHIZOMORINIDÆ.

†*Capulospongia* cf. *auriformis* Roem., †*C.* cf. *contorta*, and †*C.* sp.; PERON (46) p. 516.
†*Chenendopora aurita* Roem., †*C. marginata* Mich., and †*C. tenuis* Roem.; PERON (46) p. 516.
†*Cnemidiastrum tuberosum* (Mnst.); SCHMIERER (53) pp. 573, 576 & 589.
†*Epistomella clivosa* (Qu.); SCHMIERER (53) p. 573.
†*Hyalotragos pezizoides*?; REMEŠ (51) p. 107. †*H. reticulatum* (Gf.), p. 574; †*H. rugosum* (Gf.), pp. 574, 576 & 582: SCHMIERER (53). †*H.* sp.; REMEŠ (51) p. 197.
†*Pachinion scriptum* (Roem.); SCHRAMMEN (55) pp. 3–5.
†*Pyrgochonia acetabulum* (Gf.); SCHMIERER (53) pp. 574 & 576.
†*Verrucospongia* cf. *damœcornis* Roem.; PERON (46) p. 516.

(ii) *MONAXONIDA.*

Errors in the description of Australian Monaxonida and Keratosa; ETHERIDGE (14) p. 246.

(a) Order HADROMERINA.

1. Sub-order ACICULINA.

Family COPPATIIDÆ.

Coppatias Soll., diagnosed, *C. solidissima*, **n. sp.**, from off St. Thomas, Sail Rock, Porto Rico; WILSON (71) pp. 387 & 388.
Spongosorites placenta, vide II, D, vi.

Family TETHYIDÆ.

Tethya Lam., diagnosed; WILSON (71) p. 388. *T. ingalli* Bwk., redescribed; SOLLAS (58) pp. 215 & 216. *T. lyncurium* (L.), described; WILSON (71) p. 388. *T. maza* Sel., redescribed; SOLLAS (58) p. 216. *T. seychellensis* (Wright), described; WILSON (71) p. 388.
Tuberella Keller, diagnosed; *T. aaptos* (O. S.), described: WILSON (71) pp. 388 & 389.

2. Sub-order CLAVULINA.

Family CLIONIDÆ.

†*Cliona falunica* Fischer in *Balanus*; DEYDIER (12), p. 326. †*C. globulifera* Hanc.; BLANCKENHORN (5) pp. 364, 379. †*C.* sp.; PEACH (45) pp. 361, 379. *C. vastifica*; COTTE (7), vide II, D, ii.
†*Dendrina europæa* Fischer in the valves of *Pecten scabriusculus*; DEYDIER (12), p. 326.

Family SPIRASTRELLIDÆ.

Hymedesmia hallezi Tops. redescribed; SOLLAS (58) p. 217. *H. johnsoni* Bwk., vide *Hamacantha bowerbanki* (*Esperellinæ*).
Spirastrella inconstans D., redescribed; SOLLAS (58) pp. 217 & 218, pl. xiv, fig. 3.

Family SUBERITIDÆ.

Poterion neptuni, figured; GOETTE (16), p. 98, fig. 79.
Pseudosuberites cava, **n. sp.**, from Malay Peninsula; SOLLAS (58) p. 217, pl. xiv, fig. 6.
Suberites domuncula, variation and "metampy" [vide II, A, i]; BIDDER (4) pp. 380–382, vide etiam II, E, iii, b, and II, C, iv. *S. laxosuberites*, **n. sp.**, from Pulau Bidang, Malay Peninsula; SOLLAS (58) p. 217, pl. xv, fig. 4. *S.* sp., (nov.) incrusting a root tuft of *Hyalonema*; SCHULZE (56) p. 38.
Terpios fugax Duch. and Mich.; SOLLAS (58) p. 217.

Family PLACOSPONGIDÆ.

Placospongia Gray, defined: its affinities are not with *Geodidæ* or any Tetractinellida, but with Monaxonida, and probably with *Clionidæ*, p. 17; three species recognized:—(1) *P. carinata* (Bwk.) Rdl., incl. *P. intermedia* Soll. and *P. mixta* Thiele, pp. 9–13 and pp. 2–6, pl. i, figg. 1–4, pl. ii, fig. 5, pl. iv, figg. 9–13, pl. v, figg. 1, 5, 7–9, 11; (2) *P. melobesioides* Gray, pp. 13 & 14, and pp. 2–6, pl. i, figg. 5–9, pl. ii, figg. 1–4 & 6, pl. iii, pl. iv, figg. 1–8, pl. v, figg. 2–4, 6, 10 & 12; (3) *P. decorticans* (Hanitsch) Thiele, incl. *P. græffei* Lend., p. 15; geographical and bathymetrical distribution of the species, p. 16; VOSMAER & VERNHOUT (66).

(b) Order HALICHONDRINA.

The suborder Halichondrina divided into the four families *Homorrhapidæ*, *Heterorrhaphidæ*, *Desmacidonidæ*, and *Axinellidæ*; LUNDBECK (38) p. 4.

Family HAPLOSCLERIDÆ.

Haplosclerídæ Tops., the family not adopted; the genera contained in it divided among the families *Homorrhaphidæ* R. & D. and *Heterorrhaphidæ* R. & D., which are retained nearly in their original sense, the *Tedaniinæ*, however, being placed among the *Desmacidonidæ* (= *Pœciloscleridæ*, pars); LUNDBECK (38).

Sub-family CHALININÆ.

Chalininæ, characters and limits of the subfamily; LUNDBECK (38) pp. 4 & 5.

Antherochalina dura Lend, the type is a specimen of *Chalina globosa* Lend., pp. 279, 287; *A. frondosa* Lend., description of type-specimens corrected, the species belongs to the genus *Clathria* (*Ectyoninæ*); pp. 275, 279, 288; *A. perforata* Lend. description of type-specimens

corrected, the species a doubtful one, pp. 275, 276, 279, 287: WHITELEGGE (69).

Ceraochalina multiformis var *dura* Lend., note on; WHITELEGGE (69) pp. 278 & 287.

Chalina, diagnosis of the genus; LUNDBECK (38) p. 10. *C. globosa* Lend., note on; WHITELEGGE (69) pp. 284 & 285. *C. oculata* (Pall.), redescribed, from Faroe Islands and Vestman Islands, pp. 10 & 11, pl. viii, fig. 7: *C. spatula* **n. sp.**, Davis Strait, 55 fathoms, pp. 11 & 12, pl. ii, fig. 3, pl. viii, figg. 8 & 9; LUNDBECK (38). *C. subarmigera* R., note on; WHITELEGGE (69) pp. 277 & 285.

Chalinella tenella Lend., is found by examination of the type-specimen to be a horny sponge; WHITELEGGE (69) pp. 285, 286 & 278.

Chalinissa communis Lend., *C. elegans* Lend. and *C. elongata* Lend., notes on; WHITELEGGE (69) pp. 286 & 278.

Chalinopora lamella Lend. and *C. siphonopsis* Lend. description of type-specimens corrected; WHITELEGGE (69) pp. 285 & 278. *C. tenella* Lend., vide *Pachychalina*.

Chalinula robustior O. S., appears from examination of the type-specimens to be found on fragments of the stalk of *Reniera urceolus* (Rathke & Vahl); LUNDBECK (38) p. 37.

Cladochalina euplax Lend., note on, pp. 285 & 278; *C. mollis* Lend., description of type-specimen corrected, pp. 286 & 278: WHITELEGGE (69).

Pachychalina O. S., diagnosis of the genus, p. 5, remarks on, p. 5; LUNDBECK (38): diagnosed; WILSON (71) p. 390. *P. amaranthus* (Duch. et Mich.), described, p. 391; *P. areolata* **n. sp.** from off Vieques, Sail Rock, Porto Rico, p. 392; *P. aurantiaca* (Lend.) var. *dura* **n. var.** from off St Thomas, Sail Rock, Porto Rico, p. 393: WILSON (71). *P. caulifera* Vosm., redescribed and defined, from Faroe Islands, pp. 7–9, pl. ii, figg. 1 & 2, pl. viii, figg. 4–6; *P. compressa* O. S., shown by examination of the type-specimen to be a *Homœodictya*, p. 6; *P. excelsa* O. S., remarks on, pp. 6 & 7: LUNDBECK (38). *P. manus* Lend., description of type-specimen corrected; WHITELEGGE (69) pp. 284 & 277. *P. mollis* **n. sp.** from Porto Rico; WILSON (71) pp. 390 & 391. *P. oblonga* Hans. is a *Reniera*, possibly *R. ventilabrum* Frist., pp. 9, 51; *P. oblonga* Vanhöffen non A. Hansen is a *Reniera*, p. 26; LUNDBECK (38). *P. rubens* (Pall.), described; WILSON (71) p. 392. *P. schmidtii* **n. sp.**, from Iceland, Suderø, and Faroe Islands, 10 and 22 fathoms, pp. 5–7, pl. i, figg. 1 & 2, pl. viii, figg. 1–3; LUNDBECK (38). *P. tenella* (Lend.), description of type-specimen corrected; WHITELEGGE (69) pp. 284 & 278.

Placochalina pedunculata, varr. *dura* Lend., *pocula* Lend., and *mollis* Lend., note on; WHITELEGGE (69) pp. 274, 279, 287.

Siphonochalina O. S., diagnosis; LUNDBECK (38) p. 13: WILSON (71) p. 393; *S. mollicula* **n. sp.**, from Greenland; LUNDBECK (38) pp. 15 & 16, pl. viii, figg. 12–14. *S. procumbens* (Crtr.), described, p. 393; *S. procumbens* (Crtr.) var. *infirma* **n. var.** from Porto Rico, pp. 393 & 394; WILSON (71). *S. pulcherrima* (Frist.), redescribed, from Greenland; LUNDBECK (38) pp. 13 & 14, pl. i, figg. 3 & 4, pl. viii, figg. 10 & 11. *S. spiculosa* D., described; WILSON (71) p. 394.

Spinosella Vosm., diagnosed, p. 394; *S. sororia* (Duch. et Mich.), described, p. 395; WILSON (71).

Sub-family RENIERINÆ.

Amorphina fibrosa Frist., vide *Halichondria*. *A. nigrocutis* (Crtr.), vide *Halichondria difficilis*. *A. nodosa* Frist., vide *Halichondria genitrix* O. S.; *A.* sp.; SOLLAS (58) p. 217.

Eumastia O. S., diagnosis of the genus, p. 31, characters and extent, p. 34; *E. sitiens* O. S., redescribed, pp. 31–34, pl. iv, figg. 1–6, pl. x, figg. 9–12: LUNDBECK (38).

Foliolina O. S., diagnosed; *F. peltata* O. S., described: WILSON (71) p. 390.

Gelliinæ, sensu R. & D., subfam. of *Heterorrhaphidæ* includes *Gellius*, *Gelliodes*, and *Oceanapia*; LUNDBECK (38).

Gellius Gray, genus diagnosed, p. 62, characters, p. 71; *G. angulatus?* (Bwk.) redescribed, pp. 63 & 64, pl. xii, figg. 12*a–d*; *G. arcoferus* Vosm., redescribed and defined from E. Greenland, pp. 62 & 63, pl. xii, figg. 11*a–c*: LUNDBECK (38). *G. centrangulatus*, **n. sp.**, from Great Redang; SOLLAS (58) p. 212, pl. xv, fig. 6. *G. flagellifer* R. & D., redescribed and defined, pp. 71–73, pl. ii, fig. 9, pl. xiv, figg. 1*a–d*; *G. luridus*, **n. sp.**, from 60° 37 Lat. N., 27° 52′ Long. W., 799 fathoms, and 64° 45′ Lat. N., 29° 06′ Long. W., 568 fathoms, pp. 64–67, pl. vi, figg. 5–8, pl. xiii, figg. 1*a–c*, and 2–8; *G. microtoxa*, **n. sp.**, from 60° 50′ Lat. N., 26° 50′ Long. W., 806 fathoms, pp. 67–69, pl. xiii, figg. 9*a–d* & 10; *G. porosus* for *Desmacella porosa* Frist., redescribed and defined, includes *G. flagellifer* Lambe non R. & D., pp. 73–75, pl. xiv, figg. 2*a–c*; *G. primitivus*, **n. sp.**, from Julianehaab, pp. 69 & 70, pl. xiii, figg. 11*a* & *b*; *G. proximus*, **n. sp.**, from Egedesminde, 15 fathoms, and Ameralik fjord, pp. 70 & 71, pl. xiii, figg. 12*a* & *b*: LUNDBECK (38). *G. sagittarius*, **n. sp.**, from Pulau Bidang; SOLLAS (58) pp. 212 & 213, pl. xv, fig. 7. *G.*, spp., incrusting root-tufts of *Hyalonema*; SCHULZE (56) p. 38.

Halichondria Fleming, diagnosis and characters of the genus; LUNDBECK (38) p. 16. *H. clathriformis* Lend., description of type-specimen corrected; WHITELEGGE (69) pp. 282, 283 & 277. *H. colossea*, **n. sp.**, from 64° 45′ Lat. N., 29° 06′ Long. W., 568 fathoms, a species closely allied to *H. pachastrelloides* Tops., pp. 27 & 28, pl. iii, figg. 1 & 2, pl. x, figg. 3–7; *H.* (*!*) *difficilis*, **n. sp.**, from 60° 37′ Lat. N., 27° 52′ Long. W., 799 fathoms, and 64° 45′ Lat. N., 29° 06′ Long. W., 568 fathoms, a species closely allied to *Amorphina nigrocutis* Crtr., pp. 28–31, pl. ii, fig. 7, pl. x, fig. 8; *H. falcula* Bwk., vide *Hamacantha bowerbanki*; *H. fibrosa* for *Amorphina fibrosa* Frist., redescribed, from West Greenland, pp. 20 & 21, pl. ix, figg. 3*a–c*; *H. genitrix* (O. S.), redescribed from West Greenland, includes *Amorphina nodosa* Frist., pp. 18–20, pl. ix, figg. 2*a–c*: LUNDBECK (38). *H. mammillata* Lend., description of type-specimen corrected; WHITELEGGE (69) pp. 282 & 277. *H. oblonga* for *Reniera oblonga* Hans., redescribed, from East Greenland, pp. 24–26, pl. ii, fig. 4, pl. ix, fig. 10; *H. osculum*, **n. sp.**, from Davis Strait and E. Coast of Greenland, 10–60 and 393 fathoms, pp. 23 & 24, pl. iii, figg. 3–7, pl. ix, figg. 7–9: LUNDBECK (38). *H. panicea*; ALLEN & TODD (2) pp. 310, 314 & 317: variation and "metampy" [vide II, A, i]; BIDDER (4) pp. 380–382: KERVILLE (26) pp. 165 & 175: KIRKPATRICK (27) pp. 318 & 319: LEBOUR (33) p. 171, vide II, D, iv: descriptive notes on specimens from various localities, and synonymy of the species; LUNDBECK (38) pp. 17 & 18, pl. ix, fig. 1. *H. rubra* Lend., note on; WHITELEGGE (69) pp. 282 & 277. *H.* sp.; KIRKPATRICK (27) p. 319. *H. tenuiderma*, **n. sp.**, from 61° 44′ Lat. N. and 27° 00′ Long. W., 485 fathoms, pp. 26 & 27, pl. x, figg. 1 & 2; *H. velamentosa* for *Reniera velamentosa* Hans., redescribed, pp. 22 & 23, pl. i, fig. 5, pl. ix, figg. 4–6: LUNDBECK (38).

Metschnikowia Grimm, diagnosis of genus, p. 52; *M. spinispiculum* (Crtr.), redescribed and defined, pp. 52–54, pl. xii, figg. 4*a* & *b*; LUNDBECK (38).

Pellina, remarks on the genus; BIDDER (4) p. 382.

Petrosia Vosm., diagnosis of the genus; LUNDBECK (38) p. 54: WILSON

(71) p. 389. *P. crassa* (Crtr.), redescribed and defined; LUNDBECK (38) pp. 54 & 55, pl. iv, figg. 7–9, pl. xii, figg. 5*a–c*. *P. halichondroides*, **n. sp.**, from off St. Thomas, Sail Rock, Porto Rico; WILSON (71) pp. 389 & 390. *P. hebes* Lend., description of type-specimen corrected; WHITELEGGE (69) pp. 282 & 277.

Reniera Nardo, diagnosis and characters of the genus; LUNDBECK (38) pp. 34, 35, 51 & 52. *R. australis* Lend., note on; WHITELEGGE (69) pp. 280 & 277. *R. calamus*, **n. sp.**, allied to *R. subglobosa* R. & D., from 60° 37′ Lat. N., 27° 52′ Long. W., 799 fathoms, and 64° 45′ Lat. N., 29° 06′ Long. W., 568 fathoms; LUNDBECK (38) pp. 48 & 49, pl. v, figg. 1 & 2, pl. xi, figg. 15*a*, *b* & 16. *R. cinerea* (Grant); KERVILLE (26) p. 175: redescribed; LUNDBECK (38) pp. 43 & 44, pl. xi, fig. 10. *R. clavata* (?) Levins., from East Greenland, 100 fathoms; LUNDBECK (38) p. 43, pl. xi, fig. 9. *R. collectrix* Lend., description of type-specimen corrected; WHITELEGGE (69) pp. 280 & 277. *R. folium*, **n. sp.**, from 61° 32′ Lat. N., 11° 36′ Long. W., 720 fathoms, and 58° 01′ Lat. N., 44° 45′ Long. W., 1330 fathoms, pp. 39 & 40, pl. v, fig. 5, pl. xi, fig. 5; *R. heterofibrosa*, **n. sp.**, from Seydisfjord in Iceland, pp. 47 & 48, pl. ii, fig. 8, pl. xi, fig. 14; *R. hyalina*, **n. sp.**, from 63° 26′ Lat. N., 7° 56′ Long. W., 471 fathoms, bottom temperature 0·6 below zero, pp. 42 & 43, pl. xi, fig. 8; *R. laxa*, **n. sp.**, from Iceland and Davis Strait, 44 and 100 fathoms, pp. 46 & 47, pl. ii, fig. 6, pl. xi, fig. 13: LUNDBECK (38). *R. lobosa* Lend., note on, pp. 282 & 277; *R. megarrhaphea* Lend., description of type-specimen corrected, pp. 280, 281 & 277; WHITELEGGE (69). *R. oblonga* Hans., vide *Halichondria* and *Pachychalina*. *R. pandæa* Lend., description of type-specimen corrected, the species referred to the genus *Rhaphisia*; WHITELEGGE (69) pp. 281 & 277. *R. parenchyma*, **n. sp.**, a well characterized species from 64° 44′ Lat. N., 31° 00′ Long. W., 1236 fathoms; LUNDBECK (38) pp. 37–39, pl. vii, fig. 1, pl. xi, figg. 2–4. *R. simplex* Hans., vide *R. voeringii*. *R. simulans* (Johnst.); KERVILLE (26) p. 175. *R.* sp. *a* from Scoresby Sound, pp. 49 & 50, pl. xi, fig. 17; *R.* sp. *b* from 63° 35′ Lat. N., 10° 24′ Long. W., 272 fathoms, p. 50, pl. xii, fig. 1; *R.* sp. *c* from Hekla Harbour, p. 50, pl. xii, fig. 2: LUNDBECK (38). *R.* sp. from Pulau Bidang and Great Redang, p. 210, pl. xiv, fig. 5; *R.*, 2 spp. from Great Redang, pp. 210 & 211, pl. xv, figg. 3 & 11; *R.*, 4 spp. from Pulau Bidang, pp. 211 & 212: SOLLAS (58). *R. tubulosa* Frist., redescribed and defined; *R. tubulosa* Hans. non Frist., is identical with *Oceanapia robusta*, pp. 44–46, pl. ii, fig. 5, pl. xi, figg. 11*a–c* & 12; *R. urceolus* (Rathke & Vahl), redescribed and defined, from Iceland and the Faroe Islands, probably includes *Chalinula robustior* O. S., pp. 35–37, pl. i, fig. 6, pl. xi, fig. 1; *R. velamentosa* Hans., vide *Halichondria*; *R. ventilabrum* Frist., redescribed and defined, pp. 40–42, pl. xi, figg. 6 & 7, vide etiam *Pachychalina oblonga*; *R. voeringii*, **nom. nov.** for *R. simplex* Hans. non Bwk., redescribed and defined from one of the original specimens, pp. 50 & 51, pl. xii, fig. 3: LUNDBECK (38).

Reniochalina lamella Lend., and *R. stalagmites* Lend., description of type-specimens corrected; WHITELEGGE (69) pp. 283 & 277.

Rhaphisia, to include *Reniera pandæa* Lend., q. v.; WHITELEGGE (69) pp. 281 & 277.

Sub-family SPONGILLINÆ.

Carterius stepanowi Dyb. from the Rhenish Palatinate, fully described; LAUTERBORN (32) pp. 520–532, figg. 1–5.

Ephydatia fluviatilis; BLASIUS (6): in sea-water; LEVANDER (35) p. 9: KOORDERS (29), vide II, D, vi. *E. goriævii* **n. sp.**, Lake Baikal;

SVARTZEVSKY (60) pp. 344 & 345, 348, pl. v, figg. 16–19. *E. olchonensis* **n. sp.** from Lake Baikal; SVARTZEVSKY (59) pp. xii & xiii, figg. 3–6 and (60) pp. 342–344, 348, pl. iv, figg. 12–15.

Lubomirskia bacillifera Dyb., and varr. *a* and *γ* Dyb., pp. x & xi; *L. baicalensis* (Pall.), p. x, figg. 1 & 2; *L. fusifera* Suc., p. xi; *L. intermedia* Dyb. and varr. *a* Dyb. and *β* Suc., p. xi (vide etiam *Veluspa*): SVARTZEVSKY (59). *L.* [errore *Lubomliskia*] *irregularis* **n. sp.**, Lake Baikal, pp. 341 & 342, 347, pl. iv, fig. 11; *L. papyracea* Dyb., var. *a* **n. var.**, from Lake Baikal, pp. 339–341, 347, pl. iii, figg. 7–10: SVARTZEVSKY (60). *L. tscherskii* Suc., vide *Veluspa bacillifera*, var. δ.

Potamolepis weltneri **n. sp.** from deep water of Lake Tanganyika and the lower reaches of the Congo, with spicules "closely similar to those of the old fossil genus *Renieria*" [sic]; MOORE (43) p. 323, fig. 4, pp. 331 & 342, 353 & 354.

Spongilla seu *Euspongilla*; *S. aspinosa* Potts; LANDACRE (31) p. 96: compared with *S. moorei* Evans; MOORE (43) pp. 316 & 317. *S. cinerea* Crtr.; LANDACRE (31) p. 96. *S. contecta*, figure of gemmule; GOETTE (16) p. 98, fig. 80. *S. fragilis* Leidy; LANDACRE (31) p. 96. *E. lacustris*; BLASIUS (6): LEVANDER (36) pp. 6, 17. *S. microgemmata* **n. sp.**, Lake Baikal; SVARTZEVSKY (60) pp. 346–348, pl. v. figg. 20–22. *S. moorei* Evans, description and affinities [quoted from Evans] pp. 310–317, figg. 1 & 2; *S. tanganyikæ* Evans, description and affinities [quoted from Evans], pp. 318–322, fig. 3; MOORE (43).

Veluspa abietina **n. sp.** from Lake Baikal, pp. 338 & 339, 347, pl. iii, figg. 4–6; *V. bacillifera* (Dyb.), and four varr., p. 347, pl. iii, fig. 1 (vide etiam *Lubomirskia*); *V. bacillifera* var. δ, **n. var.**, for *Lubomirskia tscherskii* Suc., p. 347; *V. baicalensis* (Dyb.) and five varr., p. 347 (vide etiam *Lubomirskia*); *V. fusifera* (Suc.), var. *a* **n. var.**, from Lake Baikal, pp. 337 & 338, 347, pl. iii, figg. 2 & 3 (vide etiam *Lubomirskia*); *V. intermedia* (Dyb.) and var. *a*, p. 347 (vide etiam *Lubomirskia*): SVARTZEVSKY (60).

Sub-family GELLIODINÆ.

Cladocroce Tops., the genus perhaps to be united with *Reniera*; LUNDBECK (38) pp. 52 & 53.

Gelliodes Ridley, diagnosis of the genus, p. 75; *G. cavicornis* Tops., vide *Oceanapia robusta*; *G. consimilis* **n. sp.** from 69° 31′ Lat. N., 7° 06 Long. W., 1309 fathoms, temperature 1° below zero, pp. 77 & 78, pl. xiv, fig. 6, *a–e*; *G. plexa* **n. sp.**, from N.W. of Faroe Islands and N.E. Greenland, 100–272 fathoms, pp. 75–77, pl. v, figg. 3 & 4, pl. xiv, figg. 3, *a–d*, 4 & 5: LUNDBECK (38).

Sub-family PHLŒODICTYINÆ.

Subfamily *Phlœodictyinæ* to be broken up, and its two genera classed one with *Homorrhaphidæ*, the other with *Heterorrhaphidæ*; LUNDBECK (38) pp. 4, 56 & 57.

Oceanapia Norman, diagnosis and characters of the genus, regarded as closely allied to *Gelliodes*; LUNDBECK (38) p. 78 and p. 57: diagnosed; WILSON (71) p. 395. *O. oleracea* O. S., described; WILSON (71) p. 396. *O. robusta* (Bwk.), redescribed and defined, includes *Gelliodes cavicornis* Tops.; LUNDBECK (38) pp. 78–82, pl. xv, figg. 1, *a–c*, 2–4.

Phlœodictyon Carter (= *Rhizochalina* olim), genus diagnosed and reestablished, and referred to the *Renierinæ*, pp. 56 & 57; *P. elongatum*, for *Rhizochalina elongata* Tops., redescribed and defined, pp. 59–61, pl. vi, figg. 3 & 4, pl. xii, figg. 8, *a*, *b* & *c*, & 9; *P. irregulare* **n. sp.**, from 65° 28′ Lat. N., 27° 39′ Long. W., 450 fathoms, pp. 61 & 62, pl. vi,

figg. 9 & 10, pl. xii, fig. 10, *a* & *b*; *P. tuber* **n. sp.**, from Denmark Strait, 799, 485, and 568 fathoms, pp. 57–59, pl. vi, figgs. 11–13, pl. xii, figg. 6, *a* & *b*, & 7: LUNDBECK (38).

Rhizochalina O. S., the genus to be sunk, since Schmidt's two species *R. oleracea* and *R. carotta* are found on examination of the type-specimens to be *Chalininæ*; for species referred later to this genus Carter's name *Phlœodictyon* should be used, q. v.; LUNDBECK (38) pp. 56 & 57.

Family PŒCILOSCLERIDÆ.

Pœciloscleridæ Tops., criticism of the family; LUNDBECK (38) p. 3.

Sub-family ESPERELLINÆ.

Axoniderma, vide II, B, ii, a.

Biemma Gray, diagnosis of the genus, p. 82; list of species comprised in it, p. 87; *B. annexa* for *Desmacella vagabunda* var. *annexa* O. S., redescribed and defined, pp. 85–87, pl. iv, fig. 14, pl. xvii, fig. 3, *a–f*; LUNDBECK (38). *B. democratica* **n. sp.** from Pulau Bidang, "possibly it ought to form the type of a new genus"; SOLLAS (58) p. 213, pl. xv, fig. 9. *B. rosea* for *Desmacella rosea* Frist., redescribed and defined, includes *B. dautzenbergi* Tops.; LUNDBECK (38) pp. 82–85, pl. vi, figg. 1 & 2, pl. xv, figg. 5, *a–d* & 6–9.

Chondrocladia, vide II, B, ii, a and II, D, iv.

Cladorhiza, vide II, B, ii, a; *C. flos abyssi* **n. sp.** from Cape Verde Islands, 3890 metres; TOPSENT (61).

Desmacella O. S., diagnosis of the genus, p. 88; list of species comprised in it, and their distinguishing characters, pp. 98 & 99 (vide etiam *Biemma* and *Sigmaxinella*); *D. capillifera* for *Gellius capilliferus* Levinsen, redescribed and defined, probably includes *D. peachii* var. *grœnlandica* Lambe non Frist., pp. 88–90, pl. xvi, fig. 1, *a–g*: LUNDBECK (38). *D. fortis* Tops., redescribed, pp. 213 & 214; SOLLAS (58). *D. grœnlandica* for *D. peachii* var. *grœnlandica* Frist., redescribed and defined, pp. 95–98, pl. vi, fig. 14, pl. vii, fig. 7, pl. xvii, fig. 2, *a–h*; *D. hamifera* **n. sp.**, from various localities at the Faroe Islands, between the Faroe Islands and Iceland, and in Denmark Strait, 96–450 fathoms, pp. 93–95, pl. vii, figg. 4–6, pl. xvii, fig. 1, *a–l*; *D. peachii* (Bwk.), redescribed and defined, pp. 90–93, pl. iv, figg. 10–13, pl. xvi, fig. 2, *a–l*: LUNDBECK (38). *D.* sp. from Pulau Bidang; SOLLAS (58) p. 214.

Desmacellinæ, subfamily of *Heterorrhaphidæ*, for the genera *Biemma*, *Desmacella* and *Hamacantha*; LUNDBECK (38) p. 82.

Esperella ægagropila (Johnst.); KERVILLE (26) p. 175. *E. sulevoidea* **n. sp.**; SOLLAS (58) p. 213, pl. xiv, figg. 8 & 9, pl. xv, fig. 10.

Hamacantha Gray, diagnosis of the genus, p. 99; characters of the genus and list of species, p. 108; *H. bowerbanki* **n. sp.**, from various stations (between the Faroe Islands and Iceland, S. of Iceland, Denmark Strait, and Davis Strait), 132–1267 fathoms, includes *Hymedesmia johnsoni* Crtr. and perhaps *Halichondria falcula* Bwk. and *Hymedesmia johnsoni* Bwk., pp. 99–104, pl. vii, figg. 2 & 3, pl. xviii, figg. 1, *a–k*, 2 & 3; *H. implicans* **n. sp.**, from Davis Strait and Denmark Strait, 170–788 fathoms, perhaps includes *H. papillata* Vosm. and *H. johnsoni* var. *complanata* Tops., partim, pp. 104–108, pl. v, figg. 6–9, pl. xix, figg. 1, *a–e*, 2–6: LUNDBECK (38).

Homœodictya, notes on; LUNDBECK (38) p. 6 footnote (vide etiam *Pachychalina compressa*).

Sub-family Dendorycinæ.

Tedania Gray, diagnosed, *T. digitata* (O. S.), described; Wilson (71) pp. 395 & 396.

Sub-family Ectyoninæ.

Agelas Duch. et Mich., diagnosed; *A. schmidtii* **n. sp.** from off St Thomas, Sail Rock, Porto Rico; Wilson (71) pp. 398 & 399.
Clathria O. S. diagnosed; *C. clathrata* (O. S.), described; Wilson (71) p. 397. *C. frondosa* for *Antherochalina frondosa* Lend.; Whitelegge (69) p. 288. *C. jugosa* **n. sp.** from Saint Antonio Bridge, San Juan, Porto Rico; would fall in the genus *Raphidophlus* Ehlers if that genus were maintained; Wilson (71) pp. 397 & 398.
Microciona Bwk., diagnosed; *M. spinosa* **n. sp.** from off St Thomas, Sail Rock, Porto Rico: Wilson (71) pp. 396 & 397.
Plumohalichondria plumosa (Mont.); Kerville (26) p. 175.

Family Axinellidæ.

Axinella O. S., diagnosed; *A. reticulata* R. & D., described: Wilson (71) p. 400.
Ciocalypta melichlora, **n. sp.**, from Pulau Bidang, pp. 214 & 215, pl. xiv, fig. 1, pl. xv, fig. 8; *C. rutila*, **n. sp.**, from Pulau Bidang, p. 215, pl. xiv, fig. 7: Sollas (58).
Hymeniacidon caruncula Bwk.; Kerville (26) p. 175.
Phakellia Bwk., diagnosed; *P. lobata*, **n. sp.**, from Porto Rico: Wilson (71) p. 399.
Raspailia ramosa (Mont.); Kerville (26) p. 175.
Sigmaxinella Dendy, this genus with the three spp. *australiana* D., *flabellata* Crtr., and *ciocalyptoides* D., scarcely seems to differ from *Desmacella* (*Esperellinæ*); Lundbeck (38) p. 99.
Thrinacophora R., diagnosed; *T. spinosa*, **n. sp.**, from Punta de Melones, Porto Rico: Wilson (71) p. 400.

(c) Incertæ Sedis.

†*Heteroraphidites spongiosus* Schrm.; Schrammen (55) p. 3.

(iii) *KERATOSA.*

(a) DICTYOCERATINA.

Family Spongidæ.

Cacospongia O. S., diagnosed; *C. spongeliformis*, **n. sp.**, from Porto Rico: Wilson (71) p. 403.
Chalinopsilla Lend., diagnosed; *C. pilosa*, **n. sp.**, from off St. Thomas, Sail Rock, Porto Rico: Wilson (71) p. 401.
Euspongia Bronn, diagnosed; Wilson (71) p. 401. *E. irregularis* var. *pertusa*, occurrence; Etheridge (14) p. 246. *E. officinalis* var. *rotunda*, described; Sollas (58) p. 220: Wilson (71) p. 402.
Hippospongia F. E. S., diagnosed; *H. intestinalis* Lam., described: Wilson (71) pp. 402 & 403.

Hircinia Ndo., diagnosed, p. 404; *H. acuta* (Duch. et Mich.), described, pp. 404 & 405; *H. fœtida* (O. S.), var. *cuspidata* **n. var.**, from off St. Thomas, Sail Rock, Porto Rico, p. 406; *H. variabilis* F. E. S., described, pp. 405 & 406: WILSON (71).

Stelospongus O. S., diagnosed; *S.* sp., described: WILSON (71) p. 404. *S.* sp., described; SOLLAS (58) p. 220.

Family SPONGELIDÆ.

Spongelia Ndo., diagnosed; WILSON (71) p. 410. *S. digitata*, **n. sp.**, from Great Redang, Malay Peninsula; SOLLAS (58) pp. 220 & 221, pl. xiv, fig. 4, pl. xv, fig. 2. *S. fragilis* Mont., var. *irregularis* Ldf.; KERVILLE (26) p. 175. *S. pallescens* O. S., subsp. *fragilis*, var. *ramosa* F. E. S., described; WILSON (71) p. 410.

Family APLYSINIDÆ.

Aplysina Ndo., diagnosed, p. 406; *A. fenestrata* Crtr., described, p. 408; *A. flagelliformis* (Crtr.), described, pp. 406 & 407; *A. flagelliformis* (Crtr.), var. *anomala* **n. var.**, from Porto Rico, p. 407; *A. flagelliformis* (Crtr.), var. *rugosa* **n. var.**, from Porto Rico, p. 407; *A. fragilis*, **n. sp.**, from off Humaçao, Hucares, Porto Rico, pp. 408 & 409; *A. hirsuta* (Hyatt), described, p. 409: WILSON (71).

Dendrospongia Hyatt, diagnosed; *D. crassa* Hyatt, described: WILSON (71) pp. 409 & 410.

(b) DENDROCERATINA.

Vacant.

(iv) *MYXOSPONGIDA.*

Vacant.

E. OCTACTINELLIDA.

Vacant.

F. HETERACTINELLIDA.

Vacant.

G. INCERTÆ SEDIS.

†*Achilleum variabile* Gf.; SCHLOSSER (52) p. 553.

†*Amorphospongia ramosa* Mant.; PERON (46) p. 516. †*A. rugosa*; ZAHÁLKA (75) p. 17.

†*Bothroconis* sp.; GIRTY (15) p. 364.

†*Favospongia goughi* (Salter), described, = †*Pasceolus goughi* Salter + *Favospongia ruthveni* Salter; REED (49) pp. 340 & 341.

†*Trichospongia hystrix*, **n. sp.**, Ordovician of Lake Winnipeg; WHITEAVES (68) pp. 147 & 148, pl. xvii, fig. 3.

†*Tubulospongia*, cf. *milleporella*; PERON (46) p. 516.

XVIII. PROTOZOA.

BY

H. M. Woodcock, B.Sc. (Lond.)

CONTENTS.

Page

Introduction 3

I. Titles 5

II. Biology.

A. Morphology 32
1. General anatomy 32
2. Minute structure of cell-organs, special points . 34

B. Physiology 37
1. Nutrition, excretion, etc. 37
2. Locomotion, response to stimuli . . . 38

C. Bionomics 40
1. Plankton 40
2. Parasitism: effects on host; relation to disease . 40

D. Reproduction 44
1. Asexual 44
2. Sexual 46
3. Nuclear changes; directive-centres, etc. . . 48
4. Development and life-cycle 49

E. Evolution; group relationships, etc. 50

F. Miscellanea 52
1. Cultivation and infection 52
2. Technique 53
3. Bibliography, etc. 53

III. Distribution.

A. Geographical 54

B. Geological 55

C. Parasitic (including commensalism) 57

Page

IV. Systematic.

A. Protozoa in general 60

B. Gymnomyxa 60

1. Mycetozoa 60

(a) Protomyxidea 60
(b) Mycetozoidea 60

2. Rhizopoda 60

(a) Lobosa 60
(b) Foraminifera 62

3. Heliozoa 70

(a) Aphrothoraca 70
(b) Chlamydophora 70
(c) Chalarothoraca 70
(d) Desmothoraca 71

4. Radiolaria 71, 76

(a) Peripylaria 71
(b) Acantharia 73
(c) Monopylaria 73
(d) Tripylaria 75

C. Sporozoa 76

1. Telosporidia 76

(a) Gregarinidea 76
(b) Coccidiidea 77
(c) Hæmosporidia 77

2. Neosporidia 78

(a) Myxosporidia 78
(b) Sarcosporidia 79
Sporozoa incertæ sedis 79

D. Mastigophora 79

1. Euflagellata 79

(a) Flagellata 79
(b) Choanoflagellata (Vacant)

2. Silicoflagellata 82

3. Dinoflagellata 83

(a) Adinida 83
(b) Dinifera 83

4. Rhynchoflagellata 84

E. Ciliophora 84

1. Ciliata 84

(a) Holotricha 84
(b) Heterotricha 85
(c) Hypotricha 86
(d) Peritricha 87

2. Suctoria 87

INTRODUCTION.

THE *Protozoa* Record for 1902 contains quite 450 papers, including a certain number belonging to previous years, some of which, however, have only lately arrived at the libraries. Although this is an increase of nearly 60 per cent., the Recorder is glad to say that the number of asterisks shews, if anything, a slight decrease. The extreme importance of the group from a parasitological and pathological point of view is seen from the general constitution of the record, a large proportion of the papers dealing with malaria, *trypanosomosis*, or *piroplasmosis*. Unfortunately the tendency is for such memoirs to appear in medical journals, many of them difficult of access (most of the asterisks are prefixed to papers of this description), and although some deal chiefly with the medical aspects of the disease and are of no great interest to zoologists, this does not apply to all, and the Recorder cannot too much deprecate the practice of an author like SCHAUDINN, of bringing out two of the ablest Protozoan monographs of recent years in a publication that not a single zoological library is accustomed to take in. When he himself edits a journal like the new "Archiv für Protisten-Kunde," the first volume of which can best be described as a "mine of Protozoan wealth," it is somewhat incongruous to send his own work to the "Arbeiten aus dem Kaiserlichen Gesundheitsamt," which, however estimable a publication, is not noted for its zoological character.

Among a number of important works in the section for Biology, selection for particular mention is rather difficult, but a place in the foremost rank may well be assigned to the memoirs of SCHAUDINN (335 & 336), above referred to, on the life-histories of *Cyclospora caryolytica* and *Plasmodium vivax* (the tertian parasite) respectively. Another (334) on *Coccidium schubergi*, of equal value, though of earlier date, is included, as it does not seem to have been recorded before. SIEDLEČKI's accounts of *Adelea ovata* (359A) and *Caryotropha mesnili* (358) provide very interesting material for comparison with the above. While LÉGER (215) and LÉGER & DUBOSCQ (217) describe widely different varieties of anisogamous conjugation in certain Gregarines, BERNDT (19) shews that the process may also be isogamous in the *Cephalina*, isogamy having been hitherto known only in the *Acephalina*.

HINTZE's paper (159) on the life-history of *Lankesterella*, from the frog, is largely discredited by the quite recent work of Siegel & Schaudinn (1903) which brings the Hæmosporidia of cold-blooded vertebrates more into line with the *Gymnosporea* (in the possession of a digenetic cycle, with a "definitive" Invertebrate host in which the sexual process takes place).

The occurrence of trypanosomosis in the human subject, and the quite recent discovery by Castellani of Trypanosomes in persons suffering from sleeping-sickness, has given to the group an importance only second to that possessed by the malarial parasites, and researchers in this direction will find much of interest in last year's papers bearing on the subject. The indefatigable LAVERAN, either alone (188 & 190), or with his associate MESNIL (196 & 202) investigates the morphology of various species and in (197) they give a full account—as also do BRADFORD & PLIMMER (40)—of the *Trypanosoma brucei* and "Nagana." DUTTON (94A) describes and figures the new human parasite, *T. gambiense*, and other useful contributions to this branch are those by JÜRGENS (174), SENN (352), and VOGES (403). Piroplasmosis and its causative-agent (the Hæmosporidian, *Piroplasma*) form the theme of papers by LIGNIÈRES (227) and NOCARD & MOTAS (276), the former considerably adding to our knowledge of the development undergone by the parasite, while in the tick.

Considerable attention has been paid to the "developmental-mechanics" of the Foraminiferan shell by RHUMBLER, who in a rather abstruse memoir (315) deduces and then proves certain fundamental laws of development. In (314) he contributes an interesting and important account of the remarkable "twinned-shells" of *Orbitolites*, treated from a similar standpoint.

LOHMANN'S monograph (231) on the *Coccolithophoridæ*, which he shews to be true Flagellates, is well worth study. Apart from "coccoliths" and "rhabdoliths," etc., but little has been hitherto known of these minute plankton organisms, and a better acquaintance with their nature was much to be desired. Their relationships, and those of the Silicoflagellata (of which LEMMERMANN (222) contributes an up-to-date summary), are referred to below.

To R. HERTWIG (153) we are indebted for a thoughtful memoir on the relation of Protozoan organisation to that of the Metazoan cell, full of suggestive ideas, and which reassures us with regard to the great characteristic of the Protozoa—their unicellular nature—upon which HICKSON & WADSWORTH (158), in an interesting description of conjugation in *Dendrocometes*, cast sundry doubts.

The Protozoa have been subjected to many and diverse physiological experiments, by CRAWLEY (on the cause of gliding movements in Gregarines), ENRIQUES (on osmosis etc.), GREELEY (on the effects of reduction of temperature), JENNINGS and with others (on the effect of chemical and electrical stimuli), JOSEPH and PROWAZEK (Röntgen rays), MENDELSSOHN (thermotaxis), ROESLE and also WALLENGREN (on the effect of galvanotactic stimuli), YASUDA (concentrated chemical solutions) and others. CALKIN'S investigations (50–53) on averting degeneration and causing rejuvenescence in *Paramœcium*, especially merit consideration.

For various works on Geographical Distribution the reader is referred to the different papers by AVERINTZEV, BEARDSLEY, BORGERT, CHAPMAN, CLEVE, FORNASINI, ISSEL, MILLETT, MINKEVICH, OSTENFELDT, PENARD, ROUX, SCHMIDT, WRIGHT, ZACHARIAS, and ZYKOFF, and on Geological Distribution to those by DOUVILLÉ, FORNASINI, LAGERHEIM, MARTELLI, PREVER, READE, SCHUBERT, SILVESTRI, and VINASSA DE REGNY.

In the Systematic part, many of the works just mentioned naturally recur. BORGERT (27) adds to our knowledge of the Tripylaria, and BRANDT (41) reclassifies the *Collidæ*, making at the same time interesting observations on their reproduction. CHAPMAN (61) calls his text-book on the Foraminifera also "An Introduction to the Study of Protozoa," which is rather misleading. DOFLEIN (88) has produced a very useful treatise on parasitic Protozoa, and their relations to disease. In most respects it is a very serviceable work, but has the fault, condemned in last year's record also, of introducing several new species. The author is occupied with an endeavour to improve upon the existing system of the Protozoa, which he amplifies in (87), but which is not particularly successful: the idea underlying the similar attempt by HALLER in his new text-book (150), although somewhat crudely expressed, is more in the right direction. FORNASINI (116–126) describes many new Foraminifera from the Adriatic, both recent and fossil, and "revises" several of d'Orbigny's species, reproducing figures from the "planches inédites." LEMMERMANN (222) and LOHMANN (231) reconstruct the Silicoflagellata and the *Coccolithophoridæ* respectively. MILLETT (262) continues his report of the Foraminifera of the Malay Archipelago. PENARD (289) publishes a ponderous tome on the Rhizopods of Lake Geneva, and PREVER (299) describes many new *Nummulites* from the Italian Eocene, revising the genus at the same time. The Infusorian fauna of Lake Geneva is dealt with by ROUX (321 & 322) who describes the remarkable form *Monomastix ciliatus* which he places in the group *Mastigotricha* Schewiakoff, as intermediate between

Flagellates and Ciliates. Both SCHÜTT (351) and SENN (353), approaching the question from a botanical standpoint, treat the Peridiniales (Dinoflagellata) and the Flagellata respectively, in a manner somewhat irregular, according to zoological ideas. Finally VINASSY DE REGNY (399 & 400) describes at least 150 new Miocene and Cretaceous Radiolaria, which he terms varyingly new species and "new forms" (when they are not new genera) but to which the first designation has been uniformly given, as that is the conclusion the Recorder has arrived at from the author's nomenclature.

With regard to the classification adopted in this Record, although it is rather fuller than that of previous years, the only important additions that require mentioning are the inclusion of the order Mycetozoidea, to form with the order Protomyxidea (Proteomyxa) the sub-class Mycetozoa, and of the sub-class Silicoflagellata in the Mastigophora.

I. TITLES.*

1. ALCOCK, A. A Naturalist in Indian Seas. London, John Murray, 1902, xxiv + 328 pp., frontispiece and 98 figg. on pls.

2. ALESSANDRI, G. DE. Nuovi fossili del senoniano lombardo. Rend. Ist. Lombardo (2) xxxiv, pp. 183–202, 3 text-figg.

3. *AMBERG, S. A contribution to the study of amœbic dysentery in children. Bull. Johns Hopkins Hosp. xii, 1901.
Abstract in Centrbl. Bakter.† (1) xxxi, Ref. p. 247.

4. APSTEIN, C. Das Plankton der Ostsee. Abh. deutsch. Seefisch.-Ver. vii, pp. 103–129, 2 text-charts, pls. ix–xi.

5. ARGUTINSKY, P. Malariastudien. 2te Mittheilung: Zur Morphologie des Tertianparasiten (*Plasmodium vivax* Gr. & Fel.). Arch. mikr. Anat. lxi, pp. 331–347, pl. 18.

6. ——. Zur Morphologie und Biologie des Malariaparasiten. Note in Centrbl. Bakter. (1) xxxi, Ref. p. 426.

   [——. Malariastudien. Zool. Rec. 1901 (2).] Abstract (of technique) in Zeitschr. wiss. Mikr. xviii, pp. 440–442.

7. AVERINTZEV, S. K faunīstīkye Protozoa Bologhova ī egho okrestnosteĭ. (Zur Kenntniss der Protozoen-fauna in der Umgebung von Bologoje.) Vorläufige Mittheilung. Protok. St. Peterb. Obshch. xxx, 1, No. 6, 1899, pp. 238–251. Abstract in German, t. c. pp. 262–264.

8. ——. O zookhlorellakl u Prostyeĭshīkh. (Ueber Zoochlorellen bei den Protozoen.) Op. cit. xxxi, 1, No. 7, 1900, pp. 322–330. Abstract in German, t. c. pp. 345–347.

---

* An asterisk prefixed to a quotation indicates that the Recorder has not seen the Journal or Work referred to.

† Attention may be called to the arrangement of this periodical which is as follows:

(1) 1ste Abtheilung; for bacteriology and parasitology in two sections (both having the same volume-number), "Originale" for original communications and "Referate" for abstracts and reviews.

(2) 2te Abtheilung; for vegetable pathology, physiology of fermentation, etc., not subdivided.

9. [Averintzev, S.] O stroeniī obolochek u nyekotoruikh Prostyeishīkh. (Ueber den Bau der Umhüllung bei einigen Protozoen.) T. c. pp. 330–338. Abstract in German, t. c. pp. 347 & 348.
Abstract in Zool. Centrlbl. ix, p. 197.

10. ——. K faunistikye kornenozhek Marmornagho morya. (Zur Faunistik der Rhizopoden des Marmora-Meeres.) Vorläufige Mittheilung. Op. cit. xxxii, 1, No. 5, 1901, pp. 181–183. Resumé in German, t. c. pp. 220 & 221.

11. ——. O strukturye īzvestī v rakovīnakh kornenozhek. (Ueber die Structur des Kohlensaurenkalkes in den Schalen der Rhizopoden.) Vorläufige Mittheilung. T. c. pp. 189–204. Abstract in German, t. c. p. 222.

12. ——. Morfologhiya ī sīstematīka sem. *Halterina* Clap. et. Lachm. (Zur Morphologie und Systematik der Familie *Halterina* Clap. et. Lachm.) Trudui St. Peterb. Obshch. xxxi, 4, No. 12, 1901, pp. 1–58.
Resumé in German, t. c. pp. 59–63.

13. Bagg, R. M. Note on *Discorbina rugosa* d'Orbigny from Provincetown, Cape Cod. Science xv, p. 755.

14. Balbiani, E. G. Études sur l'action des sels sur les Infusoires. Arch. anat. micr. ii, 1898, pp. 518–600, pl. 22. [Unfinished.]

15. Bastelica, C. de. Sur le rôle des moustiques dans la propagation du paludisme et sur l'assainissement de la plaine orientale de la Corse. C.R. Ass. Franc. 1901, pt. i, pp. 199 & 200, pt. ii, pp. 879–887.

16. Battesti, F. Sur le paludisme en Corse. C.R. Ass. Franc. 1901, pt. i, pp. 177 & 178.

17. Beardsley, A. E. Notes on Colorado Protozoa, with descriptions of new species. Tr. Amer. micr. Soc. xxiii, pp. 49–58, pl. 11.

18. Belval, Ch. de. À propos du paludisme des plaines orientales de la Corse. C.R. Ass. Franc. 1901, pt. i, pp. 181 & 182, pt. ii, pp. 820–824.

19. Berndt, A. Beitrag zur Kenntniss der im Darme der Larve von *Tenebrio molitor* lebenden Gregarinen. Arch. Protistenk. i, pp. 375–420, pls. xi–xiii.

20. Billet, A. Contribution à l'étude du paludisme et de son Hématozoaire en Algérie (Constantine). Note préliminaire. Ann. Inst. Pasteur xvi, pp. 186–194.

21. *——. De la recherche de l'hématozoaire du paludisme dans le sang et de sa coloration. Le Caducée, Journal de Chirurgie et de Médecine d'Armée ii, pp. 181–185, 3 [24] figg.

22. ——. De la fièvre quarte. (Quatre nouvelles observations.) Extr. d. Bull. Méd. de l'Algérie, Alger-Mustapha, 1902, 8vo, 13 pp.

[——. Sur un hématozoaire endoglobulaire des *Platydactylus*. Zool. Rec. 1900 (6).] Abstract in Zool. Centrlbl. ix, pp. 559 & 560.

[——. Apropos de l'hématozoaire endoglobulaire pigmenté des *Trionyx*, *Hæmamœba Metchnikovi* (Simond.). Zool. Rec. 1901 (9).] Abstract in Centrbl. Bakter. (1) xxxi, Ref. p. 48 and Zool. Centrlbl. ix, pp. 561 & 562.

23. Blanchard, L. F. Grégarine cœlomique chez un Coleoptère. C.R. Ac. Sci. cxxxv, pp. 1123 & 1124.

24. ——. [.....Communication as to Trypanosome infection in Camels.] Bull. Ac. Med. (3) xlvi, 1901, pp. 400 & 401. [See Brumpt (47).]

25. Blayac, J. Sur la présence de l'éocène moyen dans la région de Souk-Ahrras (province de Constantine). Bull. Soc. geol. France (4) ii, pp. 42 & 43.

26. Bordi, A. Contribuzione alla sistematica dei Culicidi con speciale riguardo alla diffusione della malaria umana. Rend. Acc. Lincei xi (2), pp. 318–324.

27. Borgert, A. Mittheilungen über die Tripyleen-Ausbeute der Plankton-Expedition. I. Neue Medusettidæ, Circoporidæ und Tuscaroridæ. Zool. Jahrb. Syst. xv, pp. 563–577, 11 figg.

[——. Untersuchungen über die Fortplanzung der tripyleen Radiolarien, etc. Zool. Rec. 1900 (9).] Abstract in Zeitschr. wiss. Mikr. xviii, pp. 52 & 53.

[Börner, C. Untersuchungen über Hämosporidien. Zool. Rec. 1901 (13).] Abstract in Centrbl. Bakter. (1) xxxi, Ref. pp. 346 & 347, Zool. Centrlbl. ix, pp. 611–613, and (of technique) in Zeitschr. wiss. Mikr. xix, p. 200.

28. Borrel, A. Microbes des eaux et culture d'un protozoaire minimal. C.R. Soc. Biol. liv, pp. 61–63, 10 figg.

29. ——. Les théories parasitaires du Cancer. Ann. Inst. Pasteur xv, 1901, pp. 49–67, pls. 3–5.

30. Bortolotti, O. Sviluppo e propagazione delle opalinine del Lombrico. Monit. Zool. ital. xii, 1901, pp. 179 & 180 [brief comm.] and op. cit. xiii, pp. 195–204, 4 figg.
Abstract in Centrbl. Bakter. (1) xxxii, Ref. pp. 396 & 397.

31. Bosc, F. J. De l'existence dans toutes les lésions claveleuses virulentes et dans le sang, de corps particuliers de structure précise. Leur assimilation structurale et évolutive d'un sporozoaire (cytozoaire). C.R. Soc. Biol. liv, pp. 117–119.

32. ——. Des formes évolutives intracellulaires (dimorphisme évolutif) de Sporozoaires et en particulier de *Monocystis* inoculées aux animaux. Leur identification aux inclusions parasitaires de la clavelée et du cancer. T. c. pp. 577–579.

33. Bougon, —. Étude des Infusoires d'eau douce (suite). Microgr. prep. viii, 1900, pp. 63–71, 118–127, 164–169, 198–208, 250–254, pls. 10, 17, 20, 21, 26, ix, 1901, pp. 39–41, pl. 2.
General account of Infusorians.

34. ——. Les Infusoires ciliés. Op. cit. ix, 1901, pp. 75–84, 108–117, 167–177, 199–209, 251–263, pls. 10, 16, 32, x, pp. 16–22, 68–73, 109–116, 210–222, pls. 1, 12, 13, 25 & 26.
General account.

35. ——. La famille des Chlamydomonadinées. Op. cit. viii, 1900, pp. 21–31, 106–112, 217–220, pls. 4 & 21, ix, 1901, pp. 24–30, 65–69, 134–136, 158–161, 214–219, pl. i.
General account.

36. ——. Les Algues inférieures. Famille des Euglénacées. Op. cit. x, pp. 146–158, 227–234 (pl. in text, p. 231), 266–275, pls. 20 & 21.
General account.

37. Boyce, R., Ross, R. & Sherrington, C. S. Note on the discovery of the human *Trypanosoma*. Nature lxvii, p. 56, Lancet ii, 1902, p. 1426, and Brit. Med. Journ. ii, 1902, p. 1680.

38. Boyer, —. Le littoral corse et la malaria. C.R. Ass. Franc. 1902, pt. i, pp. 207 & 208, pt. ii, pp. 952–963.

39. *Braddon, W. L. On undescribed Hæmatozoa of Malaria in the Malay Peninsula. J. trop. Medicine iv, 1901, pp. 299–301, 367–372, 2 pls.

40. Bradford, J. R. & Plimmer, H. G. The *Trypanosoma brucei*, the organism found in Nagana or the Tse-tse fly disease. Quart. J. Micr. Sci. xlv, pp. 449–471, pls. 24 & 25.
Abstract in J. R. Micr. Soc. 1902, p. 440.

41. Brandt, K. Beiträge zur Kenntniss der Colliden. Arch. Protistenk. i, pp. 59–88, pls. 2 & 3.

42. Brasil, L. *Joyeuxella toxoides* n. g., n. sp. Sporozoaire parasite de l'épithélium intestinal de *Lagis koreni* Malmgren. Arch. zool. exp. Notes (3) x, pp. v–vii, figg. 7–13.
Abstract in J. R. Micr. Soc. 1902, p. 313.

43. *Braun, M. Die tierischen Parasiten des Menschen. Ein Handbuch für Studierende und Aerzte. 3te. vermehrte und verbesserte Auflage. Würzburg, A. Stuber, 1902, 8vo, xii+360 pp., 272 figg.

44. Brehm, V. Zusammensetzung, Vertheilung und Periodicität des Zooplankton im Achensee. Zeitschr. Ferd. Tirol (3) xlvi, pp. 31–95, 1 chart, 6 curves, 15 figg.

45. —— & Zederbauer, E. Untersuchungen über das Plankton des Erlaufsees. Verh. ges. Wien lii, pp. 388–402, 3 text-figg.
Abstract in J. R. Micr. Soc. 1902, p. 676.

45a. *Brockhausen, B. Die Urtiere und ihr Verhältnis zur Deszendenztheorie. Natur u. Glaube, Leutkirch, 4, 1901, pp. 193–197.

46. Bruce, D. Note on the discovery of a new *Trypanosoma*. Lancet i, 1902, p. 664, and Nature lxv, p. 454.
Abstract in J. R. Micr. Soc. 1902, p. 564.

47. Brumpt, E. Notes et observations sur les maladies parasitaires. (2me. série.) Arch. parasit. v, pp. 149–159, 6 text-figg.

48. Buard, G. De la fréquence des Trypanosomes dans le sang des rats d'égouts. C.R. Soc. Biol. liv, pp. 877 & 878.

49. Buffard, M. & Schneider, G. Note sur l'existence en Algérie d'une trypanosomose autre que la dourine. Rec. Méd. Vét. Paris (8) ix, pp. 721–727.

50. Calkins, G. N. Studies on the life-history of Protozoa. I. The life-cycle of *Paramœcium caudatum*. Arch. Entwickmech. xv, pp. 139–186, 4 text-figg.

51. ——. Studies on the life-history of Protozoa. III. The six hundred and twentieth generation of *Paramœcium caudatum*. Biol. Bull. Vol. 3, No. 5, pp. 192–205, 1 fig.

52. ——. Degeneration in *Paramœcium* and so-called "Rejuvenescence" without conjugation. Science xv, p. 526.
Brief summary of results of (50).

[——. Protozoa. Zool. Rec. 1901 (26).] Reviews in Centrbl. Bakter. (1) xxxi, Ref. pp. 248–251, J. Quekett Club (2) viii, 50, pp. 271–273, Nature lxv, p. 433, and by Lühe, see (238).

53. —— & Lieb, C. C. Studies on the life-history of Protozoa. II. The effect of stimuli on the life-cycle of *Paramœcium caudatum*. Arch. Protistenk. i, pp. 355–371, 5 text-figg.

54. *Calmette, E. Du paludisme et de son hématozoaire. Le Caducée, Journal de Chirurgie et de Médecine d'armée ii, 1902, p. 181.

55. Car, L. Planktonproben aus dem Adriatischen Meere und einigen süssen und brakischen Gewässern Dalmatiens. Zool. Anz. xxv, pp. 601–605.

56. Cecconi, G. Intorno alla sporulazione della *Monocystis agilis* Stein. Nota preliminaire. Bull. Soc. bot. Ital. 1901, pp. 132–135.
Abstract in J. R. Micr. Soc. 1902, p. 546.

57. ——. De la Sporulation de la "*Monocystis agilis*" Stein. Arch. anat. micr. v, pp. 122–140, pl. 5.

58. Chapman, F. On an *Alveolina*-Limestone and Nummulitic Limestones from Egypt. Geol. Mag. (4) ix, pp. 62–67, 106–114, pls. 4 & 5.

59. ——. On the Foraminifera collected round the Funafuti Atoll from shallow and moderately deep water. J. Linn. Soc. xxviii, pp. 379–417, pls. 35 & 36.

60. ——. On some Foraminifera and Ostracoda from Cocos Keeling Atoll, collected by Dr C. W. Andrews, 1898. P. Zool. Soc. London i, 1902, pp. 228–233.

61. ——. The Foraminifera. An Introduction to the study of Protozoa. (Longmans Green, London), pp. xv & 354, 15 pls., 42 text-figg.
Reviews in:—J. Quekett Club (3) viii, 50, pp. 277 & 278; Ann. Mag. Nat. Hist. (7) ix, pp. 398 & 399; Lancet i, 1902, pp. 1405 & 1406; Nature lxvi, p. 196 and Geol. Mag. (4) ix, pp. 175 & 176.

62. Choffat, P. Notice préliminaire sur la limite entre le jurassique et le crétacique en Portugal. Bull. Soc. Belge Geol. xv (Memoirs), pp. 111–140.

63. Chrząszcz, T. *Physarum leucophæum ferox*, eine hefefressende Amöbe. Centrbl. Bakter. (2) viii, pp. 431–441, 1 pl.
Abstract in J. R. Micr. Soc. 1902, p. 562.

64. *Claude & Soulié. Beitrag zum Studium der Piroplasmose des Rindes in Algerien. Bull. Soc. centr. Méd. Vét. 1901, 31 déc.
Abstract in Centrbl. Bakter. (1) xxxi, Ref. pp. 219 & 220.

65. Cleve, P. T. Plankton from the Indian Ocean and the Malay Archipelago. Svenska Ak. Handl. xxxv, No. 5, 58 pp., 8 pls.

66. ——. The Plankton of the North Sea and the Skagerack in 1900. T. c. xxxv, No. 7, 49 pp.

67. Cohn, L. Zur Kenntniss der Myxosporidien. Centrbl. Bakter. (1) xxxii, Orig. pp. 628–632, 3 text-figg.

68. ——. Protozoen als Parasiten in Rotatorien. Zool. Anz. xxv, pp. 497–502.

69. *Collmann, B. Fünf Fälle von *Balantidium coli* im Darm des Menschen. Königsberg, 1900, 8vo, 29 pp.
Abstract in Centrbl. Bakter. (1) xxxii, Ref. p. 335.

70. Conte, A. & Vaney, C. Sur des émissions nucleaires observées chez les Protozoaires. C.R. Ac. Sci. cxxxv, pp. 1365 & 1366.

71. Coomáraswamy, A. K. Occurrence of Radiolaria in Gondwána Beds near Madras. Geol. Mag. (4) ix, pp. 305 & 306, pl. 17, figg. 1–6.

72. *Craig, C. F. A new Method of staining Malaria Parasites, with a description of the staining reactions. New York Med. Journal lxxvi, 451–453.

72A. [CRAIG, C. F.] [Observations upon the *Amœbæ coli*, and their staining reactions. Zool. Rec. 1901 (51).]
Abstract in Centrbl. Bakter. (1) xxxi, Ref. pp. 688–690.

73. CRAWLEY, H. Progressive movement of Gregarines. P. Ac. Philad. liv, pp. 4–20, pls. 1 & 2.
Abstract in J. R. Micr. Soc. 1902, p. 441.

74. ——. A peculiar Heliozoan. T. c. pp. 256 & 257, 1 fig.

75. CUÉNOT, L. *Legerella testiculi* n. sp. Coccidie parasite du testicule de *Glomeris*. Arch. zool. exp. Notes (3) x, pp. xlix–liii, 6 figg.

76. CIUFFI —. Ricerche sugli Sporozoi. Monit. Zool. ital. xiii. (Supplement) pp. 42 & 43.

77. *DALGETTY, A. B. Case of Rhinorrhœa. Ciliated organisms met with in the discharge. J. trop. Medicine iv, 1901, pp. 21 & 22, 3 figg.
Abstract in Centrbl. Bakter. (1) xxxii, Ref. p. 395.

78. DANGEARD, P. A. La téléomitose chez l'*Amœba gleichenii* Duj. C.R. Ac. Sci. cxxxv, pp. 1126–1128.

79. ——. Sur le caryophysème des Eugléniens. Op. cit. cxxxiv, pp. 1365 & 1366. Also in Microgr. Prep. x, pp. 162 & 163.
Abstract in Centrbl. Bakter. (1) xxxii, Ref. p. 334.

80. ——. L'organisation du *Trepomonas agilis* Duj. C.R. Ac. Sci. cxxxv, pp. 1366 & 1337.

81. ——. Étude comparative de la zoospore et du spermatozoide. Le Botaniste vii, 1901, pp. 269–272, 3 figg.
Abstract in J. R. Micr. Soc. 1902, p. 57.

82. *DÄUBLER, C. Uber den heutigen Stand der deutschen Malariaforschung. Fortschr. d. Med. xix, 1901, pp. 21–27.

83. DIARD, —. Les Amibes. Bull. Soc. Autun xiii, 1900 (C.R. des Séances), pp. 148–170. [Popular account.]

84. *DIONISI, A. La Malaria di Maccarese dal marzo 1899 al febbraio 1900. Ann. d'Igiene Sperimentale xi, 1901, 4.
Abstract in Centrbl. Bakter. (1) xxxi, Ref. p. 213.

85. *——. Die Malaria einiger Fledermausarten. Unters. z. Naturlehre d. Mensch. u. d. Thiere, Bd. 16 (or 17 ?) 1901, pp. 280–336, pls. 6 & 7.

86. *DE DOES, J. K. F. Bijdrage tot de kennis der Trypanosomen-ziekten, in het bizonder die, welke op Java Voorkomen. Geneeskdg. Tijdschr. vor Ned. Indië xli, 1901, pp. 1–38.

87. DOFLEIN, F. Das System der Protozoen. Arch. Protistenk. i, pp. 169–192, 3 text-figg. [See II. E.]
Abstract in Naturw. Rdsch. xvii, pp. 367 & 368 and in Centrbl. Bakter. (1) xxxi, Ref. p. 572.

88. [——. Die Protozoen als Parasiten und Krankheitserreger nach biologischen Gesichtspunkten dargestellt. Zool. Rec. 1901 (62).] Review in Centrbl. Bakter. (1) xxxi, Ref. p. 572, and by Lühe, see (238).

89. DOUVILLÉ, H. Sur le terrain nummulitique de l'Aquitaine. Bull. Soc. geol. France (4) ii, pp. 15–36.

90. ——. Études sur les Nummulites. T. c. pp. 207–213, pl. 5.

91. ——. Essai d'une revision des *Orbitolites*. T. c. pp. 289–306, pls. 9 & 10, 7 text-figg.

92. [Douvillé, H.] Distribution des *Orbitolites* et des *Orbitoides* dans la craie du Sud-Ouest. T. c. pp. 307–313.

93. *Drago, U. *Coccidium scyllii* n. sp. Ric. Labor. anat. Roma ix, pp. 89–94, 7 figg.

94. *Dreyer, A. Die mikroskopische Tier- und Pflanzenwelt des süssen Wassers. Ber. St. Gall. Ges. 1899–1900, pp. 95–102.

94a. Dutton, E. Note on a *Trypanosoma* occurring in the blood of man. Brit. Med. Journ. ii, 1902, pp. 881–884, 1 text-fig., 2 charts.

94b. [——. Summary of Dutton's report to the Liverp. Sch. Trop. Med. as to the above discovery.] Nature lxv, p. 255, lxvi, p. 15.

95. Earland, A. On *Cymbalopora bulloides* (d'Orbigny) and its internal structures. J. Quekett Club (2) viii, 51, pp. 309–322, pl. 16.

96. ——. A Plea for a New "Williamson." T. c. pp. 268–270. [See ii, f, 3.]

97. *Ebstein, L. Ueber einen Protozoen-befund in einem Falle von akuter Dysenterie. Arch. exp. Path. u. Pharm. xlvi, 5 & 6.
Abstract in Centrbl. Bakter. (1) xxxi, Ref. p. 152.

98. Egger, J. G. Der Bau der Orbitolinen und verwandter Formen. Abh. Bayer. Ak. xxi, pp. 577–600, 6 pls.

99. Elbert, J. Das untere Angoumien in den Osningbergketten des Teutoburger Waldes. Verh. Ver. Rheinland lviii, pp. 77–167, pls. 2–5.

100. Enriques, P. Richerche osmotiche sugli Infusori. Rend. Acc. Lincei xi (1), pp. 340–347.
Abstract in J. R. Micr. Soc. 1902, p. 439.

101. ——. Richerche osmotiche sui Protozoi delle infusione. T. c. pp. 392–397.

102. ——. Osmosi ed assorbimento nelle reazioni a soluzioni anisotoniche (Protozoi e *Limnæa stagnalis*). T. c. pp. 495–497.

103. ——. Adattamento degli infusori marini alla vita nell' acqua dolce. Monit. Zool. ital. xiii (Supplement), pp. 49 & 50.

104. d'Espine, —. Rôle des moustiques dans l'étiologie de la malaria. Bibl. universelle (4) xi, pp. 98 & 316.

105. *Fysell, A. Der Malariaparasit und seine Uebertragung auf den Menschen. Abh. Ber. 46. Ver. Naturk. Kassel, pp. 1–19, 7 text-figg.

106. Feinberg, L. Ueber den Erreger der krankhaften Auswüchse des Kohls. (*Plasmodiophora brassicæ* Woronin). Deutsche Medicinische Wochenschrift, No. 3, 1902 (Sonderabdruck), 5 pp., 4 text-figg.
Abstract in Centrbl. Bakter. (2) ix, pp. 76 & 77.

107. ——. Zur Lehre des Gewebes und der Ursache der Krebsgeschwülste. T. c. No. 11, 1902 (Sonderabdruck), 15 pp.

108. ——. Ueber die Anwendung der Romanowski'schen (Methylenblau-Eosin) Färbemethode in den Gewebsschnitten, speciell bei den Krebsgeschwülsten. (Eine Differential-Färbung der in den Krebsgeschwülsten vorkommenden einzelligen selbständigen Organismen.) Berliner Klin. Wochenschr. No. 45, 1902 (Sonderabdruck), 13 pp.
This and Feinberg's remaining papers deal chiefly with the use of Romanowski's stain.

109. ——. Ueber den Bau der einzelligen thierischen Organismen und über ihre Unterscheidung von den Körper- und Pflanzenzellen. T. c. No. 24, 1902 (Sonderabdruck), 5 pp.

110. [Feinberg, L.] Ueber Amöben und ihre Unterscheidung von Körperzellen. Fortschritte der Medicin xvii, 1899, No. 4, pp. 121–127, 2 pls.

111. ——. Ueber die Unterscheidung des Kerns der Pflanzenzellen von dem Kern der einzelligen thierischen Organismen. Ber. deutsch. Bot. Ges. xx, 5, 1902, pp. 281–283.

112. ——. Ueber den Erreger der Kohlhernie (*Plasmodiophora brassicæ* Woronin). Op. cit. xix, 1901, p. 533.
Abstract, Centrbl. Bakter. (2) ix, p. 507.

113. ——. Ueber den Bau der Hefezellen und über ibre Unterscheidung von einzelligen thierischen Organismen. Op. cit. xx, 9, 1902 (Sonderabdruck), 12 pp., 1 pl.

114. ——. Ueber den Bau der Ganglienzelle und über die Unterscheidung ihres Kerns von dem Kern der einzelligen tierischen Organismen. Monatschr. f. Psychiatrie und Neurologie xi, 6, 1902, pp. 401–406, pl. x.

115. *Ficalbi, E. Sopra la malaria e le zanzare malariche nella salina di Cervia e nel territorio di Comacchio. Ann. d'Igiene Sperimentale xi, 1901, pp. ?.
Abstract in Centrbl. Bakter. (1) xxxi, Ref. p. 213.

115a. ..... Foraminifera in the Cretaceous Deposits in the Amakusa Island. J. geol. Soc. Tokyo ix, No. 106, Notes, pp. ?. [Anon. In Japanese.]

115b. Forde, —. Note on the discovery of the human *Trypanosoma*. Brit. Med. Journ. ii, 1902, p. 741.

116. Fornasini, C. Foraminiferi adriatici. Rend. Acc. Bologna, n. s., iv, 1899–1900, pp. 34 & 35.

117. ——. Intorno alla nomenclatura di alcuni nodosaridi neogenici italiani. T. c. No. v, 1900–1901, pp. 12 & 13. [Prelim. comm. of next.]

117a. ——. Intorno alla nomenclatura di alcuni nodosaridi neogenici italiani. Mem. Acc. Bologna (5) ix, pp. 45–76, 27 text-figg.

118. ——. Intorno ad alcuni esemplari di Foraminiferi adriatici. Mem. Acc. Bologna (5) viii, 1900, pp. 357–402, 50 text-figg.

119. ——. Contributo alla conoscenza de le bulimine adriatiche. T. c. (5) ix, pp. 371–381, 1 pl. [o], 7 text-figg.
Short notice in Rend. Acc. Bologna, n. s. v, p. 105.

120. ——. Sinossi metodica dei foraminiferi sui qui rinvenuti nella sabbia del lido di Rimini. Rend. Acc. Bologna, n. s. 6, 1901–1902, p. 35. [Brief notice.]

121. ——. Le bulimine e le cassiduline fossili d' Italia. Boll. Soc. geol. Ital. xx, 1901, pp. 159–214, 5 text-figg.
Abstract in Zool. Centrlbl. ix, p. 609.

122. ——. Intorno ad alcune specie di "*Textilaria*" istituite da d'Orbigny nel 1826. Riv. ital. Pal. vii, 1901, pp. 104–106, pl. iii.
Abstract in Zool. Centrlbl. ix, p. 608.

123. ——. Intorno ad alcune specie di "*Polymorphina*" istituite da d'Orbigny nel 1826. Op. cit. viii, pp. 11–13, pl. i.
Abstract in Zool. Centrlbl. ix, p. 610.

124. ——. Le pretese "faujasine" di O. G. Costa. T. c. pp. 13–15.
Abstract in Zool. Centrlbl. ix, p. 610.

125. [Fornasini, C.] Sopra la data de la pubblicazione de la Memoria di O. G. Costa sui foraminiferi di Messina. T. c. pp. 15 & 16. [See II, F, 3.]
Abstract in Zool. Centrlbl. ix, p. 610.

126. ——. Sopra tre specie di "*Textilaria*" del pliocene italiano istituite da d'Orbigny nel 1826. T. c. pp. 44–47, 3 text-figg.
Abstract in Zool. Centrlbl. ix, p. 610.

127. ——. Sulla nomenclatura generica del "*Nautilus* (*Orthoceras*) *pennatula*" di Batsch. T. c. pp. 48–50.
Abstract in Zool. Centrlbl. ix, p. 610.

128. *——. Sopra la data de la pubblicazione di alcuni lavori di G. Costa. Op. cit. vii, 1901, pp. 1–3. [See II, F, 3.]
Abstract in Zool. Centrlbl. ix, p. 608.

129. *——. Sopra la data della "Palaeontologia del Regno di Napoli" (parte 2) di O. G. Costa. T. c. pp. ?. [See II, F, 3.]
Abstract in Zool. Centrlbl. ix, p. 609.

130. Forti, A. *Heteroceras* n. g., eine neue marine Peridinien-Gattung von Prof. Dr C. Schroeter im Stillen Ocean gesammelt. Ber. deutsch. bot. Ges. xix, 1901, pp. 6 & 7, 2 figg.

131. Fuhrmann, O. Sur les Myxosporidies des Corégones du Lac de Neuchâtel. C.R. Soc. Neuchatel in Bibl. universelle (4) xiv, pp. 172 & 173.
Abstract in J. R. Micr. Soc. 1902, p. 657.

132. ——. Le Plankton du lac de Neuchâtel. Op. cit. (4) xi, pp. 305 & 306.

133. Galli-Valerio. Distribution des *Anopheles* et de la Malaria dans le Canton de Vaud. Op. cit. (4) xiii, p. 185.

134. ——. Untersuchungen über die Hämosporidien der Alpen-vögel. Centrbl. Bakter. (1) xxxi, Orig. pp. 162–165.
Abstract in Zool. Centrlbl. ix, pp. 614 & 615.

135. Garbini, A. Una nuova specie di *Peridinium* (*P. alatum*) nel Plancton del lago di Monate. Zool. Anz. xxv, pp. 123 & 124, 2 figg.
Abstract in J. R. Micr. Soc. 1902, p. 192 and in Zool. Centrlbl. ix, p. 109.

136. *Garzón Maceda, F. Curso de zoologia médica destinado á los estudiantes de medicina y farmacia de la universidad de Córdoba, i, 8vo, (v+541) pp., 113 figg. Cordoba, 1900.
Abstract in Centrbl. Bakter. (1) xxxii, Ref. pp. 334 & 335.

136a. Gentile, G. Su alcune Nummuliti dell' Italia meridionale. Atti Acc. Napoli (2) xi, No. 5, 13 pp., 1 pl.

137. Giemsa, G. Färbemethoden für Malariaparasiten (vorläufige Mittheilung). Centrbl. Bakter. (1) xxxi, Orig. pp. 429 & 430, and (1) xxxii, Orig. pp. 307–313.
Abstract in Zeitschr. wiss. Mikr. xix, pp. 119 & 120.

138. Girty, G. H. The Upper Permian in Western Texas. Amer. J. Sci. xiv, pp. 363–368.

139. Godet, P. Les protozoaires du Canton de Neuchâtel. Bibl. universelle (4) xi, pp. 306 & 307.

140. *Goldsmith, F. The life-cycle of *Amœba dysenterica*. J. trop. Medicine iv, 1901, pp. 372–374.
Abstract in Centrbl. Bakter. (1) xxxi, Ref. pp. 786 & 787.

141. Gortani, M. Sul rinvenimento del calcare a Fusuline presso Forni Avoltri, nell 'alta Carina occidentale. Rend. Acc. Lincei xi (2), pp. 316–318.

142. *Grandy, C. R. A modification of the mosquito theory. Med. News lxxvii, 1900, pp. 880–882.
Abstract in Centrbl. Bakter. (i) xxxi, Ref. pp. 506 & 507.

143. Grassi, G. B. Das Malariaproblem vom zoologischen Standpunkte. Verh. v Zool. Congr. (Berlin) 1901, pp. 99–114.

144. *——. Studi di un zoologico sulla malaria.. 2 edizione notevolmente accresciuta. Roma (Tipopr. d. R. Accad. Linc.) 1901, 4to (viii+296) pp., 8 pls., 21 text-figg.
Abstract in Zool. Centrlbl. ix, pp. 615–618.

[——. Die Malaria. Zool. Rec. 1901 (85).] Abstract in Centrbl. Bakter. (1) xxxi, Ref. pp. 210–213.

144a. Gray, St G. The Malarial parasite. Brit. Med. Journ. i, 1902, p. 1121.

145. *Gray, C. E. & Robertson, W. Red water in Rhodesia. Agric. Journal Cape Good Hope xxi, pp. 435–458, 5 pls.

146. Greeley, A. W. On the analogy between the effects of loss of water and lowering of the temperature. Amer. J. Physiol. vi, pp. 122–128, 7 text-figg.

147. ——. The artificial production of spores in *Monas* by a reduction of the temperature. The Decennial Publications Chicago University, ser. i. vol. x, pp. 73–77, 5 figg.; also in Biol. Bull. 3, v, pp. 165–171, 5 figg.

148. Guiart —. Les découvertes récentes sur le paludisme. Extract from Bull. Sciences Pharmacologiques, Jan. 1900, 17 pp., 12 figg.
General account of the malarial parasite.

149. Haig, H. A. Study of a lower organism. Sci. Gossip viii, 93, pp. 260–262, 3 text-figg. [Popular account of *Paramœcium*.]

150. Haller, B. Lehrbuch der vergleichenden Anatomie, 1ste Lieferung, pp. vi+424, 412 figg. in text. G. Fischer, Jena, 1902. (Protozoa pp. 42–62, figg. 54–73).

151. Hartog, M. Notes on Suctoria. Arch. Protistenk. i, pp. 372–374.

152. Herdman & Chadwick. Protozoa, in Guide to Port Erin Aquarium. P. Liverp. biol. Soc. xvi, pp. 69–71, 1 text-fig.

153. Hertwig, R. Die Protozoen und die Zelltheorie. Arch. Protistenk. i, pp. 1–40.

154. ——. Protozoen und Zelltheorie. Verh. Ges. deutsch. Naturf. lxxiii, 2te theil, 1, pp. 271–273. [Brief communication of (153).]

155. ——. Ueber Wesen und Bedeutung der Befruchtung. SB. Ak. Munchen 1902, i, pp. 57–73.

156. *——. Ueber die Ursachen der Krebsgeschwülste. Deutsch. Med. Wochenschr. xiii, 1902.
Abstract in Centrbl. Bakter. (1) xxxii, Ref. p. 75.

157. Hickson, S. J. Fertilization. Tr. Manchester Micr. Soc. 1901 (1902), pp. 25–34.

158. —— & Wadsworth, J. T. *Dendrocometes paradoxus.* Pt. i. Conjugation. Q. J. Micr. Sci. xlv, pp. 325–362, pls. 17, 18, 3 diagrams in text.
Abstract in J. R. Micr. Soc. 1902, p. 438.

159. HINTZE, R. Lebensweise und Entwickelung von *Lankesterella minima* (Chaussat). Zool. Jahrb. Anat. xv, pp. 693–730, pl. 36.
Abstracts in Centrbl. Bakter. (1) xxxi, Ref. pp. 600–602, J. R. Micr. Soc. 1902, p. 441, Zool. Centrlbl. ix, pp. 555–559, and (technique chiefly) in Zeitschr. wiss. Mikr. xix, pp. 70 & 71.

160. *HOFER, B. Die Krankheiten unserer Fische. Die Pockenkrankheit des Karpfens. Allg. Fischerei Ztg. xxvi, B xvi, 1901, pp. 474–478, 4 figg. and 493–495, 4 figg.
Abstract in Centrbl. Bakter. (1) xxxii, Ref. pp. 436 & 437.

161. HUITFELDT-KAAS, H. Die limnetischen Peridinien in norwegischen Binnenseen. Skrift. Vid. Christiania (1) 1900, No. 2, 7 pp., 1 pl.
Abstract in J. R. Micr. Soc. 1901, p. 545.

162. ISSEL, R. Osservazioni sopra alcuni animali delle fauna termale italiana. Boll. Mus. Genova cvi, 1901, 2 pp., figg. 1 & 2, pl. i.

163. ——. Studi sulla fauna termale enganea. (Nota preventiva.) Op. cit. cviii, 1901, 5 pp.

164. JAEGER, H. Die in Ostpreussen heimische Ruhr eine Amöbendysenterie. Centrbl. Bakter. (1) xxxi, Orig. pp. 551–558, 3 pls.

165. ——. Erwiderung auf die Bemerkungen Shiga's über meine Amöbenbefunde. Op. cit. (i) xxxii, Orig. pp. 865–867. [See SHIGA (355).]

166. JAHN, E. Myxomycetenstudien. I. *Dictydium umbilicatum* Schrader. Ber. deutsch. Bot. Ges. xix, 1901, pp. 97–115, pl. 5.
Abstract in Zeitschr. wiss. Mikr. xviii, p. 100.

167. ——. Myxomycetenstudien. II. Arten aus Blumenau (Brasilien). Op. cit. xx, pp. 268–280, pl. 13.

JAMIESON, C. [See JENNINGS & JAMIESON (169).]

168. JENNINGS, H. S. Studies on reactions to stimuli in unicellular organisms. IX. On the behaviour of fixed Infusoria (*Stentor* and *Vorticella*) with special reference to the modifiability of Protozoan reactions. Amer. J. Physiol. viii, pp. 23–60, 10 figg.

169. —— & JAMIESON, C. Studies on reactions in unicellular organisms. X. The movements and reactions of pieces of ciliate Infusoria. Biol. Bull. 3, v, pp. 225–234, 4 figg.

170. —— & MOORE, E. M. Studies on reactions of Infusoria to Carbonic and other acids, with especial reference to the causes of the gatherings spontaneously formed. Amer. J. Physiol. vi, pp. 233–250, 6 figg.
Abstract in J. R. Micr. Soc. 1902, p. 191.

171. JOHNSON, H. P. A new Sporozoan parasite of *Anopheles*. Journ. Med. Research, Boston vii, pp. 213–219, pl. xiv.

——. [See also SMITH & JOHNSON (368)].

172. JOHNSTONE, J. Note on a Sporozoan parasite of the Plaice (*Pleuronectes platessa*). P. Liverp. biol. Soc. xv, 1901, pp. 184–187, pl. D.
Abstract in J. R. Micr. Soc. 1902, p. 193.

173. JOSEPH, H. & PROWAZEK, S. Versuche über die Einwirkung von Röntgen-Strahlen auf einige Organismen, besonders auf deren Plasmathätigkeit. Zeitschr. allg. Physiol. i, pp. 142–153.

174. JÜRGENS, —. Beitrag zur Biologie der Rattentrypanosomen. Arch. Hygiene xlii, 3, pp. 265–288. [See II, C, 2.]

175. v. Keissler, C. Ueber das Plankton des Aber-oder Wolfgang-Sees in Salzburg. Verh. Ges. Wien lii, pp. 305–327.
Abstract in J. R. Micr. Soc. 1902, p. 675.

176. ——. Zur Kenntniss des Planktons des Alt-Ausser Sees in Steiermark. T. c. pp. 706–708.

177. Koch, M. Ueber Sarcosporidien. Verh. Zool. Congr. v (Berlin) 1901, pp. 674–684, 1 text-fig.

178. Kölsch, K. Untersuchungen über die Zerfliessungserscheinungen der ciliaten Infusorien (nebst Bemerkungen über Protoplasmastruktur, Protoplasmabewegungen und Vitalfärbung). Zool. Jahrb. Anat. xvi, pp. 273–422, pls. 26–28, 5 text-figg.

179. *Kunst, J. J. Bijdrage tot de kennis der in Nederlandsch-Indië voorkommende vormen van Malaria. Overgedruckt nit het. Geneeskdg. Tijdschr. voor Ned. Indie xli, 85 pp., pls. ix & x.

180. *——. De behandeling van malaria met methylenblauw. T. c. 23 pp., pl. xi.

181. Kunstler, J. & Gineste, C. Notice préliminaire sur l'opaline dimidiate. Bibliog. anat. x, pp. 188–193, 11 figg.

182. Kruse, —. Krebs und Malaria. SB. niederrhein. Ges. 1901 (1902), Part 2, pp. 49 & 50.

183. Labbé, A. Article "Sporozoa" in the Ency. Brit. 10th Ed. xxxii, pp. 814–818, 5 text-figg. [A short general account of the class.]

184. Lagerheim, G. Am lämningar af Rhizopoder, Heliozoer och Tintinnider i Sveriges och Finlands lakustrina kvartäraflagringar. Geol. Foren. Stockholm Forh. xxiii, pp. 469–520, 6 text-figg. (Deutsche zusammenfassung, pp. 519 & 520.)
Abstract in Zool. Centrlbl. p. 350.

185. ——. Om *Quadrula subglobosa* Lagerh. Geol. Foren. Stockholm Forh. xxiv, pp. 346–352, 1 fig. in text.

186. Lameere, A. Note sur les mœurs des Archiptères du Sahara. Ann. Soc. ent. Belgique xlvi, pp. 441–443.

187. Lankester, E. R. On a convenient terminology for the various stages of the malaria parasite. P. R. Soc. London lxx, pp. 74–79, Nature lxv, pp. 499–501, and Brit. Med. Journ. 1902, i, p. 652.
Abstracts in J. R. Micr. Soc. 1902, p. 440, and Lancet 1902, i, p. 980.

188. Laveran, A. Sur un nouveau Trypanosome des Bovides. C.R. Ac. Sci. cxxxiv, pp. 512–514.
Abstract in J. R. Micr. Soc. 1902, p. 440.

189. ——. De l'action du sérum humain sur le Trypanosome du Nagana. (*T. brucei.*) T. c. pp. 735–739.

190. ——. Au sujet de deux Trypanosomes des Bovidés du Transvaal. Op. cit. cxxxv, pp. 717–721, 5 text-figg.

191. ——. Sur quelques Hémogrégarines des Ophidiens. T. c. pp. 1036–1040, 13 text-figg.

192. ——. Technique pour l'étude des "flagelles" de l'hématozoaire du paludisme et des hématozaires similaires des oiseaux. C.R. Soc. Biol. liv, pp. 177–180, 13 figg.

193. ——. Sur des Culicides de Diégo-Suarez (Madagascar). T. c. pp. 235 & 236.

194. [LAVERAN, A.] Sur la nature de l'agent pathogène de la fièvre jaune. T. c. pp. 391–393.

195. ——. Sur une *Hæmamœba* d'une mésange (*Parus major*). T. c. pp. 1121–1124, 10 figg.

[——. Essai de classification des...*Hæmocytozoa*. Zool. Rec. 1901 (132).] Abstract in Zool. Centrlbl. ix, pp. 551–554, and in Centrbl. Bakter. (1) xxxii, Ref. p. 395.

196. —— & MESNIL, F. Des Trypanosomes des Poissons. Arch. Protistenk. i, pp. 475–498, 15 text-figg. [also, brief comm.] C.R. Ac. Sci. cxxxv, pp. 567 & 568.

197. —— & ——. Recherches morphologiques et expérimentales sur le trypanosome du Nagana ou maladie de la mouche tsétsé. Ann. Inst. Pasteur xvi, pp. 1–55, 13 text-figg.
Abstract in Centrbl. Bakter. (1) xxxii, Ref. pp. 272–275.

198. —— & ——. Recherches sur le traitement et la prévention du Nagana. Ann. Inst. Pasteur xvi, pp. 786–817.

199. —— & ——. Sur le mode de multiplication des Trypanosomes des Poissons. C.R. Ac. Sci. cxxxiv, pp. 1405–1409.
Abstract in J. R. Micr. Soc. 1902, p. 564.

200. —— & ——. Sur la coccidie trouvée dans le rein de la *Rana esculenta* et sur l'infection générale qu'elle produit. Op. cit. cxxxv, pp. 82–87, 11 figg.
Abstract in J. R. Micr. Soc. 1902, p. 657.

201. —— & ——. Sur les Hématozoaires des Poissons marins. T. c. pp. 567–570.

202. —— & ——. Sur quelques Protozoaires parasites d'une Tortue d'Asie (*Damonia reevesii*). T. c. pp. 609–614, 14 figg. (corr. p. 716).

203. —— & ——. Le Nagana et le Mal de Caderas sont deux entités morbides bien distinctes. T. c. pp. 838–840.

204. —— & ——. De quelques parasites des Culicides. C.R. Soc. Biol. liv, pp. 233–235.

205. —— & ——. Sur la multiplication endogène des myxosporidies. T. c. pp. 469–472, 5 text-figg.

206. —— & ——. Sur deux Coccidies intestinales de la *Rana esculenta*. T. c. pp. 857–860, 9 text-figg.

207. —— & ——. Des Maladies à Trypanosomes, leur Répartition à la surface du Globe. "Janus" (Amsterdam) vii, 15th March 1902, pp. 117–130. [See II, c, 2.]

[—— & ——. Two new Hæmogregarines from Fishes. Zool. Rec. 1901 (136).] Abstract in J. R. Micr. Soc. 1902, p. 59, and in Zool. Centrlbl. ix, pp. 554 & 555.

[—— & ——. Trypanosomes in Fishes. Zool. Rec. 1901 (137).] Abstract in J. R. Micr. Soc. 1902, p. 58.

208. LEDOUX-LEBARD, —. Action du sérum sanguin sur les Paramécies. Ann. Inst. Pasteur xvi, pp. 510–521, and C.R. Soc. Biol. liv, pp. 822–824.
Abstract in J. R. Micr. Soc. 1902, p. 563.

209. [Ledoux-Lebard, —.] Action de la lumière sur la toxicité de l'éosine et de quelques autres substances pour les Paramécies. Ann. Inst. Pasteur xvi, pp. 587–594.

210. ——. Sur le sérum antiparamécique. C.R. Ac. Sci. cxxxv, pp. 298 & 299.

211. Léger, L. Sur la systématique des Cercomonadines aciculées sans membrane ondulante. C.R. Ac. Sci. cxxxiv, pp. 665–667.

212. ——. Sur la structure et le mode de multiplication des Flagellés du genre *Herpetomonas* Kent. T. c. pp. 781–784, 7 figg. and C.R. Soc. Biol. liv, pp. 398–400, 7 figg.
Abstract in J. R. Micr. Soc. 1902, p. 313.

213. ——. Sur un flagellé parasite de l'*Anopheles maculipennis*. C.R. Soc. Biol. liv, pp. 354–356, 10 figg.

214. ——. Sur la forme grégarinienne des *Herpetomonas*. T. c. pp. 400 & 401. [See also (212), for figures.]

215. ——. Note sur le développement des éléments sexuels et la fécondation chez le *Stylorhynchus longicollis* F. St. Arch. zool. exp. Notes (3) x, pp. lxiv–lxxiv, 11 figg.

216. *——. Quelques types nouveaux de Dactylophorides de la région méditerranéenne. Misc. biol. xxv, Anniv. Wimereux, pp. 390–395, pl. xxiv.
Abstract in Centrbl. Bakter. (1) xxxi, Ref. p. 248.

[——. Sex-elements in *Stylorhynchus*. Zool. Rec. 1901 (145).] Abstracts in J. R. Micr. Soc. 1902, p. 58 and in Zool. Centrlbl. ix, p. 109.

217. —— & Duboscq, O. Les éléments sexuels et la fécondation chez les *Pterocephalus*. C.R. Ac. Sci. cxxxiv, pp. 1148 & 1149.
Abstract in J. R. Micr. Soc. 1902, p. 564.

218. —— & ——. Les Gregarines et l'épithélium intestinal chez les Trachéates. Arch. parasit. vi, pp. 377–472, pls. 2–6, 8 text-figg.

219. Lemmermann, E. Beiträge zur Kenntniss der Planktonalgen. xii. Notizen über einige Schwebalgen. Ber. deutsch. Bot. Ges. xix, 1901, pp. 85–95, pl. 4.

220. ——. xiv. Neue Flagellaten aus Italien. T. c. pp. 340–348.

221. ——. Beiträge zur Kenntniss der Planktonalgen. xi. Die Gattung *Dinobryon* Ehrb. Op. cit. xviii, 1900, pp. 500–524, pls. 18 & 19.

222. ——. Silicoflagellatæ. Op. cit. xix, 1901, pp. 247–271, pls. 10 & 11.
Abstract in J. R. Micr. Soc. 1902, p. 57.

223. ..... Les foraminiféres de la Craie du Bassin de Paris. Microgr. prep. x, pp. 55–63, 117–121, 174–178, pls. 8, 14 & 22. [Anon.]
General account.

224. Levander, K. M. Meddelande om *Paullinella chromatophora*. Medd. Soc. Faun. Fenn. xxviii, pp. 26 & 27, pt. a. Abstract in German, t. c. p. 161 b.

225. ——. Eine neue farblose *Peridinium*-Art. T. c. pp. 49–51, pt. b.

226. Levick, J. The rôle of Mosquitos in the spread of Malaria. P. Birmingh. Soc. xi, ii, pp. 69–93.

227. Lignières, J. Sur la "Tristeza." Ann. Inst. Pasteur xv (1901), pp. 121–128, pl. 6.

228. LINKO, A. Materialui dlya Onezhskagho ozera. (Contributions à l'étude de la faune du lac d'Onega.) Protok. St. Peterb. Obshch. xxix, 1, No. 7, 1898, pp. 246–252. Resumé, t. c. pp. 269–270.

229. LINTON, E. Parasites of Fishes of the Woods Holl region. Bull. U. S. Fish Comm. xix, 1899 (publ. 1901), pp. 405–492, 34 pls.

230. LISTER, A. G. Notes on Mycetozoa. Journ. Bot. xl. pp. 209–213, pl. 438.
Abstract in J. R. Micr. Soc. 1902, p. 462.

231. LOHMANN, H. Die Coccolithophoridæ, eine Monographie der Coccolithen bildenden Flagellaten. Arch. Protistenk. i, pp. 89–165, pls. iv–vi.

232. LOMAS, J. On Deposits dredged by Prof. Herdman in the Indian Ocean. Rep. Brit. Ass. 1902, pp. 644 & 645.

233. LO MONACO, D. & PANICHI, L. L'axione dei farmaci antiperiodici sul parassita della malaria. Nota VI. Rend. Acc. Lincei x (ii), 1901, pp. 272–277. Nota VII. T. c. pp. 314–317.

234. *—— & ——. Die Wirkung der antiperiodischen Heilmittel auf den Malariaparasiten. Unters. Naturl. Mensch. Thiere xvii, pp. 264–280, 2 figg.

235. ŁOMNICKI, J. R. Einige Bemerkungen zum Aufsatze : Die miocänen Foraminiferen in der Umgebung von Kolomea. Verh. Ver. Brunn xxxix, 1901 (Abhandl.), pp. 15–18.

236. LORENZ, T. Geologische Studien im Grenzgebiete zwischen helvetischer und ostalpiner Facies. II. Der Südliche Rhætikon. Ber. Ges. Freiburg xii, pp. 34–95, pls. i–ix.

237. LOZERON, H. Sur la répartition verticale du plancton dans le lac de Zürich de décembre 1900 à décembre 1901. Vierteljahrschr. Ges. Zürich xlvii, pp. 115–198, charts ii–vi.

238. LÜHE, M. Neuere Lehrbücher über Protozoen. Arch. Protistenk. i, pp. 462–474. [See II. F. 3.]

239. ——. Ueber Befruchtungsvorgänge bei Protozoen. Schr. Ges. Konigsb. xliii (S.B.), pp. [3]–[6].

240. ——. Ueber Geltung und Bedeutung der Gattungsnamen *Eimeria* und *Coccidium*. Centrbl. Bakter. (i) xxxi, Orig. pp. 771–773.

241. *——. Ueber Karpfenpocken und Myxosporidien. Ber. Fisch. Vereins Ostpreussen 1901–1902, pp. 56 & 57.

——. [Ergebnisse der neueren Sporozoenforschung. Zool. Rec. 1900 (106).]
Abstract in Zool. Centrlbl. ix, pp. 43 & 44.

[LUTZ, A. Drepanidien der Schlangen. Zool. Rec. 1901 (159).]
Abstract in Zool. Centrlbl. ix, pp. 613 & 614.

242. MACBRIDE, T. H. The nomenclature question among the slime-moulds. P. Iowa Ac. iii, 1895, pp. 101–106.

243. MARCEAU, F. Note sur le *Karyolysus lacertarum* parasite endoglobulaire du sang des Lézards. Arch. parasit. iv, 1901, pp. 135–142, 3 (46) text-figg.

244. MARIANI, M. Alcuni Foraminiferi delle Argille Mioceniche dei Ponti presso Camerino. Riv. ital. Pal. viii, pp. 113–117.

MAROTEL, G. [See MOUSSU, G. & MAROTEL, G. (268).]

245. Martelli, A. Le formazione geologiche ed i fossili di Paxos e Antipaxos nel mare Jonio. Boll. Soc. geol. Ital. xx, 1901, pp. 394–437, pl. vii.

246. ——. I terreni nummulitici di Spalato in Dalmazia. Rend. Acc. Lincei xi (i), pp. 334–337. [Brief account of next.]

247. ——. I fossili dei terreni eocenici di Spalato in Dalmazia. Palæontogr. ital. viii, pp. 43–97, pls. vi & vii [i & ii].

——. [See also De Stefani & Martelli (375).]

248. Martin, K. *Orbitoides* von den Philippinen. Centrbl. Mineral. 1901, pp. 326 & 327.

249. Massart, J. Recherches sur les Organismes inférieurs. iv. Le lancement des trichocystes (chez *Paramœcium aurelia*). Bull. Ac. Belgique 1901, pp. 91–106.

250. Maurer, G. Die Malaria perniciosa. Beitrag zur Biologie und Morphologie ihres Erregers. Centrbl. Bakter. (1) xxxii, Orig. pp. 695–719, 3 pls.

[——. Die Tüpfelung der Wirthszelle des Tertiana parasiten. Zool. Rec. 1900 (113).] Abstract in Zeitschr. wiss. Mikr. xviii, pp. 47–51.

251. Mayer, P. *Protozoa.* Bericht für 1901. Zool. Jahresber. 1901 (publ. 1902), pp. 1–16.

252. *McElroy, J. B. Some phases of Malaria. J. Amer. Med. Ass. xxxvii, 1901, pp. 678–683, 2 figg.

253. *Meisenheimer, J. Die neueren Forschungen über Malaria und ihre Uebertragung durch Mosquitos. Naturw. Wochenschr. xvii, pp. 193–198, 7 figg.

254. Mendelssohn, M. Recherches sur la thermotaxie des organismes unicellulaires. J. Physiol. Path. iv, pp. 393–409, 6 text-figg.

255. ——. Recherches sur l'interférence de la thermotaxie avec d'autres tactismes et sur le mécanisme du mouvement thermotactique. T. c. pp. 475–488, 5 text-figg.

256. ——. Quelques considérations sur la nature et le rôle biologique de la thermotaxie. T. c. pp. 489–496.

Mesnil, F. [See Laveran, A. & Mesnil, F. (196–207).]

257. Metalnikoff, S. Pishchevarenie u Infuzoriĭ. (Ueber die Verdauung bei Infusorien.) Protok. St. Peterb. Obshch. xxix, 1, No. 2, 1898, pp. 66–68.

258. Metzner, R. Untersuchungen an *Megastoma entericum* Grassi aus dem Kaninchendarm. Zeitschr. wiss. Zool. lxx, 1901, pp. 299–320, pl. 15.
Abstract in J. R. Micr. Soc. 1902, p. 58 and (of technique) in Zeitschr. wiss. Mikr. xix, pp. 201–203.

259. Meunier, S. Le tuffeau silicieux de la Côte-aux-Buis à Grignon. C.R. Ac. Sci. cxxxiv, pp. 198–201.

260. Michon, J. De l'influence de la découverte de Laveran sur la prophylaxie et la législation du paludisme. C.R. Ass. Franc. 1901, pt. 1, pp. 178 and 179, pt. 2, pp. 794–807.

261. MIEHE, N. *Crapulo intrudens*, ein neuer mariner Flagellat. Ber. deutsch. Bot. Ges. xix, 1901, pp. 434–441.
Abstract in Zeitschr. wiss. Mikr. xviii, pp. 502 & 503.

262. MILLETT, A. D. Report on the Recent Foraminifera of the Malay Archipelago. Collected by Mr A. Durrand, F.R.M.S. Pt. xiii. J. R. Micr. Soc. 1902, pp. 509–528, pl. 11.

263. MINGAZZINI, P. Il mollusco contagioso negli Anfibi. Rend. Acc. Lincei xi (i), pp. 258–263.

264. MĪNKEVĪCH, R. Bemerkungen zur Arbeit von Atsuschi Yasuda; "Studien über die Anpassungsfähigkeit einiger Infusorien an concentrierte Lösungen." Zool. Anz. xxv, pp. 124 & 125. [See (423).]
Abstract in J. R. Micr. Soc. 1902, p. 192.

265. ——. N'kotoruiya nablyudeniya nad prostyeĭshīmī na Bologhovskoĭ stantziĭ. (Quelques observations sur les Protozoaires, faites à la Station biologique de Bologoé.) Communication préliminaire. Protok. St. Peterb. Obshch. xxix, 1, No. 7, 1898, pp. 239–246. Resumé, t. c. pp. 267–269.

266. ——. Kratkiĭ otchet poyezdkye na Sevastopol'skuyu biologhīcheskuyu stantziyu lyetom 1899 ghoda. (Rapport préliminaire d'un séjour à la station biologique de Sévastopol pendant l'été de 1899.) Op. cit. xxx, 1, No. 8, 1899, pp. 354–362. Resumé, t. c. p. 365.

MOORE, E. M. [See JENNINGS & MOORE (170).]

267. MOROFF, T. *Chilodon cyprini*, n. sp. Zool. Anz. xxvi, pp. 5–8, 3 text-figg.

268. MOUSSU, G. & MAROTEL, G. La coccidiose du mouton et son parasite. Arch. parasit. vi, pp. 82–98, 10 text-figg., also in Bull. Soc. Cent. Méd. Vét. 1901, 31st Dec.
Abstract in Centrbl. Bakter. (1) xxxi, Ref. p. 316.

269. MOUTON, H. Recherches sur la digestion chez les Amibes et sur leur diastase intracellulaire. Ann. Inst. Pasteur xvi, pp. 457–509, pl. 7.

270. MUDGE, G. P. A text-book of Zoology. London, Arnold, 1901, 8vo, viii+416 pp., 100 figg. [Protozoa, pp. 293–304, 3 figg.]
Review in Nature lxv (Suppl. March 13th, p. x).

271. MUNIER-CHALMAS —. Sur les Foraminifères ayant un réseau de mailles polygonales. Bull. Soc. geol. France (4) ii, pp. 349–351.

272. ——. Sur les Foraminifères rapportés au groupe des *Orbitolites*. T. c. pp. 351–353.

MURATET, L. [See SABRAZÉS, J. & MURATET, L. (327).]

272A. NEPVEU, G. *Trypanosoma* in Man. Brit. Med. Journ. 1902 (i), p. 164. [Letter to the Editor. See II, F, 3.]

273. *NEVEU-LEMAIRE, M. Parasitologie animale à l'usage des Candidats etc. Pt. III, with Préf. by R. Blanchard, 217 pp., 131 figg. Paris, Soc. d'édit. scientif. 1902.

[——. Les Hématozoaires du Paludisme. Zool. Rec. 1901 (183).]
Abstract in Zool. Centrlbl. ix, pp. 551–554.

274. NICOLLE, M. & ADIL-BEY —. Seconde note sur la Malaria des Bovidés. (Piroplasmose bovine.) Ann. Inst. Pasteur xvi, pp. 291–293. [See II, F, 2.]

[NISHIKAWA, T. Discolouration of water by *Gonyaulax*. Zool. Rec. 1901 (185).] Abstract in J. R. Micr. Soc. 1902, p. 57.

275. *NOCARD & ALMY. Ein neuer Fall von Piroplasmose beim Hunde. Bull. Soc. Centr. Méd. Vét. 1901, 30th Oct.
Abstract in Centrbl. Bakter. (1) xxxi, Ref. pp. 218 & 219.

276. —— & MOTAS —. Contribution à l'étude de la piroplasmose canine. Ann. Inst. Pasteur xvi, 4, pp. 259–290, pls. 5 & 6.
Abstract in Centrbl. Bakter. (1) xxxii, Ref. pp. 110 & 111.

277. OSTENFELD, C. H. Phytoplankton fra det Kaspiske Hav. (Phytoplankton from the Caspian Sea.) Vid. Medd. 1901, pp. 129–139, 10 text-figg.

278. —— & SCHMIDT, J. Plankton fra det Røde Hav og Adenbugten. (Plankton from the Red Sea and the Gulf of Aden.) T. c. pp. 141–182, 30 text-figg.

279. PALMER, T. C. Five new species of *Trachelomonas*. P. Ac. Philad. liv, pp. 791–795, pl. 35.

280. PAMMEL, L. H. Biological notes. Nuclear division in *Fuligo varians*. Amer. Micr. J. xxiii, p. 11. [See II, A, 2.]

281. PAPPENHEIM, A. Färberisches zur Kenntniss des sog. Chromatinkorns (Kernpunkts) von Protisten. Berl. Klin. Wochenschr. xxxix, pp. 1095 & 1096.

282. PATRINI, P. Studio geologico delle colline di Chiuppano nel Vicentino. Rend. Ist. Lombardo xxxv, pp. 659–676.

283. PEACH, B. N. Palaeontological Appendix to the geology of East Fife. (Geikie.) Mem. geol. Surv. Scotland 1902, pp. 354–385.

284. PEARCEY, F. G. Notes on the Marine Deposits of the Firth of Forth, and their relation to its animal life. Tr. Soc. Glasgow vi, 2, pp. 217–251, 1 chart.

285. PEARSON, K. Note on Dr Simpson's Memoir on *Paramœcium caudatum*. Biometrika i, pp. 404–407, tables 4–8.

286. PENARD, E. Sur la croissance supposée de la coquille chez les Thécamœbiens. Arch. Sci. Nat. (4) vii, 1899, pp. 249–271.

288. ——. Sur un Rhizopode nouveau. Op. cit. (4) xiv, p. 554. Also in Act. Soc. Helvet. lxxxv, p. 80.

289. ——. Faune Rhizopodique du Bassin du Léman. 4to, Geneva, 1902, 714 pp., figg. for all spp. and 3 pls.

290. PERRONCITO, E. Une maladie mortelle du Lapin produite par la *Lamblia intestinalis* de l'homme et du rat. Bull. Soc. zool. France xxvii, pp. 151–155, 1 text-fig.

291. PERVINQUIÈRE, L. Sur l'éocène d'Algérie et de Tunisie et l'age des dépots de phosphate de Caux. Bull. Soc. geol. France (4) ii, pp. 40–42.

292. PLATE, L. Ueber einen einzelligen Zellparasiten (*Chitonicium simplex*) aus der Mantelhöhle von Chitonen. Zool. Jahrb. Suppl. v, Fauna Chilensis ii, 1901, pp. 601–606, pl. 17.
Abstract in Centrbl. Bakter. (1) xxxi, Ref. p. 153 and in Zool. Centrlbl. ix, pp. 619 & 620.

293. *Plehn, A. Die Malaria der afrikanischen Negerbevölkerung, besonders mit Bezug auf die Immunitätsfrage. 8vo, 51 pp., 1 pl. (Jena, G. Fischer) 1902.

294. Porta, A. Contributo allo studio degli Acanthometridi. Rend. Ist. Lombardo xxxiv (1901), pp. 811–822, 2 pls.
Abstract in J. R. Micr. Soc. 1903, p. 45.

295. *Preble, R. B. The crescent form of the malarial parasite. Med. Age 1902, pp. 9–11.

296. Prenant, A. Notes cytologiques. vii. Contribution à l'étude de la ciliation. Striation et ciliation de la partie adhérente du *Myxidium lieberkühni*. Arch. anat. micr. v, pp. 200–212, 7 text-figg.

297. ——. Striation et ciliation de la partie adhérente du *Myxidium lieberkühni*. C.R. Soc. Biol. liv, pp. 844–846.

298. Prever, P. Cenni preliminari sulle nummulitidi dei dintorni di Potenza. Boll. Soc. geol. Ital. xx, 1901, pp. 488–505.

299. ——. Le nummuliti della Forca di Presta nell' appennino centrale e dei dintorni di Potenza nell' appennino meridionale. Abh. Schweiz. pal. Ges. xxix, Mem. 3, 121 pp., 8 pls.

300. Prowazek, S. Protozoen Studien i. (1) *Bursaria truncatella* und ihre Conjugation. (2) Beiträge zur Naturgeschichte der Hypotrichen. Arb. Inst. Wien xi, 1899, pp. 195–268, 4 pls. & 4 text-figg.

301. ——. Protozoen Studien ii. Op. cit. xii, 1900, pp. 243–300, 2 pls.

302. ——. Protozoen studien iii. *Euplotes harpa*. Op. cit. xiv, 1, pp. 81–88, 1 pl.

303. ——. Zur Entwickelung der Gregarinen. Arch. Protistenk. i, pp. 297–305, pl. 9.

304. ——. Notiz über die *Trichomonas hominis* (Davaine). T. c. pp. 166–168, 4 text-figg.
Abstract in Centrbl. Bakter. (1) xxxi, Ref. p. 572.

305. ——. Studien zur Biologie der Zelle. Zeitschr. allg. Physiol. ii, pp. 385–394, 4 text-figg.

306. ——. Kerntheilung und Vermehrung der *Polytoma*. Oesterr. Bot. Zeitschr. li, 1901, pp. 51–60, pl. 1.
Abstract in J. R. Micr. Soc. 1901, p. 545, and Zeitschr. wiss. Mikr. xviii, p. 103.

307. ——. Protozoenbericht für das Jahr 1889. Arch. Naturg. lxii, ii (3) 1896 (given out 1903), pp. 259–270, and for 1890, t. c. pp. 271–290.

—— & Joseph. [See Joseph & Prowazek (173).]

[Przesmycki, A. M. Parasites of Rotifers Zool. Rec. 1901 (208).]
Abstract in J. R. Micr. Soc. 1902, p. 563.

308. Reade, T. M. Marine Boulder Clay in County Cork, with notes and lists of Foraminifera, by Joseph Wright, F.G.S. Irish Natural. xi, pp. 29–35, 1 fig.

309. ——. Glacial and post-glacial features of the lower valley of the river Lune and its Estuary, with list of Foraminifera by Joseph Wright, F.G.S. P. Liverp. geol. Soc. ix, pp. 163–196, pls. 11–13, 2 text-figg.

310. *Rees, D. C. Malaria—its parasitology. Practitioner lxvi, 1901, pp. 271–300, 13 (58) figg.

310A. Remeš, M. Nachträge zur Fauna von Stramberg. I. Die Fauna des rothen Kalksteins. Beitr. Pal. Oesterr.-Ung. xiv, pp. 195–217, pls. 18–20. [Gives a list of Foraminiferan species identified by Chapman, Zool. Rec. 1900 (20).]

311. Renault, B. Sur quelques nouveaux Infusoires fossiles. C.R. Ac. Sci. cxxxv, pp. 1064–1066, 3 text-figg.

312. Reuter, K. Weitere Beiträge zur Malariaplasmodienfärbung mittels A-Methylenblau-Eosin. Centrbl. Bakter. (1) xxxii, Orig. pp. 842–845.

313. *——. Demonstration von Malaria-präparaten nach einer neuen Färbemethode. Verh. Ges. deutsch. Naturf. lxxiii, ii, pp. 582–584.

[——. Ueber den färbenden Bestandtheil der Romanowsky-Nocht'schen Malariaplasmodienfärbung, etc. Zool. Rec. 1901 (209).] Abstract in Zeitschr. wiss. Mikr. xviii, pp. 314–317.

314. Rhumbler, L. Die Doppelschalen von *Orbitolites*, und anderer Foraminiferen, von entwicklungsmechanischen Standpunkt aus betractet. Arch. Protistenk. i, pp. 193–296, pls. 7 & 8, 17 text-figg.
Abstract in Naturwiss. Rdsch. xviii, pp. 54–56.

315. ——. Der Aggregatzustand und die physikalischen Besonderheiten des lebenden Zellinhaltes. II. Theil. B. Prüfung der Giltigkeit des zweiten Kapillaritätsgesetzes und die Mechanik der Entstehung der Foraminiferenschale. Zeitschr. allg. Physiol. ii, pp. 183–340, 1 pl., 80 text-figg.

316. ——. Ueber embryonale und postembryonale Schalenverschmelzungen bei Foraminiferen in ihrer Analogie zu Rieseneiern und Verwachsungszwillingen bei Metazoën. Verh. Int. Zool. Congr. v, Berlin 1901, pp. 429–432.

317. *Robertson, W. Malignant jaundice of the dog. Agric. Journ. Cape Good Hope xx, pp. 675–685.

Robertson & Gray. [See Gray & Robertson (145).]

318. Roesle, E. Die Reaktion einiger Infusorien auf einzelne Induktionsschläge. Zeitschr. allg. Physiol. ii, pp. 139–168.

319. *Ross, R. [No Title given. See Laveran & Mesnil (204).] Proc. S. Indian branch Brit. Med. Ass., 17 December, 1895.

319A. *——. Malarial Fever, its Cause, Prevention, and Treatment. London (Longmans, Green and Co.), 9th edit. 1902, 68 pp.
Review in Nature lxvi, p. 269.

319B. —— Trypanosomatosis in Man. Lancet 1902 (i), p. 107. Also in Brit. Med. Journ. 1902 (i), pp. 42 and 100. [Letters as to Dutton's first case of trypanosomosis.]

——. [See also Boyce, Ross & Sherrington (37).]

320. *Rossinski, D. M. Materialen zur Kenntniss der Evertebratenfauna des Moskwaflusses. Bull. Soc. Imp. hist. nat. anthrop. ethnograph. Moskow 1892, 67, suppl. to No. 6, pp. 1–38.
See (365) pp. 354–357.

321. Roux, J. Infusoires ciliés des environs de Genève. Rev. Suisse Zool. vi, 1899, pp. 557–636, 2 pls. (13 & 14).

322. ——. Faune infusorienne des eaux stagnantes des environs de Genève. Mém. cour. de l'Université de Genève, 148 pp., 8 pls. Geneva, H. Kündig, 1901.

323. [Roux, J.] Faune Infusorienne des Environs de Genève. Verh. Zool. Congr. v (Berlin) 1901, pp. 687 & 688.

324. Ruge, R. Fragen und Probleme der modernen Malariaforschung. Centrbl. Bakter. (1) xxxii, Orig. pp. 776–799, 1 pl., 1 text-fig.

325. ——. Syphilis und Malaria. T. c. pp. 596–601.

326. *——. Researches on the *Proteosoma* in Germany. J. trop. Medicine iv, 1901, pp. 117–119.

327. Sabrazés, J. & Muratet, L. Trypanosome de l'Anguille (*Anguilla vulgaris*). Pr.-verb. Soc. Bordeaux lvii, p. lxxxii, 2nd comm. t. c. pp. cxxiv–cxxviii, 1 pl.

328. *Sajo, K. Neuere Daten über das Texas-Fieber, verglichen mit menschlichen Krankheiten. Prometheus, Jahrg. 12, pp. 35–39, 49–51, 2 figg.

329. Salmon, D. E. & Stiles, C. W. Emergency report on Surra. Bull. U. S. Dep. Agric. Animal Ind. xlii, p. 152, 112 figg.

329a. Sambon, W. L. Note on the discovery of the human *Trypanosoma*. Lancet 1902 (ii), p. 1576, and Brit. Med. Journ. 1902 (ii), p. 1807. [Dr Nepveu the discoverer. See ii, f, 3.]

330. —— & Low, G. C. Report on two experiments on the mosquito-malaria theory. Extract from the Med. Chir. Trans. lxxxiv, 1902, 56 pp., pls. 21–25, 11 figg. [Contains notes on *Piroplasma*, also a description, with coloured plate, of the tick which transmits the disease.]

331. *Sand, R. Action thérapeutique de l'Arsenic, de la Quinine, du Fer et de l'Alcohol sur les Infusoires ciliés. Arb. Therapeut. Lab. Univ. Brussel (H. Lamertin, Brussels, 1901). [See Zacharias (427).]

332. Scales, F. S. How to obtain and keep Gregarinidæ. Amer. Micr. J. xxi, 1900, pp. 129 & 130.

333. Scales, S. Notes on Microscopy. The arrangement of Cilia on *Paramœcium*. Amer. Micr. J. xxiii, p. 64. [See ii, f, 2.]

334. Schaudinn, F. Untersuchungen über den Generationswechsel bei Coccidien. Zool. Jahrb. Anat. xiii, 1900, pp. 197–292, pls. 13–16.

335. ——. Studien über Krankheitserregende Protozoen. i. *Cyclospora caryolytica* Schaud., der Erreger der perniciösen Enteritis des Maulwurfs. Arbeiten a. d. Kaiserlichen Gesundheitsamte Berlin xviii, pp. 378–416, pls. 12 & 13.

336. ——. Studien über Krankheitserregende Protozoen. ii. *Plasmodium vivax* (Gr. & Fel.), der Erreger des Tertianfiebers beim Menschen. Op. cit. xix, pp. 169–250, pls. 4–6.
Abstract in Centrbl. Bakter. (1) xxxii, Ref. pp. 362–365.

337. Scherffel, A. Kleiner Beitrag zur Phylogenie einiger Gruppen niederer Organismen. Bot. Zeitung lix, 1901, pp. 143–158, pl. vi.
Abstract in J. R. Micr. Soc. 1902, p. 57.

338. Schewiakoff, W. T. Ueber die chemische Natur der Skelette und den hydrostatischen Apparat der *Radiolaria-Acanthometrea*. Verh. Zool. Congr. v (Berlin), 1901, p. 686.

339. Schilling, —. Bericht über die Surra-Krankheit der Pferde und Rinder im Schutzgebiete Togo. Centrbl. Bakter. (1) xxxi, Orig. pp. 452–459.

340. SCHLUMBERGER, C. Deuxième note sur les Orbitoides. Bull. Soc. geol. France (4) ii, pp. 255–261, pls. 6–8, 3 text-figg.

341. SCHMIDT, J. Some Tintinnodea from the Gulf of Siam. Vid. Medd. 1901, pp. 183–190, 6 text-figg.

342. *SCHOO, H. J. M. Over Malaria. I. Welke Temperatuur it noodig voor de Amphigonie van *Plasmodium vivax*. Nederl. Tijdschr. voor Geneeskunde 1901, ii, pp. 1338–1345, 1 fig.

343. *——. Malaria in Noord-Holland. Op. cit. 1902, i, pp. 169–190.

344. *——. Malaria in Krommenie. T. c. pp. 501–514, 2 pls.

345. SCHUBERT, R. J. Ueber die Foraminiferen- "Gattung" *Textularia* Defr. und ihre Verwandtschaftsverhältnisse. Verh. geol. Reichsanst. 1902, pp. 80–85. [See II, E.]
Abstract in Zool. Centrlbl. ix, pp. 610 & 611.

346. ——. Mitteleocäne Foraminiferen aus Dalmatien. T. c. pp. 267–269.

347. ——. Kreide- und Eocänfossilien von Ordu am schwarzen Meere (Klein-Asien). Op. cit. 1901, pp. 94–98, 3 text-figg.

347A. ——. Neue und interessante Foraminiferen aus dem Südtiroler Alttertiär. Beitr. Pal. Oesterr.-Ung. xiv, pp. 9–26, pl. 1.

348. —— & LIEBUS, A. Vorläufige Mittheilung über Foraminiferen aus dem Böhmischen Devon (Etage G–g_3 Barr.). Op. cit. 1902, p. 66.

349. *SCHÜFFNER, W. Die Beziehungen der Malariaparasiten zu Mensch und Mücke an der Ostküste Sumatras. Zeitschr. Hyg. Infectionskrankh. xli, pp. 89–122.

350. *v. SCHULTHESS-RECHBERG, A. Der Malaria Parasit und sein Generationswechsel. Mt. Schweiz. ent. Ges. x, 1901, pp. 262–266.

351. SCHÜTT, F. *Peridiniales* in Engler und Prantl's natürlichen Pflanzenfamilien i, 1 b, pp. 1–30, 43 text-figg., and in Syllabus der Pflanzenfamilien 1903, p. 8.

352. SENN, G. Der gegenwärtige Stand unserer Kenntnisse von den flagellaten Blutparasiten. Arch. Protistenk. i, pp. 344–354.

353. ——. Flagellata; in Engler und Prantl's natürlichen Pflanzenfamilien i, 1 a, pp. 93–188, 78 text-figg., and in Syllabus der Pflanzenfamilien 1903, pp. 6–8.

354. SERGENT, E. Sur une coccidie nouvelle, parasite du Caméléon vulgaire. C.R. Soc. Biol. liv, pp. 1260 & 1261.

SHERRINGTON, C. S. [See BOYCE, ROSS & SHERRINGTON (37).]

355. SHIGA, K. Bemerkungen zu Jäger's "Die in Ostpreussen einheimische Ruhr, eine Amöbendysenterie." Centrbl. Bakter. (1) xxxii, Orig. pp. 352 & 353.

356. SHVEIER, A. V. Parazītícheckiya ryecnīchnuiya īnfuzoriī (entoparazītui). Trudui St. Peterb. Obshch. xxix, 4, No. 10, 1900, pp. 1–135, pls. i & ii.
Abstract in Centrbl. Bakter. (1) xxxii, Ref. pp. 335 & 336.

357. SIEDLECKI, M. Contribution à l'étude des changements cellulaires provoqués par les Grégarines. Arch. anat. micr. iv (i), 1901, pp. 87–100, 9 text-figg.

358. [Siedlecki, M.] Historya rozwoju nowego gatunku kokcydyi: *Caryotropha mesnilii* nob. (Cycle évolutif de la Caryotropha mesnilii, coccidie nouvelle des Polymnies; note préliminaire.) Bull. Ac. Cracovie 1902, pp. 561–568, 5 text-figg.

359. ——. *Herpetophrya astoma* n. g. n. sp., wymoczek pasozytny z Polymnia nebulosa. (L'*Herpetophrya astoma* n. g. n. sp., infusoire parasite des Polymnies.) T. c. pp. 356–362, pl. 32.
Abstract in J. R. Micr. Soc. 1902, p. 563.

359a. ——. Étude cytologique et cycle évolutif de *Adelea ovata* Schneider. Ann. Inst. Pasteur xiii, 1899, pp. 169–192, pls. 1–3.

360. Silvestri, A. Sulle forme aberranti della *Nodosaria scalaris* (Batsch.). Atti Acc. Pont. Lincei lv, pp. 49–58, 9 text-figg.
Abstract in J. R. Micr. Soc. 1902, p. 656.

361. ——. La *Siphogenerina columellaris* B. (Brady). T. c. pp. 101–104, 2 figg. in text. [See ii, d, 4.]
Abstract in J. R. Micr. Soc. 1902, p. 656.

362. ——. *Biloculina guererii* nuova specie fossile siciliana. Boll. Acc. Gioen. lxiv, 1900, pp. 19–29, 5 figg.

363. *——. Intorna alla struttura di alcune Glanduline siciliana. Rend. Acc. Scienze Zelanti di Acireale x, 1899–1900, pp. 1–12, pl. a.
Abstract in Zool. Centrlbl. ix, p. 611.

[Simond, P. L. Sur un hématozoaire...des tortues. Zool. Rec. 1901 (242).] Abstract in Zool. Centrlbl. ix, pp. 560 & 561.

[——. Sur un hématozoaire...du Gavial. Zool. Rec. 1900 (243).] Abstract in Zool. Centrlbl. ix, p. 561.

[——. Contribution à l'étude des hématozoaires endoglobulaires des Reptiles. Zool. Rec. 1901 (245a).] Abstract in Centrbl. Bakter. (1) xxxi, Ref. pp. 540–542 and in Zool. Centrlbl. ix, pp. 562–564.

364. Simpson, J. Y. The relation of binary fission to variation. Biometrika i, 4, pp. 400–404, 3 tables.

[——. Observations on Protozoa. Zool. Rec. 1901 (247).] Abstract in J. R. Micr. Soc. 1902, p. 563.

365. Skorikow, A. S. Die Erforschung des Potamoplanktons in Russland. Biol. Centrlb. xxii, pp. 551–570. [Contains abstracts of the works of Rossinski (320), Skorikow (366), Zernow (437), and Zykoff (441) which see.]

366. *——. Materialen zur Erforschung der Evertebratenverbreitung des Flusses Udy. Statistisches Material aus dem Jahre 1896. Trav. Soc. Univ. Kharkov. xxxi, 1897, pp. 39–48. [See (365) pp. 557–562.]

367. Smith, T. The production of Sarcosporidiosis in the Mouse by feeding infecting muscular tissue. J. exp. Med. Baltimore vi, pp. 1–21, pls. 1–4.

368. —— & Johnson, H. P. On a Coccidium (*Klossiella muris* gen. et sp. nov.), parasitic in the renal epithelium of the mouse. T. c. pp. 303–316, pls. 21–23.

[Sosnowski, J. Studien über die Veranderungen des Geotropismus bei *Parmœcium aurelia*. Rec. 1899 (128).] Abstracts in Bot. Centrlbl. lxxxviii (1901), pp. 199 & 200, in J. R. Micr. Soc. 1902, p. 191, and in Zool. Centrlbl. ix, p. 110.

369. Soulié, H. Recherches sur les Culicides de l'Algérie. C.R. Ac. Sci. cxxxv, pp. 118–120.

370. *Spandel, E. Die Foraminiferen des Permo-Carbon von Hooser, Kansas, Nord-Amerika. Festschr. (Abh. Bd. 14?) nat. ges. Nürnberg 1901, pp. 175–194, 10 figg. [6 n. spp. in: *Ammodiscus*, *Monogenerina*, n. g. 2, *Nodosaria*, *Geinitzina*, *Dentalina*, 1 n. var. in *Tetrataxis*.]

371. *——. Untersuchungen an den Foraminiferengeschlecht *Spiroplecta* im allgemeinen und an *Spiroplecta carinata* d'Orb. im besonderen. T. c. pp. 163 & 174, 6 figg.

[Stassano, H. Conjugation in Trypanosoma of Rat. Zool. Rec. 1901 (251).] Abstract in J. R. Micr. Soc. 1902, p. 193.

372. de Stefani, C. I terreni terziari della Provincia di Roma. i. Eocene. Rend. Acc. Lincei xi (i), pp. 508–513.

373. ——. ..... ii. Miòcene medio. T. c. (ii), pp. 40–45.

373a. ——. ..... iii. Miocene superiore and iv. Pliocene. T. c. pp. 70–74.

374. —— & Dainelli, G. I terreni eocenici presso Bribir in Croazia. T. c. (i), pp. 154–157.

375. —— & Martelli, A. I terreni eocenici dei dintorni di Metkovich in Dalmazia e in Erzegovina. T. c. (ii), pp. 112–117.

376. Stefanowska, M. Modifications microscopiques du protoplasme vivant dans l'anesthésie. C.R. Soc. Biol. liv, pp. 545–547, 4 figg.

377. Stempell, W. Ueber *Thelohania mülleri* (L. Pfr.). Zool. Jahrb. Anat. xvi, pp. 235–272, pl. 25.

378. ——. Ueber *Polycaryum branchiopodianum* n. g., n. sp. Zool. Jahrb. Syst. xv, pp. 591–596, with pl. 31.
Abstract in Centrbl. Bakter. (1) xxxii, Ref. p. 275.

379. ——. Ein neues parasitäres Protozoon aus *Branchipus grubei* Dyb. Verh. Congr. Zool. v (Berlin) 1901, p. 685.

380. Steuer, A. Beobachtungen über das Plankton des Triester Golfes im Jahre 1901. Zool. Anz. xxv, pp. 369–372, with 1 pl.

381. Stiles, C. W. *Eimeriella*, new genus of Coccidia. Eleven misc. pap. Bull. U. S. Dep. Agric. Animal Ind. xxxv, 1902, pp. 18 & 19.

382. ——. *Eimeria stiedæ* (Lindemann 1865), correct name for the hepatic Coccidia of Rabbits. T. c. p. 18.

383. ——. The type-species of certain genera of parasitic Flagellates particularly Grassi's genera of 1879 & 1881. Zool. Anz. xxv, pp. 689–695.

384. *——. First American case of infection with *Lamblia duodenalis*. Washington Med. Annals i, 1902, p. 64.

385. Stolc, A. Ueber das Verhalten des Neutralroths im lebendigen Protoplasma. Nach Versuchen mit *Amœba proteus*. Zeitschr. allg. Physiol. i, pp. 209–219.

386. *Stuhlmann, F. Notizen über die Tsetsefliege (*Glossina morsitans*) und die durch sie übertragene Surrakrankheit in Deutsch-Ostafrika. Ber. ü. Land. u. Forstwirtschaft in Deutsch-Ostafrika i, pp. 137–153, pls. i & ii, 4 figg in text.
Abstract in Centrbl. Bakter. (1) xxxii, Ref. p. 435.

387. *Theiler, A. Die Tse-tse Krankheit. Schweiz. Arch. f. Tierheilk. xliii, 1901, pp. 97–112 & 153–162.

388. Thompson, I. C. On the Plankton of the Indian Ocean. Rep. Brit. Ass. 1902, pp. 643 & 644.

389. Torrey, H. B. An unusual occurrence of Dinoflagellata on the California Coast. Amer. Natural. xxxvi, pp. 187–192, 3 figg.
Abstracts in J. R. Micr. Soc. 1902, p. 656, Nature lxv, pp. 573 & 574.

390. Trabucco, G. Fossili stratigrafia ed età della "creta superiore" del bacino di Firenze. Boll. Soc. geol. Ital. xx, 1901, pp. 271–294, pl. 3, 6 text-figg.

391. Trabut, L. Ueber Malaria bovine. Centrbl. Bakter. (1) xxxi, Ref. p. 180.

392. *Trolard, —. La malaria et les nouvelles doctrines. Bull. méd. de l'Algerie 1901, March, May, June.

393. Tsuzuki, Z. Ueber die Ergebnisse meiner Malariaforschung in Hokkaido (Japan). Centrbl. Bakter. (1) xxxi, Orig. pp. 763–768.

394. Tyzzer, E. E. Tumours and Sporozoa in Fishes. J. Boston Med. Soc. v, 1900–1901, pp. 63–68, pl. 6.

395. ——. Coccidium infection of the rabbit's liver. J. Med. Research, Boston vii, pp. 235–254, pls. 15–18.

396. Ucke, A. Zur Verbreitung der Amöbenenteritis. Centrbl. Bakter. (1) xxxi, Orig. pp. 317 & 318.

[Vaney, C. & Conte, A. New Microsporidian. Zool. Rec. 1901 (264).] Abstract in J. R. Micr. Soc. 1902, p. 58, also in Centrbl. Bakter. (1) xxxii, Ref. p. 247.

—— & ——. [See also Conte & Vaney (70).]

397. Vasseur, G. Sur la découverte du terrain nummulitique dans un sondage exécuté à Saint-Louis du Sénégal. C.R. Ac. Sci. cxxxiv, pp. 60–63.

398. Vinassa de Regny, P. Radiolari miocenici italiani. Rend. Acc. Bologna, n. s., iv, 1899–1900, pp. 80–82.

399. ——. Radiolari miocenici italiani. Mem. Acc. Bologna (5) viii, 1900, pp. 565–595, pls. 1–3.

400. ——. Radiolari cretacei dell' Isola di Karpathos. Op. cit. (5) ix, pp. 497–512, 1 pl. [Short notice in Rend. Acc. Bologna, n. s. v, p. 105.]

401. Voeltzkow, A. Ueber Coccolithen und Rhabdolithen nebst Bemerkungen über den Aufbau und die Entstehung der Aldabra-Inseln. Abh. Senckenb. Ges. xxvi, pp. 465–537, 3 text-figg.
Abstract in Zool. Centrlbl. ix, pp. 393–395.

402. *Voges, O. Das Mal de Caderas der Pferde in Südamerika. Berl. tierärztl. Wchschr. Jahrg. 1901, pp. 597 & 598.

403. ——. Mal de Caderas. Zeitschr. Hygiene xxxix, pp. 323–372, pl. 5.
Abstract in Centrbl. Bakter. (1) xxxi, Ref. pp. 755–758.

404. Voigt, M. Einige Ergebnisse aus den Untersuchungen ostholsteinischer Seen. Forschber. Plon ix, pp. 47–61, 5 text-figg.
Abstract in Zool. Centrlbl. ix, p. 348.

405. [Voigt, M.] Neue Organismen aus Plöner Gewässern. T. c. pp. 33–46, pl. 2, 1 text-fig.
Abstract in Zool. Centrlbl. ix, p. 348.

406. ——. Beiträge zur Kenntniss des Planktons pommerscher Seen. T. c. pp. 72–86, 2 tables and 2 text-figg.
Abstract in Zool. Centrlbl. ix, p. 348.

[——. New Ciliata. Zool. Rec. 1901 (267), (but vol. xxv).] Abstract in J. R. Micr. Soc. 1902, p. 192.

407. Vuillemin, P. Le *Sarcocystis tenella* parasite de l'homme. C.R. Ac. Sci. cxxxiv, pp. 1152–1154.
Abstract in J. R. Micr. Soc. 1902, p. 564.

408. Wallengren, H. Inanitionserscheinungen der Zelle. Untersuchungen an Protozoen. Zeitschr. allg. Physiol. i, pp. 67–128, pls. 1 & 2, 2 text-figg.

409. ——. Zur Kenntniss der Galvanotaxis. Op. cit. ii, pp. 341–384, 1 pl., 9 text-figg.

[——. Comparative morphology of hypotrichous Infusoria. Zool. Rec. 1901 (269).] Abstract in J. R. Micr. Soc. 1902, p. 192.

409a. Wanner, J. Die Fauna der obersten weissen Kreide der libyschen Wüste. Palaeontogr. xxx, 2te Abth. (iii), pp. 91–151, pls. 13–19.

410. Wasielewski, Th. von. Ueber die *Trypanosoma*-infection. Verh. Congr. Zool. v (Berlin), 1901, pp. 424–428.

[——. Ueber die Verbreitung und Künstliche Uebertragung der Vogelmalaria. Zool. Rec. 1901 (271).] Abstract in Centrbl. Bakter. (1) xxxi, Ref. p. 43.

411. Weitlauer, Fr. Tagebuchnotizen eines Schiffsarztes über das Meeresleuchten. Verh. Ges. Wien lii, pp. 270–277, 2 figg.
Abstract in J. R. Micr. Soc. 1902, p. 563.

412. Welch, R. Some Cretaceous Foraminifera from North Antrim. Irish Natural. xi, pp. 178–180.

[West, G. S. British fresh-water Rhizopods. Zool. Rec. 1901 (273).] Abstract in J. R. Micr. Soc. 1902, p. 56.

413. Wolfenden, R. N. The Plankton of the Faröe Channel and Shetlands. Preliminary notes on some Radiolaria and Copepoda. J. Mar. Biol. Ass. vi. 3, pp. 344–361 & 371, 2 pls.
Abstract in J. R. Micr. Soc. 1902, p. 191.

414. Worth, R. H. The Foraminifera of the Exe estuary. J. Mar. Biol. Ass. vi (3), pp. 336–343.

415. Wotton, F. W. Appendix on Flora and Fauna (to Howard, Geology of East Barry Dock). Rep. Cardiff Soc. xxviii, ii, 1897, pp. 90–93.

416. *Wright, B. L. The Malaria of the Tropics. Amer. J. Med. Sci. cxxii, 1901, pp. 73–80.

417. Wright, J. Foraminifera of the Pleistocene Clay of Bovevagh, Co. Derry. Rep. Belfast Club (2) iv (vii), pp. 603–605.

418. ——. Some Foraminifera from Rathlin Island. Irish Natural. xi, pp. 211–213, pl. 3.

419. [Wright, J.] On the Marine Fauna of the Boulder Clay. Rep. Brit. Ass. 1902, p. 598.

420. ——. The Foraminifera of the Pleistocene clay, Shellag (Ramsey, Isle of Man). J. Isle Man Soc. iii (xii), pp. 627–629.

421. Wright, J. H. A rapid method for the differential staining of blood films and malarial parasites. J. Med. Research, Boston, vii, pp. 138–144.

422. Yabe, H. On the genus *Schwagerina*. J. geol. Soc. Tokyo ix, pp. 283–286. [In Japanese.]

423. Yasuda, A. Studien über die Anpassungsfähigkeit einiger Infusorien an concentrierte Lösungen. J. Coll. Tokyo xiii, 1900, pp. 101–140, pls. x–xii.

424. Yoshiwara, S. Notes on the raised Coral-Reefs in the Islands of the Riukiu Curve. J. Coll. Tokyo xvi, 1901, pp. 1–14, 2 pls.

425. Zacharias, O. Zum Capitel der "wurstförmigen Parasiten" bei Räderthieren. Zool. Anz. xxv, pp. 647–649. [See iv, c, 2.]

426. ——. Ein neues Heliozoon (*Heterophrys pusilla*). T. c. pp. 665–667.

427. ——. Ueber die Einwirkung der arsenigen Säure auf den Infusorienkörper. Biol. Centrbl. xxii, pp. 216 & 217. [Abstract of Sand (331).]

428. ——. Einige Beispiele von massenhafter Vermehrung gewisser Plankton-organismen in flachen Teichen. T. c. pp. 535–536. [See ii, c, 1.]

429. ——. Ueber das Vorkommen von Infusorien im Cikaden-Schleim. T. c. p. 608.

430. ——. Ueber die Ergrünung der Gewässer durch die massenhafte Anwesenheit mikroskopischer Organismen. T. c. pp. 700 & 701. [See ii, c, 1.]

431. ——. Zur biologischen Characteristik des Schwarzsees bei Kitzbühel in Tirol. T. c. pp. 701 & 702.

432. ——. Zur Flora und Fauna der Schilfstengel im Gr. Plöner See. Forschber. Plon ix, pp. 17–25, pl. i.

433. ——. Zur Kenntniss der Plankton-verhältnisse des Schöh- und Schluensees. T. c. pp. 26–32.

434. Zahalka, C. Pasmo iii. kridoveho utvaru v Pojizeri. (Die iii Zone der Kreideformation im Isergebiete.) SB. Bohmisch. Ges. 1902, Mem. xv, 5 pp.

——. Pasmo iv. kridoveho utvaru v Pojizeri. (Die iv Zone der Kreideformation im Isergebiete.) Op. cit., Mem. xvi, 22 pp., pls. 3 & 4.

435. Zahn, H. Ueber Protoplasmagifte. SB. Soc. Erlangen xxxiii, pp. 149–169.

436. Zelizko, J. V. Prispevky z kridoveho utvaru okoli Zeleznice u Jicina. SB. Bohmisch. Ges. 1902, Mem. xxx, 13 pp.

437. *Zernow, S. A. Bemerkungen über das Zooplankton der Flüsse Schoschma und Wjatka. Bull. Soc. Imp. d. am. d. sc. Anthr. et Ethnol. t. 98, Dnevnik. Zool. Otd. iii, No. 2, Separatabdruck 1901, pp. 1–11 & 40. [See (365), pp. 564–570.]

438. *Ziemann, H. Malaria and mosquitoes on the West Coast of Africa. J. trop. Medicine iv, 1901, pp. 9–12 & 29–33.

439. Zykoff, W. Die Protozoa des Potamoplanktons der Wolga bei Saratow. Zool. Anz. xxv, pp. 177–180.

440. ——. Das pflanzliche Plankton der Wolga bei Saratow. Biol. Centrbl. xxii, pp. 60–62.

441. *——. Rechenschaftsberichte über die Thätigkeit der biologischen Wolga-Station in den Sommermonaten 1900. Arb. Ges. naturf. Saratow 1900, suppl. to vol. 2, pp. 1–35. [See (365), pp. 562–564.]

II. BIOLOGY.

A. Morphology.

1. General Anatomy.

Gymnomyxa :—General account of: *Plasmodiophora brassicæ*, Feinberg (106); *Dictydium umbilicatum*, Jahn (166); *Physarum leucophæum* var. (?) *ferox*, a Mycetozoan on fermenting fruit, Chrząszcz (63); the Lobosa, systematic and comparative, Penard (289); *Amœba coli* and *A. dysenteriæ* Lösch, distinguished, Shiga (355).

Penard (288) describes a new Rhizopod *Clathrella foreli*, which, while belonging to the Testacea, shews certain characters of a Heliozoan nature. The silicious envelope or shell is in several pieces, from between the junctions of which the long filiform pseudopodia, recalling those of *Euglyphina*, are thrust out.

General account of the Foraminifera, Chapman (61).—Megalospheric form of *Biloculina guerrerii*, n. sp., Silvestri (362).—Acervuline and Discorbine varieties of *Cymbalopora*, perhaps Megalo- and Micro-spheric forms, Earland (95). Aberrant forms in *Nodosaria scalaris* more probably varietal than teratological, Silvestri (360).

A peculiar Heliozoan with tufts or clusters of minute protoplasmic processes at the points where the typical pseudopodia usually arise. These tufts exhibited lashing or ciliary movements, and shew the readiness with which pseudopodia and flagella may change into each other, Crawley (74).—Notes on *Myxodiscus crystalligerus*, a new Heliozoan, Prowazek (301).

General anatomy of *Thalassophysa* and comparisons with allied genera, Brandt (41).

Sporozoa :—General description of: Gregarines from larvæ of *Tenebrio molitor*, Berndt (19); *Adelea ovata*, Siedlečki (359a); *Caryotropha mesnilii*, a new Coccidian from *Polymnia nebulosa*, Siedlečki (358); *Coccidium faurei*, n. sp., Moussu & Marotel (268); *C. schubergi*, n. sp., Schaudinn (334); *Cyclospora caryolytica*, n. sp., a new Coccidian from the Mole, Schaudinn (335); *Isospora mesnili*, n. sp., the two sporocysts of which are each tetrazoic, Sergent (354); *Klossiella muris*, n. g., n. sp., a new Coccidian, Smith & Johnson (368); *Paracoccidium prevoti*, n. g., n. sp., and *Coccidium ranarum*, n. sp., Laveran & Mesnil (206); *Hæmamœba majoris*, n. sp., and *H. ziemanni*, n. sp., Laveran (195); *Hæmogregarina stepanowiana*, n. sp., and *H. rara* n. sp., Laveran & Mesnil (202); *Karyolysus lacertarum*, Marceau (243); *Lankesterella minima* from the Frog's blood, Hintze (159); *Plasmodium vivax*, Schaudinn (336), Argutinsky (5); *Piroplasma canis*, Nocard & Motas (276); *P. bigeminum* (of "Tristeza"), Lignières (227).

Short account of: *Henneguya zschokkei* Gurley, the two valves of the spore are not identical, Fuhrmann (131); *Sphærospora masovica*, n. sp., Cohn (67).—General account of *Thelohania mülleri*, Stempell (377).

Notes on the anatomy of *Sarcosporidia* of mice, KOCH (177). [See II. D. 1.]—*Sarcocystis muris*, account of, especially growth and formation of "sporozoites," SMITH (367).

Joyeuxella toxoides, a new Sporozoan, general description, BRASIL (42). The parasite is crescentic with a large vesicular nucleus, and one or two "micronuclei". Both karyosome and "micronuclei" divide up until the distinction between them is lost. The cytoplasm arranges itself around the resulting pieces, but the further development is unknown.

General description of *Polycaryum branchiopodianum*, n. g., n. sp., from *Branchipus*. Youngest forms seen possessed many nuclei, and centrally several large refractile vacuoles containing a fatty substance. Organisms practically non-motile, form sculptured cysts of a chitinoid nature; reproduction not seen, STEMPELL (378).

An intracellular parasite (*Chitonicium simplex*) found in the mantle-cavity of different Chitons, possesses a large nucleus, sometimes containing a rod-shaped body which PLATE (292) takes to be an albumen crystal.

Mastigophora :—*Crapulo intrudens*, n. g., n. sp., colourless, highly metabolic, with two paired flagella, and an oval funnel: it multiplies by longitudinal fission and forms colonial cysts, MIEHE (261).

Description of a new Flagellate, appearing in two forms, one of which is not unlike a Trypanosome, and with flagellum and centrosome near the nucleus; from the gut of *Anopheles*. LÉGER (213) terms it *Crithidia fasciculata*.—Morphology of *Dinobryon* Ehrbg., LEMMERMANN (221).

Two forms of *Herpetomonas jaculum*, n. sp., occur in mid-gut of *Nepa*. One is the ordinary monadiform kind, in which LÉGER (212) is inclined to see a delicate digestive tube, starting from an anterior "buccal vacuole." The other is a gregariniform kind, which has lost most of its flagellum, and the remainder serves as an organ of attachment to the epithelial cells (analogous with the tactile rostrum of certain Gregarines).—General account of *Megastoma entericum* (Grassi), which possesses a long vibratile tail, 4 pairs of flagella, a nucleus divided into 2 halves, connected by a "central body," and another body of varying form and uncertain function, METZNER (258).—"Double" nature of the cell in *Trepomonas agilis*, with duplicated flagella, "mouth" and nucleus. DANGEARD (80) is uncertain whether the condition results from a primitive division, or from incomplete fusion of two individuals, but considers that it is transmitted to succeeding generations. He compares it to the condition in *Amœba binucleata*.—Description of *Trichomonas hominis*, n. var.?, PROWAZEK (304).

Morphology of: Trypanosomes of Fishes (including *Trypanoplasma*, a biflagellate Trypanosome), LAVERAN & MESNIL (196); *Trypanosoma brucei*, occurrence of "plasmodial" and "amœboid" stages, BRADFORD & PLIMMER (40); LAVERAN & MESNIL (197), however, believe that these plasmodial forms, and the flagellate amœbulæ arising from them, are only involution phases appearing in unfavourable conditions, which they term "agglomeration" and "agglutination" forms.

Morphological distinctions between: *T. brucei* (Nagana), and *T. equinum* (= *T. equina*) (Mal de Caderas), LAVERAN & MESNIL (203); *T. brucei* and *T. lewisi*, BRADFORD & PLIMMER (40); and *T. theileri* and *T. transvaaliense*, n. sp., LAVERAN (190).—*T. theileri*, n. sp., the largest known species, BRUCE (46); *T. gambiense* n. sp., the smallest, DUTTON (94 A).

Account of: *T. equina*, n. sp., VOGES (403); *T. lewisi* of sewer-rats, biologically treated, JÜRGENS (174); a Trypanosome from *Anguilla vulgaris* [probably *T. granulosum* Lav. & Mes.], SABRAZÉS & MURATET (327).

Description of a new sp. of *Peridinium*, distinguished by the absence of chromatophores and also of stigma, occurring in brackish water, LEVANDER (225); *P. alatum*, n. sp., characterized by three stiff transparent membranous wings, GARBINI (135).

General account of the Silicoflagellata, LEMMERMANN (222).

Morphology of the Coccolithophoridæ. The body is enclosed in three envelopes, most internally a delicate membrane, then a transparent gelatinous envelope, and externally the shell, composed of peculiar and varied calcareous plates, the Coccoliths. The cell-body possesses a nucleus, one or two flagella, and two yellowish chromatophores, each of which is accompanied by a strongly-refractile body, LOHMANN (231).

Infusoria:—Description of a new Infusorian, *Monomastix ciliatus*, with vibratile cilia and a whip-like flagellum, ROUX (321 & 322).

General account of:—*Anoplophrya circulans*, and *Hoplitophrya lumbrici*, from *Lumbricus*, BERTOLOTTI (30); *Herpetophrya astoma*, n. g., n. sp., a Holotrichous Ciliate lacking mouth and contractile vacuole, SIFDLEČKI (359); the family *Halterina* Clap. & Lachm., AVERINTZEV (12); *Stylonichia pustulata*, (encystment), and also of *Oxytricha pellionella*, PROWAZEK (300).

Notes on *Phacodinium muscorum*, a new Hypotrichous Ciliate, PROWAZEK (301).

2. Minute structure of cell-organs.

(a) Membrane, test, shell:—PENARD (286) does not agree with Rhumbler in supposing that growth of the shell takes place in various *Thecamœbidæ* (*Testacea*), at any rate to any appreciable extent.—Structure and composition of shells of *Arcella vulgaris* and *Cyphoderia margaritacea*; the former is composed not of hexagonal prisms, but of round pieces, lying on a structureless membrane, the latter consists of ellipsoid elements, so arranged as to appear hexagonal, AVERINTZEV (9).—Structure of the calcium carbonate in the shells of Rhizopods (Foraminifera), AVERINTZEV (11).—Imperforate or porcellanous shell of Foraminifera, probably of *conchite*, CHAPMAN (61).—An inner or "float" chamber inside the external or balloon chamber of *Cymbalopora bulloides*, EARLAND (95).—Comparison of mode of growth of test in *Textularia* and *Spiroplecta*, WRIGHT (418).—On the structure of the shells of various *Orbitolinidæ*, EGGER (98).

Twinned-shells, "twins," in *Orbitolites duplex*, full account, RHUMBLER (314).—These are to be distinguished from the "pairs" or couples which fuse when adult, (plastogamy) as in Patellina and Discorbina, and in which no further common additions to the shell are formed. In a "twin," after the two individuals have united, subsequent shell-formation proceeds in either of two ways. The *univalent* mode is characterized by the fact that the "postjugally"-formed chambers are quite normal in arrangement, and the whole shell is only to be distinguished from that of a single individual, by the presence of two "primitive discs" instead of one, either in contact or separated by a few rows of "præjugally"-formed chambers. This method results when young individuals ("Erstlinge") unite, which are not yet forming complete rings of chambers, but only crescentic ones ("Erstlingskammern"), and when they unite by the *non-growing sides* which have not yet commenced to secrete shell. When, on the other hand, the uniting individuals are apposed (and unite) by their *growing sides* (whether they are only forming crescentic or complete chambers), the *bivalent* mode results. This is distinguished by the presence of a raised wall (the "Stauwand") which stands out from the plane of the shell, and marks the junction of the two halves; the cause being that the extending "protoplasmic-masses" mutually press against each other, and since the individuals are fixed, they cannot move apart, and therefore the new growth is forced upwards out of the common plane. Among other points brought out are (*a*) that the nuclei play no directing or controlling part in the process, but solely a material-supplying rôle is ascribed to them, and (*b*) that "twins" are formed indifferently by megalo- or micro-spheric forms or both. A lengthy explanation on developmental-mechanical grounds follows, RHUMBLER (314).

The constancy of the "homologous marginal angle" of the polythalamous

Foraminiferan shell (which is shewn), as an argument for the fluid nature of the protoplasm and at the same time as contributing to the "developmental-mechanics" of the shell. This constancy leads RHUMBLER (315) to the conclusion that "the entire form-modification of Foraminiferan shells is due to a direct or indirect (sandy shells) separation-product of a fluid which is not internally homogeneous, but rather heterogeneous and with heterogeneous strains or tensions acting on the surface. This heterogeneity is different for different forms, but the same, or at least very similar, for the individuals of any species." Another postulate of RHUMBLER's (315) which experiment proved to be true and thus confirmed his conclusion (see above) was "If the protoplasm is of a fluid nature, it must extend or spread itself out, on touching the upper surface of the water." This he shewed to be the case in *Amœba limicola.*

The so-called Acanthin skeleton of *Acanthometridæ*, said to consist of a calcium-aluminium silicate, not destroyed by strong heating. Contractile elements or "myonemes" in *Acanthophracta*, as well as in *Acanthometra*, SCHEWIAKOFF (338).—Occurrence of silicious needles in *Thalassophysa*, *Thalassopila*, and *Pachysphæra*, n. g., BRANDT (41).

The membrane surrounding *Sarcocystis tenella* is two layers thick, the outer one consisting of two substances, a fundamental, achromatic, flexible ground-work which may disintegrate, leaving the other, a stainable substance in the form of irregular prisms, to simulate a covering of cilia thus giving the characteristic striated appearance, VUILLEMIN (407).

Presence of a net-like envelope or sheath with hexagonal pores in *Synura uvella.* At the nodes of the reticulum are minute thorn-like processes, anteriorly directed, AVERINTZEV (9).

The enclosing skeleton in the Silicoflagellata is either of hollow silicious rods (Siphonotestales) or of solid ones (Stereotestales), LEMMERMANN (222).

Minute structure of the "coccoliths" composing the shell in the Coccolithophoridæ. There are two principal varieties (*a*) unperforated forms, and (*b*) coccoliths with the "basal plate" always perforated. Here [as in the Silicoflagellata], this peculiarity of the hollow or solid nature of the skeletal constituents forms the primary basis of classification, LOHMANN (231). [See II. E.]

General structure of Coccoliths and Rhabdoliths, VOELTZKOW (401).

(b) Nucleus, cytoplasm, etc.:—Harper does not agree with Rosell that there are two different kind of nuclei in *Fuligo varians*, the so-called differences only being due to fixation, PAMMEL (280).—*Dictydium* characterized by its bluish colouring matter, and its "dictydin" granules, chemically extremely resistant, which are held to be byeproducts of metabolism—perhaps analogous to the refractile bodies in Pelomyxa; very minute nuclei, JAHN (166).

Comparative account of the nucleus in the Lobosa, PENARD (289).

Comparison of the nuclei of Amœbæ and other unicellular animals, with those of Metazoan and plant cells. FEINBERG (108) is unable to distinguish any nuclear reticulum in the nuclei of unicellular animals, by the use of Romanowsky's stain, and infers that in these the chromatin is all contained in the "nucleolus."

Chromatic grains in protoplasm of *Actinosphærium eichhorni*, termed *chromidia.* In monothalamous Rhizopods, there is a diffuse layer containing nuclear substances, the "chromidial network" (*Arcella*, *Difflugia*, *Euglypha*), which at certain times (during division) alone represents the nucleus. Moreover, in many Protozoa (Ciliata) the protoplasmic network may be said to consist of achromatic material, with which chromatin is intimately united. From a consideration of the nuclear changes and divisions in *Actinosphærium*, the following idea of the relation between chromatin and nucleolar substance is obtained; chromatin, arising from the protoplasm, is condensed and therewith organized, in the nucleolar-

substance. To form chromosomes, a certain quantity of nucleolar-substance is necessary. What is over forms nucleoli. [See also II, D, 3.] HERTWIG (153).—After an able review of Protozoan organisation as a whole, the author maintains that it "affords strong evidence that [in this group] a coherent protoplasmic mass is a single organic unit, whether uni- or multi-nuclear. The latter condition does not modify the functional unity nor cause any increase in vital activity. The possibility of differentiation in multinuclear cells remains within the narrow limits of that in a uninuclear cell. Only when division extends to the protoplasm, leading to the production of many distinct and independent entities, can development be in a new and higher direction," HERTWIG (153).

Cytoplasmic distinctions between male and female schizonts in *Adelea*, SIEDLECKI (359A) and *Cyclospora*, SCHAUDINN (335); also between male and female crescents in *Plasmodium vivax*, SCHAUDINN (336). According to SCHAUDINN (336), the ring-form of the tertian-parasite is due to a vacuole, nutritive in function, which increases rapidly with the growth of the schizont; according to ARGUTINSKY (5) it is artificial and due to the fixatives used.—Distinction of a "small-ring" stage from a "large-ring" stage in the early growth of schizonts of *Laverania malariæ*, MAURER (250).

Curious refractile granules in Trypanosomes, SCHILLING (339) p. 454.

Herpetophrya astoma, n. g., n. sp., possesses a forwardly directed pointed prolongation, like a little beak, SIEDLECKI (359).

CONTE & VANEY (70) describe a single nucleus in *Opalina intestinalis*, which (rarely) divides into macro- and micro-nucleus. They say that what are often taken for many true nuclei are only spherules emitted from the nucleus, which gradually lose their chromaticity and dissolve up, and are to be regarded as ergatoplasmic formations such as are found in secreting cells, eggs ("yolk-nuclei") etc.—Reticular structure of the ectoplasm in *Opalina dimidiata*, KUNSTLER & GINESTE (181).—Minute structure of the ectoplasm and the trichocysts in *Paramœcium aurelia* Ehrbg., KÖLSCH (178).—Expulsion of the trichocysts in *P. aurelia*. These organs appear as refringent vacuoles, and the opinion is expressed that they contain a drop of liquid, which is expelled as a fine jet, and immediately solidified, MASSART (249).—Varied structure of the nucleus and degeneration processes in *Euplotes*; curious diminution-process of the cell body, PROWAZEK (302). Protoplasmic contents in Protozoa generally, id. (301).

Mega- and micro-nuclei of Dendrocometes, detailed account of:—special "conjugative" process of the cytoplasm; HICKSON & WADSWORTH (158) conclude their paper with the no less remarkable statement than comparison, that "the body of a *Paramœcium* or of a *Dendrocometes* is no more a single independent cell than is the embryo-sac of an Angiosperm plant." [Contrast HERTWIG (153) above.]

(c) Organs of attachment and locomotion:—*Amœba comminuens*, n. sp., characterized by its peculiar pseudopodial formation, which takes place so suddenly that the Amœba appears to break up in rounded pieces—really the eruptive spherical pseudopods which only remain attached by a short delicate stalk. The parts appear to "fall together" again on the retraction of the pseudopods, RHUMBLER (315).

Complicated structure of the protomerite of *Pterocephalus nobilis*; description of this and of the attaching organs of other Gregarines, LÉGER & DUBOSCQ (218).—Attachment of *Myxidium lieberkühnii* to the bladder of the pike by an adherent "sole," which appears vertically striated, due to the presence of a number of brush-like hairs (stiff "cilia"), lodged in the ectoplasm. PRENANT (296 & 297) does not consider these latter of a pseudopodial nature, but rather as caused by a protoplasmic accumulation in the zone of attachment, which undergoes a vertical striation, the rodlets finally separating as the distinct hairs. [More like the process occurring in *Sarcocystis tenella*, see VUILLEMIN (407).] Mor-

phologically, they have no connection (any more than have osteoclasts, or cells of the chorial syncytium where the same process occurs) with the ciliated "face" of epithelial cells, PRENANT (296, 297).—Besides the two usual polar filaments, COHN (67) describes two stiff threads as being ejected from the spores of *Sphærospora masovica* on the opening of the valves.

The "middle" flagella of *Megastoma* are more locomotor in function than the "tail." At the base of all the flagella there is a tiny granule or rodlet, the "Geisselwurzel," from which a continuation of the flagellum passes inwards into the cytoplasm. These continuations lead to the "central body" between the two nuclear halves, and METZNER (258) compares the whole to a reflex nervous system, the principal motor-nerves being the strands to the "middle" flagella—the others being more perceptive. Locomotor apparatus of the zoospores and gametes of *Polytoma uvella*. A granule, the blepharoplast (slightly chromatic), lies at the base of the two flagella and from this there passes inwards towards the nucleus a chromatic thread, the *rhizoplast*, which sometimes has another swelling, the *condyle*, at its nuclear termination, DANGEARD (81).—The distal tapering end in *Trichomonas hominis*, serves as a kind of pseudopodial attaching process, along which knot-like swellings of the protoplasm slowly move, PROWAZEK (304).—Attaching organ of *Herpetomonas*; [see II, A, 1.]

Cirri of Euplotes, and the fibrillar threads connected to them, PROWAZEK (302). Structure of flagella, cilia, etc. in Infusorians, id. (301).—Structure of the tentacles of the Acinetarian, *Choanophrya* (n. g., for *Podophyra* (?) *infundibulifera* Hartog); when active, they expand distally into wide, open funnels, HARTOG (151).

B. PHYSIOLOGY.

1. Nutrition, excretion, osmosis, etc.

Digestive processes in Amœbæ; MOUTON (269) isolated individuals and placed them together with *Bacterium coli*. By means of its contractile vacuole, the amœba agglutinates the bacteria, and so injests them. Mouton also obtained from cultures a proteolytic ferment analogous to trypsin.—Leucin-cystals in *Amœba proteus*, their formation in food-vacuoles; relation of neutral-red to the living cytoplasm, loose combinations being formed, which the metabolic activity more or less rapidly breaks up, STOLC (385).

Modes of nutrition of growing Gregarines; the frequency with which secretion and alteration products in intestinal cells simulate Gregarines, LÉGER & DUBOSCQ (218).—Nutrition of *Monocystis ascidiæ* in the extracellular stage accomplished by a tiny hyaline pseudopodium at the anterior end, closely applied to intestinal cell. Perhaps the "fixative filaments" of *Pterocephalus* have also a nutritive function, SIEDLECKI (357).—In the case of *Caryotropha mesnilii* nutritive products pass from the host-cell nucleus to that of the parasite, SIEDLECKI (358).

Digestion in Infusoria, METALNIKOFF (257).—Artificial stimuli (change of diet, mechanical agitation, change in temperature), can be made to counteract the degeneration-tendency in *Paramœcium* and bring about rejuvenescence, CALKINS (50).—Physiological degeneration in *Paramœcium* probably due to the wearing out of the digestive function, as the ferment-forming activity becomes weakened. Certain chemical salts contained in the food-stimuli (e.g. beef-extract, extract of sheep's pancreas etc.) supplied, restore this activity and increase the general vitality, id. (51), also CALKINS & LIEB (53).—In starving *Paramœcia*, the chromatin of the nucleus is increased at the expense of the cytoplasm. Apparently material usually required in the performance of the vital functions, is passed on to the nucleus instead, HERTWIG (153).—Cell-changes in hungering *Paramœcia*

and *Colpidia*, gradually leading to death. The micronucleus is the last to be affected. Conversely, in the reorganizing process (if starvation has not been carried too far to allow of this), the nucleus rapidly regains its normal condition and faculty for division, WALLENGREN (408). Nutrition and excretion in *Stylonichia*, pp. 234–238, PROWAZEK (300).

Dendrocometes, peculiar among Infusoria, in feeding while conjugating, HICKSON & WADSWORTH (158).—In *Choanophrya* the food particles are sucked into the open funnel of the tentacle while a short distance off, probably by means of a diffusion current caused by the secretion of substances of high osmotic value; this is possibly the case in most Suctoria, HARTOG (151).

Osmotic experiments on Infusoria; difference between osmosis and absorption, ENRIQUES (102).—Osmotic experiments on *Oikomonas* and *Colpidium colpoda*, ENRIQUES (101).—Change in volume of various Infusorians on transferring them to a medium of different tonicity; ENRIQUES (100).—Attempts to transfer *Chilodon* and *Euplotes* from salt- to fresh-water, ENRIQUES (103).

Different types of marine illumination caused by phosphorescence in *Noctiluca miliaris*, WEITLAUER (411).

2. Locomotion, and response to stimuli.

(a) Movements, etc.:—Amœboid movement in various Rhizopods; also flagellar and ciliary movement in Infusorians, PROWAZEK (301).

Gliding movements in *Stenophora juli* and *Echinomera hispida* are of two sorts: one, contractile, explainable by the myocyte-layer of the body, but the other—the purely gliding one—is due to a cause not thoroughly understood. CRAWLEY (73) casts doubt upon Schewiakoff's suggestion that progression is by means of extended gelatinous fibres, and substitutes a rather complicated one, based on the presence of the well-marked muscular layer, and the sticky nature of the animals. He concludes that "in general, throughout the Sporozoa, the possession of muscle-fibres, and the power of moving from place to place go hand in hand."—Rapid movement, change of shape and pseudopodial formation in *Sphærospora masovica*, COHN (67).

"Screwing" movement in the spores [i.e. gymnospores] of Sarcosporidia of mice (*Sarcocystis muris*), KOCH (177) and SMITH (367).

(b) Vital processes; chemical stimuli:—

Although conjugation can be induced by hunger in *Stylonichia*, PROWAZEK (300) thinks that the principal cause arises from internal conditions, whereas cyst-formation is the result of unpropitious external circumstances.—Experiments on the continuation of the vital processes in enucleated portions of *Infusoria*, especially on the presence therein of free oxygen, and their oxidising capacity, id. (305).

Action of anti-periodic drugs on the malarial parasite, LO MONACO & PANICHI (233 & 234).—Effects of different chemicals on the *Trypanosoma* of Nagana; serotherapeutic experiments on the same; arsenious acid and human serum appear to have a certain effect on the parasites, LAVERAN & MESNIL (198).

Influence of anæsthetics on *Vorticella microstoma*; protoplasmic alterations, STEFANOWSKA (376).—Effects of: arsenic anhydride and other chemicals in dilute solutions on *Stylonichia pustulata*, ZACHARIAS (427); "protoplasmic poisons" on *Opalina ranarum*, ZAHN (435) p. 156; concentrated chemical solutions on growth, multiplication, and chromatophore formation in different Infusoria and Flagellates, YASUDA (423). MINKEVICH (264) reviewing the paper, says that Yasuda has mistaken for *Mallomonas*, a sp. of *Cyclidium*, a Holotrichan, which much resembles it, and infers from this that the paper has no value.—Increase of toxicity of eosine and other substances, in strong light, on *Paramœcia*, LEDOUX-LEBARD (209).—Toxic effects of various blood-sera (from horse, ox, rabbit

etc.) on *Paramœcia*. Movements of the animals soon cease, and agglutination occurs, id. (208).

Reactions of various Infusoria to carbonic and other acids; their "chemotaxis" or "chemokinesis" (collection in the drop introduced, or not), JENNINGS & MOORE (170).

(c) Electrical, thermotactic stimuli, etc.:—The reactions of various Infusoria to the induction-current (solitary induction-discharges) may be summarized as the expression of indirect excitation of the motile organs, especially of those belonging to the peristome region, which possesses a high irritability towards the electric stimulus, ROESLE (318).—Galvanotaxis in Infusoria, studied on the positively galvanotactic ("anodic") *Opalina ranarum*, and on the negatively galvanotactic ("kathodic") *Colpidium colpoda* and *Paramœcium caudatum*. If the "directive-cilia" work by means of the expanding-stroke, the Infusorian swims to the anode, if by the contracting-stroke, it is driven to the cathode. No different polarity in the anodic and cathodic forms need be assumed, for the same excitation that sends *Paramœcium* to the cathode, sends *Opalina* to the anode. Thus there are not two forms of galvanotaxis, since they are only apparent, owing to the different mode of action of the directive-cilia in different cases, WALLENGREN (409).

Effect of Röntgen-rays on *Paramœcium* and *Volvox*. The vital functions suffer injury and (in *Paramœcium*) the contractile vacuole empties itself more slowly and less often. *Paramœcium* and *Volvox* are negatively tropic to the rays, JOSEPH & PROWAZEK (173).

Thermotactic experiments on various Protozoa; MENDELSSOHN (254–256) arrives at the conclusion that "locomotile orientation in thermotaxis results from the action of a difference of intensity of the thermal irritant on the unicellular organism and is in relation with the vital energy of the locomotile organs."—In *Monas* reduction of the temperature brings about the formation of many small spores, each of which, on again raising the temperature, gives rise to a motile individual; variation in temperature controls method of reproduction, GREELEY (147).—Lowering of the temperature brings about, in Stentor, certain definite morphological changes, and not simply a suspension of the vital activities; these result in formation of a spherical cyst and a resting stage; hence the effect is similar to that caused by a loss of water, GREELEY (146).

Effect of pressure on the cytoplasmic structure in *Paramœcium*, *Bursaria*, *Prorodon*, *Balantidium*, *Opalina* and allied Ciliates; action of indifferent salts, acids and alcohol, and other varied chemical and electrical treatment, KÖLSCH (178).—Effect of various stimuli on fixed Infusoria. The animals were found to become accustomed to repeated mechanical stimuli. Whether they react to it or not, and how, depends upon previous subjection to this stimulus. If the stimulus continues, a not invariable series of reactions is given, each adapted by a different method to getting rid of the stimulus, JENNINGS (168).—Thigmotropic experiments on *Euplotes*; effect of, on the protoplasm, PROWAZEK (302).

In various Ciliates studied, the movements, and reactions to stimuli, of pieces of the organisms, are essentially similar to those of the entire animal. The different varieties of movement are, further, not due to any particular set of cilia, but to the peculiar (one-sided) method of striking which these all possess, JENNINGS & JAMIESON (169).—The entire reflex action, from excitation to extrusion of the trichocysts, in *Paramœcium* termed "*bolism*," thus we get *thermobilism*, *chemobolism*, etc. from the exciting agent, MASSART (249).

Working of the myonemes and hydrostatic apparatus, in response to stimuli in *Acanthometra* and *Acanthophracta*, SCHEWIAKOFF (338).

Experiments on the effect of darkness on *Zoochlorellæ* symbiotic with *Stentor* and *Difflugia*, AVERINTZEV (8).

C. Bionomics.

1. Plankton.

Plankton from: Faröe Channel and Shetlands, including many new Radiolarians, Wolfenden (413); North Sea and Skagerack in 1900, seasonal distribution of Ciliata, Radiolaria and Dinoflagellata, Cleve (66); Cattegat and Baltic Sea, Dinoflagellata and *Tintinnidae*, Apstein (4); inland Norwegian Lakes, Dinoflagellata, Huitfeldt-Kaas (161); environs of Bologoé (Novgorod), *Difflugia planctonica*, n. sp., and *Acanthocystis setifera*, n. sp., Mīnkevīch (265); the Volga, near Saratow, several Phytomastigina, Zykoff (440 & 441), and, various Protozoa, id. (439).

Pinaciophora fluviatilis is reckoned as *autopotamic*, and only occurs besides in the Rhine. *Tychopotamic* are various spp. of Difflugia, Vorticella, most Suctoria etc. As a whole the Volga potamo-plankton is rich in Heliozoa, Zykoff (439).

Protozoan plankton of the Moskwa river arranged according to occurrence in flowing or stagnant water, Rossinski (320).

Plankton from: Caspian Sea, various, Ostenfeld (277); bay of Sévastopol, incl. *Pirophacus horologium* St. rare, Mīnkevīch (266); rivers Schoschma & Wjatka near Kasan, Zernow (437); Adriatic sea and Dalmatian waters *Peridinidæ*, Radiolaria and Foraminifera, Car (55); Gulf of Trieste, periodicity of, Steuer (380).

The *Coccolithophoridæ* as plankton-organisms in the Mediterranean. Bathymetrical distribution off Syracuse and other places, Lohmann (231). [For ingenious method used to obtain them see II, F, 2.]

Plankton from: lake of Monate, Garbini (135); Lake Achen in the Tyrol, distribution and periodicity of, Brehm (44); Schwarzsee near Kitzbühel in the Tirol, with frequently the Ciliate *Trachelophyllum apiculatum*, Zacharias (431); lakes in Pomerania, and lake Dratzig, Voigt (406); great lake of Plön, various Ciliates, Voigt (404); Lake Erlauf, period of occurrence of *Dinobryon* spp. in, Brehm & Zederbauer (45); tributary of Moldau, in potamoplankton, *Oxytricha pellionella* and *Stylonichia pustulata*, Prowazek (300); Lakes of Schön and Schluen, Zacharias (433); Lake Aber or Wolfgang, time of occurrence of various Dinoflagellata and *Vorticella*, sp., in, v. Keissler (175); Lake of Alt-Ausser, various Dinoflagellata, v. Keissler (176); Lake of Neuchâtel, including *Stentor polymorphus*, for the first time from the pelagic zone of a large lake, Fuhrmann (132).

Horizontal and vertical distribution of Protozoan plankton from lake of Zürich, Lozeron (237).

Atlantic Plankton with many new Tripylaria, Borgert (27).

The Silicoflagellata are true plankton organisms: the peripheral spines of the skeleton seem to be longer in cold than in warm waters. Forms from Pacific plankton, Barbados and elsewhere, Lemmermann (222).

Plankton from: Red Sea and Gulf of Aden, with new *Ceratia* and *Cytturocyclis*, Ostenfeld & Schmidt (278); Indian Ocean, Thompson (388); Indian Ocean and Malay Archipelago, new Radiolaria, Cleve (65).

Phenomenal occurrence of *Gonyaulax* on the Californian coast, turning the water red by day and phosphorescent by night, Torrey (389).

Colouration of standing water (in shallow easily-warmed ponds), owing to the rapid multiplication of various Flagellates, Zacharias (428 & 430).

2. Parasitism, effects on host: relation to disease.

For infection, transmission, see II, F, 1.

Relation of parasitic Protozoa to various diseases, Doflein (88).

Gregarinosis:—Effects of *Monocystis ascidiæ* on the intestinal epithelium of host; intra-cellular stages of the same. Relation of the

pseudopodial filaments of *Pterocephalus* to the endothelial cells of the gut ;—inter- not intra-cellular, SIEDLEČKI (357).

Reciprocal relations between growing Gregarines and the host-cells; effects on the latter and their reactions. A polycystid Gregarine entirely intracellular, even in the adult stage, in the intestinal epithelium of *Polyxenus lagurus*, LÉGER & DUBOSCQ (218).

Coccidiosis:—Hypertrophy of spermatogonial cells containing *Caryotropha mesnilii*; diffusion stream between the nucleus of the host-cell and that of the parasite, SIEDLEČKI (358).

Coccidium faurei, n. sp., causes progressive pernicious anæmia, sooner or later ending fatally, in the Sheep, MOUSSU & MAROTEL (268).—Lesions produced in the liver and bile-ducts of the rabbit by *C. oviforme*, TYZZER (395).—*C. mitrarium*, extracellular, and probably derives nutriment from the endothelial cells of its host (*Damonia*) by pseudopodia, in a gregarine-like manner, LAVERAN & MESNIL (202).—*C. ranarum*, n. sp., intra-nuclear parasite of the gut of *Rana esculenta*, LAVERAN & MESNIL (206).

Cyclospora caryolytica is an intranuclear parasite of the intestinal epithelium of the Mole, producing enormous hypertrophy of the nucleus, and atrophy of the host-cells. Rapid endogenous multiplication causes pernicious enteritis, which usually ends fatally, SCHAUDINN (335).

Isospora [*Diplospora*] *lieberkühni*: effects on kidneys and other organs of *Rana esculenta*, LAVERAN & MESNIL (200).—Intra-nuclear habitat of *I. mesnili*; action on nuclei of the intestinal epithelium, SERGENT (354). *Klossiella muris* from the renal epithelium (both tubules and Bowman's capsules) of the mouse. The cells of the tubule containing the parasite swell up and occlude the lumen, SMITH & JOHNSON (368).

Legerella testiculi does not ordinarily affect spermatogenesis in *Glomeris*; only in the rare case of total invasion of the organ, does castration result, CUÉNOT (75).

Haemosporidiosis:—[NOTE. Many of the following papers, referred to generally, the Recorder has not seen.]

Malaria in general:—BRADDON (39), CALMETTE (54), DIONISI (84) and, of bats, (85), FICALBI (115), GUIART (148), GRASSI (143), KUNST (179), McELROY (252), PLEHN (293), RUGE (324), SCHOO (342–344), SCHUFFNER (349), v. SCHULTHESS-RECHBERG (350), and TROLARD (392).

Malaria and Mosquitoes: BORDI (26), BRUMPT (47), D'ESPINE (104), EYSELL (105), GALLI-VALERIO (in Canton Vaud.) (133), LEVICK (226), MEISENHEIMER (253), REES (310), SAMBON & LOW (330), WRIGHT (416), and ZIEMANN (438); in Algeria, BILLET (21 & 22), SOULIÉ (369); in Madagascar, LAVERAN (193); in Corsica, DE BASTELICA (15), BATTESTI (16) [*Anopheles maculipennis* = *A. claviger* Gr. & Fic., the principal propagative agent or definitive host], BELVAL (18), BOYER (38), and MICHON (260); and in Japan (Jeso Island), TSUZUKI (393).

Malaria in Algeria of two classes: (1) cycle æstivo-autumnal or primary malaria, and (2) cycle hiberno-vernal, or secondary malaria, which BILLET (20) thinks are both caused by different cycles of the same parasite, the one, the former, chiefly sexual, leading to the formation of crescents, the latter, chiefly asexual, or schizogonous, and constituting "recurrence." He doubts the specificity of the æstivo-autumnal (comparable to the pernicious) parasite (at all events for Algeria) but believes in the distinction between the tertian and quartan ones, which both have an æstivo-autumnal cycle—the first to occur in a fresh subject, BILLET (20).

The recurrence of tertian-fever is due to macrogametocytes "casting-back" to schizonts and recommencing merogony, SCHAUDINN (326); same explanation for malarial recurrence in general, GRASSI (144), contrast BILLET (20) above.

Actual penetration of sporozoites of *Plasmodium vivax* into the blood-corpuscles observed, SCHAUDINN (336). Appearance of spots in the

erythrocytes, a certain diagnosis of the pernicious parasite, MAURER (250).

Effects on blood-corpuscles of the Lizard, due to *Karyolysus lacertarum*, MARCEAU (243).

Piroplasmosis:—in Algeria, CLAUDE & SOULIÉ (64) and TRABUT (391); red water in Rhodesia, GRAY & RORERTSON (145); NOCARD & ELMY (275); NOCARD & MOTAS (276); ROBERTSON (317); and, Texas-fever compared with human diseases, SAJO (328).

Clinical characters and pathology of canine piroplasmosis, NOCARD & MOTAS (276); and of "Tristeza," LIGNIÈRES (227).

Myxosporidiosis:—The "Pockenkrankeit" of carp, HOFER (160) and LÜHE (241). *Henneguya zschokkei*, causes superficial swellings or pustules in *Coregonus* sp., FUHRMANN (131). In the intestine of the Plaice JOHNSTONE (172) describes a Sporozoon parasite [a *Glugea*], which quite fills up the sub-mucosa, in the form of masses of spherical spore-containing cysts, simulating an ovary. No trace of the mucosa is left.

Sarcosporidiosis:—*Sarcocystis muris* in mice, fatal effects of, KOCH (177); the parasites rapidly overrun the entire muscular system, SMITH (367).

Trypanosomosis [Note. Of the various names proposed for diseases due to Trypanosomes, e.g. *trypanosomiasis*, *trypanosomatosis*, and *trypanosomosis*, the Rec. chooses the last, proposed by BRUMPT (47) as agreeing with the nomenclature accorded to other Protozoan diseases]:—Trypanosomosis in general, BLANCHARD (24), THEILER (387), and WASIELEWSKI (410).

Distribution of the four chief varieties of trypanosomosis (Nagana, Dourine, Surra, and Mal de Caderas), shewn by a sketch map, LAVERAN & MESNIL (207); besides Dourine, caused by *T. equiperdum*, BUFFARD & SCHNEIDER (49) affirm the existence of another trypanosomosis in Algeria (probably Nagana or Surra); Surra in German East Africa (Togo, Atakpame etc.), SCHILLING (339) and STUHLMANN (386); Surra and allied diseases and Trypanosomes, SALMON & STILES (329).

General account of Nagana, occurrence, transmission, pathology, etc., and comparison with Surra, Dourine, etc., LAVERAN & MESNIL (197); comparative summary of the chief diseases and their parasites, id. (207).

A variety of trypanosomosis termed locally "*aino*" (after the fly, allied to, if not identical with, *Glossina morsitans*, which carries the malady) is caused in Central Africa by a new sp. of *Trypanosoma*. BRUMPT (47) further describes ineffectual therapeutic and serapeutic remedies tried.

Pathological effects of *Trypanosoma brucei* (the Nagana parasite) on the rat and mouse, and its distribution in the various organs, BRADFORD & PLIMMER (40).—Human serum injected into rats or mice suffering from the Tse-tse fly disease (Nagana) destroys the parasites. The serum further seems to produce a certain degree of immunity, LAVERAN (189); further immunisation experiments, LAVERAN & MESNIL (198) [see II, B, 2], also SCHILLING (339).

T. equina n. sp. causes "Mal de Caderas" (hip-paraplegia) of horses in South America, and is also fatal to dogs, sheep etc., but *not* cattle, which are immune, VOGES (403); animals immunized against Nagana are still liable to Mal de Caderas, and their serum has much less action on *T. equinum* [= *T. equina*], and *vice versa*, LAVERAN & MESNIL (203); moreover animals resisting Dourine, are not immune to Nagana, LAVERAN & MESNIL (207).

Clinical characters of human trypanosomosis in Gambia, caused by *T. gambiense*, n. sp. are chronic, irregular fever, wasting, œdema, splenic enlargement, etc., DUTTON (94A). [For the discoverer of Trypanosomes in man, see II, F, 3.]

Whereas LAVERAN & MESNIL (Zool. Rec. 1901, No. 134) think that

multiplication of the *T. lewisi* of rats goes on chiefly in the peritoneal fluid at first, after peritoneal injection, and that subsequently the forms pass into the blood—disappearing from the body cavity—JÜRGENS (174) maintains that multiplication is not active in the cœlomic fluid—the blood being the best medium for the process—but on the contrary many of the parasites remain in the peritoneal fluid the whole time the infection lasts. It is noteworthy that in their recent paper on *T. brucei*, LAVERAN & MESNIL (197) say nothing about multiplication in the cœlomic fluid, the parasites passing as quickly as may be into the blood.

Pathogenic effects of *T. theileri* n. sp. on cattle; the parasite appears harmless to other animals, horse, dog, rabbit etc., which are immune, BRUCE (46) and LAVERAN (188); it causes "Galziekté" (bile disease) in the Transvaal, and is occasionally associated with *Piroplasma bigeminum* in the blood, LAVERAN (190).

If Trypanosomes in Fishes are at all pathogenic they are so only in a very slight degree, LAVERAN & MESNIL (196 & 199); frequency of Trypanosomes in sewer-rats at Bordeaux, BUARD (48).

Protozoa and other diseases:—Amœbic-dysentery; EBSTEIN (97); in East Prussia, JAEGER (164); UCKE (396); and GOLDSMITH (140). *Amœba dysenteriæ* Lösch is the cause of amœbic-dysentery, not *A. coli* SHIGA (355).

Relations between *Physarum leucophæum ferox*, and various yeasts (e.g. *Mycoderma cerevisiæ*, *Saccharomyces apiculatus*), causing fermentation in fruits. If the Mycetozoan gains the ascendency it devours and dissolves up the yeast-cells; if these obtain the upper hand the Myxamœbæ either die off, or form protective resting-cysts, CHRZĄSZCZ (63).

On the cause of Cabbage-Hernia, *Plasmodiophora brassicæ*, FEINBERG (106 & 112).

Chitonicium simplex, a new Sporozoan (?) parasite, completely destroys the epithelial cells of the mantle cavity of Chitons, which it invades, PLATE (292).

An intra-nuclear parasite in *Euglena deses*, causing caryotrophy ("Caryophysème"); it is of a bacterial nature, allied to *Ascococcus billrothi*, and designated *Caryococcus hypertrophicus*, DANGEARD (79).

Balantidium coli, in the gut of man, tends to increase diarrhœa and catarrh and prevent recovery, COLLMANN (69).

An American case of infection with *Lamblia duodenalis*, STILES (384); *Lamblia intestinalis*, fatal to rabbits; the relation of flagellate and encysted stages to diarrhœa and constipation, PERRONCITO (290).

Chilodon cyprini, n. sp., only attacks carp already unhealthy; it seems unable to live either separately or on healthy fish, MOROFF (267).

Increase in toxicity of various sera (of rabbit, guinea-pig, etc.) for *Paramœcia*, after injection of cultures of the Infusorian. Remarkable specificity of the antiparamœcic serum, LEDOUX-LEBARD (210).

DALGETTY'S (77) ciliated organisms in rhinorrhœa, thought by Lühe (in the abstr.) to be only ciliated epithelial cells.

Occurrence of unicellular organisms, quite distinct from the tissue cells, each possessing a doubly-contoured membrane and a "vesicular" nucleus, in cancers; they are distinguished by Romanowsky's stain from the surrounding cancerous tissue, FEINBERG (107).—HERTWIG (156) having examined Feinberg's cancer preparations, shewing parasites, believes that these are not really distinct organisms, but only "vacuoles" sharply brought out by the differential staining. [See also PAPPENHEIM (281) in II, F, 2.]

Coccidian-parasite theory of cancer, BORREL (29).

Parasitic bodies (Sporozoa?) in the fluid from "lesions claveleuses," BOSC (31).

From the behaviour of various Sporozoa (especially *Monocystis*) injected into various organs of different animals, BOSC (32) comes to the conclusion

that their "evolutive" forms in the cells and tissues of the host are identical with the cell-inclusions in cancer and "clavelée."

RUGE (325) compares syphilis with malaria, and is of the opinion that the cause is a parasitic Protozoan.

Relation between malaria and cancer, and racial distinctions, KRUSE (182).

LAVERAN (194) very much doubts a Hæmatozoon being the cause of yellow fever. He has not found any Hæmatozoa in the blood of patients suffering only from this disease.

A case of "molluscum contagiosum" (an epidermal malady) caused by a Protozoan (?) parasite in *Discoglossus*, an Amphibian, MINGAZZINI (263).

D. REPRODUCTION.

1. Asexual: fission, schizogony, etc.

Sporangium and spore-formation in *Dictydium*; the spores do not appear to germinate, neither amœbulæ nor flagellate swarm-spores being known, JAHN (166).—Endogenous occurrence of embryonic Amœbæ in *Pelomyxa vivipara* described by PENARD (289), who is inclined to regard them as being formed from the "refringent bodies."—Reproduction of *Acanthometridæ* in two ways, (*a*) by spore-formation and (*b*) by budding, resulting in the production of two kinds of young forms:—from (*a*) large, uninuclear forms, with a well-developed skeleton, and from (*b*) small, multinuclear ones, with, at most, a very slightly developed skeleton, PORTA (294).

Peculiar colony-formation in *Thalassophysa pelagica* and *T. sanguinolenta*, commencing with rapid multiple nuclear division, amœboid changes in shape, and elongation of the central-capsular mass, accompanied by extension of the gelatinous layer; finally the now almost filiform central capsule, breaks up into pieces, of which there are at length several hundreds, around each of which, portions of the extra-capsular plasma and yellow cells arrange themselves. A "polyzoic" colony thus formed (which greatly resembles one of *Collozoum pelagicum*) may further break up into smaller colonies of varying size. Each individual has (usually) many nuclei, a central oildrop, an assortment of "yellow cells," and sends out pseudopodia on all sides which are in contact with those of other individuals and with the vacuolar walls. The individuals are slightly dimorphic. The process is held to replace both kinds of swarm-spore formation, and to represent a particular adaptation to life at the surface of the sea, since the jelly and extra-capsular mass are retained till the young individuals eventually pass out, BRANDT (41).

BERNDT (19), thinks that possibly Gregarines in the gut of *Tenebrio molitor* (larva), possess some method of endogenous multiplication.

Noteworthy in the schizogony of *Caryotropha mesnilii*, is the formation of many "*schizontocytes*," each of which gives rise to a "barillet" of merozoites; hence several barillets are formed in one schizont, SIEDLEČKI (358).—Schizogony in: *Coccidium schubergi*, of the rosette kind, with formation of indifferent merozoites, SCHAUDINN (334); *C. faurei* n. sp., the merozoites are far more numerous than in *C. oviforme*, MOUSSU & MAROTEL (268); *C. oviforme*, where two forms of merozoites described, probably, however, not [?] a result of precocious sexual differentiation, TYZZER (395).—In *Cyclospora caryolytica*, the schizonts are sexually differentiated extremely early, and give rise to male and female merozoites, SCHAUDINN (335): also in *Adelea ovata*, SIEDLECKI (359A).

Schizogony of: *Legerella testiculi*, CUÉNOT (75); *Laverania malariæ*, MAURER (250); *Lankesterella minima*, HINTZE (159).

Encystment in a blood-corpuscle (cytocyst) and "sporulation" [probably

schizogony] of *Karolysus lacertarum* in the Lizard. Formation of micro- and macro-"sporozoites" [probably merozoites], MARCEAU (243).

Multiplication by fission ("étranglement") in *Piroplasma canis*, giving the characteristic "pear-shaped" forms. NOCARD & MOTAS (276) also figure amœboid forms—with the nucleus fragmented, and the body very irregular and possessing flagella-like processes [possibly microgametes?].—LIGNIÈRES (227) on the other hand has followed various developmental stages of *P. bigeminum* in the Tick's stomach, and describes a multiple fission of the "karyosomes" [nuclei?] which form 3–5 little chromatic masses; the protoplasm does not segment around these, but they (probably each surrounded by a delicate protoplasmic ring) escape and become free, the mother-individual disintegrating. These little "spores" grow and give rise to more adults, thus serving as a means of endogenous reproduction in the tick. Lignières could see no sign of the pear-shaped forms, which characterize the parasite's multiplication in the blood of the Vertebrate.

"Multiple plasmotomy" or budding, as described by Cohn for *Myxidium lieberkühni* denied; endogenous reproduction stated to be by equal or sub-equal fission (simple plasmotomy) as found by Doflein in *Chloromyxum leydigi*, LAVERAN & MESNIL (205).—Endogenous reproduction, by division of young forms, in *Sphærospora masovica*; COHN (67) takes the opportunity also of reaffirming the occurrence of multiple plasmotomy in *Myxidium lieberkühni*, adding that the reason Laveran & Mesnil [205] were not able to find it, although quite little individuals were seen close to large ones, was because they only used preserved material, and *Myxidium* is very subject to contraction, when the thin connecting bridges rupture.

Asexual reproduction of "meronts" in *Thelohania mülleri* in a schizogonous manner, by rapid division, STEMPELL (377); also "sporonts" reproducing by spore-formation. Stempell homologizes these sporonts with the "pansporoblasts" of other Myxosporidia.

The initially formed cells in a young *Sarcocystis tenella*, become differentiated into two kinds, one set forming the pansporoblasts (balls of crescents), the other lot the "pale cells" which degenerate, VUILLEMIN (407).—Absence of polar capsule and no trace of a polar filament in spores [i.e. gymnospores] of *S. muris* from the mouse, KOCH (177), also SMITH (367). Wasielewski in discussion affirms extrusion of polar filament in spores [probably chlamydospores] of *Sarcocystis* of sheep and pigs.—Gymnospore-formation in *S. muris*; SMITH (367) holds that the partitions separating the "polyhedral masses" [pansporoblasts] are not ingrowths of the wall, but only the limits of these bodies themselves, the contents of which divide up to form the gymnospores.

COHN (68) thinks that endogenous reproduction takes place in quite young individuals of *Bertramia asperospora*, in a manner analogous to that in *Myxidium lieberkühni*, and indeed that Bertram's figg. of such forms shewing 2–3 nuclei with the protoplasm arranged round them represents this commencing,—on the ground that "sausage-shaped" adults, with many nuclei but no corresponding segregation of the protoplasm, occur. Only later do these adults form "spores." The spores themselves shewed two bright spots in the interior, but whether these represented nuclei or polar-capsules, they were too minute to determine.

The only observed method of reproduction in *Chitonicium simplex* is by fission; no spore-formation as in the Sporozoa, PLATE (292).

Longitudinal division in *Dinobryon*, LEMMERMANN (221).—Both varieties of *Herpetomonas jaculum* n. sp., multiply by longitudinal fission, LÉGER (212) & (214).—*Monas* multiplies by simple fission at a temperature of 20° C., and by asexual spore-formation at from 1°-4° C., GREELEY (144).—Multiplication in *Polytoma*, PROWAZEK (306).—Longitudinal division (and probably multiple fission leading to "colonial" stage) in *Crithidia fasciculata* n. g., n. sp., LÉGER (213).

Longitudinal division in :—*Trypanosoma remaki*, *Trypanoplasma borreli* L. & M., LAVERAN & MESNIL (196); short account, no figg., id. (199); *Trypanosoma brucei*, and subdivision of the "plasmodial" forms into small flagellate amœbulæ, which grow into the adult, BRADFORD & PLIMMER (40).—Division in *T. equinum* is very varied; VOGES (403) finds longitudinal division unfrequent, the commonest method being a transverse division into two or three. He also occasionally saw "segmentation,"—a multiplicative division of enlarged irregular forms, each resultant part acquiring a new flagellum. [This rather recalls Bradford and Plimmer's figures of the subdivision of plasmodial forms.] WASIELEWSKI (410) describes multiple fission ("à la rosace") in *T. lewisi* of the Rat,—agreeing with Laveran and Mesnil's (Zool. Rec. 1901, No. 134) account. [See also D, 4.]

The reproduction of the *Coccolithophoridæ*, appears to take place only by fission—in the principal axis. Chains may be formed from the resulting individuals not separating. A modification was found in *Syracosphæra dentata*, where the protoplasmic body had divided to form two complete individuals inside the large shell (termed a "macrotheca") which had not divided. Probably the daughter-individuals leave the shell naked, when they strikingly resemble ordinary phytoflagellates, LOHMANN (231). —On the multiplication of "coccoliths," by the formation of numerous "embryonal" coccoliths around the margin. Later the upper shell separates from the lower and the latter forms with the protoplasm the "coccosphere." The embryonal coccoliths then become free by the breakdown of the coccosphere, and gradually change into the adult form, [these results are all deduced from non-living material, and differ greatly from Lohmann's (231)], VOELZTKOW (401).

Herpetophrya astoma n. g., n. sp., reproduces by simple transverse division, SIEDLECKI (359).—Transverse fission in the Ciliates *Halteria* and *Strombidium*, AVERINTZEV (12).—Relation of binary fission to variation in *Paramœcium*, SIMPSON (364).—Fission in *Hoplitophrya* and *Anoplophrya*, also encystment, with multiplicative reproduction, BORTOLOTTI (30).—The gemmule of *Rhyncheta obconica* n. sp., is internal, oval, possesses a contractile vacuole, and is probably "peritrichous" like those of *Podophrya* and *Choanophrya*, HARTOG (151).

2. Sexual : Gametes and conjugation.

On the significance of fertilization :—conclusions largely arrived at from culture-experiments on *Actinosphæria* and Infusoria. HERTWIG (155) holds that it is a means to compensate the harmful working of the vital functions, and readjust the relations between the nucleus and protoplasm, which cell-activity upsets; in other words it strengthens the regulating influences, and is the more necessary, the more vigorous the vital activity. This theory, he thinks, has more to support it than either the "amphimixis" theory of Weissmann, or that of "rejuvenescence" (in the sense of fertilisation causing a more rapid multiplication), reasons against which are set forth. [Compare CALKINS (50) & (51).]

Fertilization processes in Protozoa divided into two groups, (*a*) copulation, i.e. permanent and complete fusion of two individuals and their nuclei, with various subdivisions (exs. *Noctiluca*, *Actinophrys*, *Trichosphærium*, Gregarines and Coccidia), and (*b*) the conjugation of Infusoria, which is compared with the association of gametocytes,—whose derivatives later proceed to copulation—in Gregarines and Coccidia. Quite apart from both groups, is the process in *Actinosphærium*, and the plastogamy of Foraminifera, LÜHE (239).

Conjugation (copulation) in Testacea (chiefly *Euglypha* and *Trinema*). This usually occurs after periods of active division which end by a kind of

reduction-division resulting in the formation of an abortive individual; plastogamic union and "couples," PROWAZEK (301).

Isogamous conjugation :—in *Gregarina* spp. from larvæ of *Tenebriomolitor*, BERNDT (19); of the sporoblasts in *Monocystis* of the earthworm confirmed, PROWAZEK (303) & CECCONI (56, 57).

Formation of well differentiated micro- and macro-gametes in *Stylorhynchus*. Male elements quite as large as the female ones, and with reserve nutriment; conjugation often precocious, before the males are typically differentiated, LÉGER (215). — Highly differentiated sexual elements, and anisogamous conjugation in *Pterocephalus nobilis*. Contrary to the case in *Stylorhynchus*, the gametes here are more in line with those of Metazoa, the males being very minute and the females large with all the reserve nutriment, LÉGER & DUBOSCQ (217).

Precocious association of the microgametocyte and the macrogametocyte in *Adelea ovata*; the former then gives rise to four microgametes without flagella apparently, and the latter, after maturation, becomes the macrogamete and is fertilised, SIEDLECKI (359A).—In *Caryotropha mesnilii* the microgametocyte gives rise to several microgametocytes of the second order, each of which produces several male gametes—a perfect parallel to the schizogony in this animal, SIEDLECKI (358). — The macrogametes in *Coccidium faurei* n. sp., are clothed and provided with a micropyle; the formation of microgametes proceeds from many centres ("couronnes nucléaires") [tending towards the manner in which their formation occurs in *Cyclospora*], MOUSSU & MAROTEL (268.)—Micro- and macrogametes (but not fertilization) described for *C. oviforme* [fairly similar to those of *C. schubergi*], TYZZER (395).—Formation of male and female gametes, conjugation, and oocyst formation in *C. schubergi*, SCHAUDINN (334).—Besides normal fertilization, SCHAUDINN (335) describes the occurrence of polyspermous fertilization of the macrogamete in *Cyclospora caryolytica*,—the superfluous microgametes being usually absorbed in the cytoplasm; in certain cases, however, where the reduction-nuclei of the macrogamete (see II, D, 3) have persisted and subdivided, each attracts a sperm, which fuses with it, there being thus multiple nuclear fusions in the macrogamete. The resultant oocyst in this case degenerates, SCHAUDINN (335).

Sexual reproduction and spore-formation in *Isospora* [*Diplospora*] *lieberkühni*, LAVERAN & MESNIL (200).—Micro- and macro-gametes in *I. mesnili* n. sp.; the former are short and squat, unlike those of Coccidia generally, SERGENT (354).

The "glomerular" stage of SMITH & JOHNSON'S (368) *Klossiella muris* is thought by them to represent either schizogony or microgametocyte formation [probably the latter]. Micro- and macro-gametocytes and maturation in *Legerella*, CUÉNOT (75).

Gametocytes in *Plasmodium vivax*, ARGUTINSKY (5).—Microgametes of the tertian parasite: arrangement of the chromatin in, RUGE (324).—GRAY (144A) criticises Lankester's statement in (187) that the sex of the "crescents" in the "pernicious" parasite is not easily distinguishable while in the human blood, and says the sex is usually readily determinable from the different arrangement of the pigment in the two cases.—Male and female gametes and conjugation in "*Hæmamœba*" *danilewskyi*, LAVERAN (192).—Formation of microgametocytes from which microgametes are cut off, and macrogametocytes, which expel half their chromatin on maturation, in *Lankesterella* and conjugation in the same [strong doubts have been recently thrown on this process by Schaudinn, who shews that it is very unlikely], HINTZE (159).

Division of the two nuclei of the spore into four, in *Thelohania*; STEMPELL (377) considers this as a kind of maturation, and that two will subsequently conjugate.

Monas multiplies sexually at 20° C., GREELEY (147).—"Conjugation" described in *Trypanosoma brucei*, BRADFORD & PLIMMER (40).

Conjugation in:—*Bursaria truncatella* and *Stylonichia pustulata*; in the former a large number of micronuclei are formed in each conjugate, of which all but one degenerate, PROWAZEK (300); *Euplotes*, PROWAZEK (302). —Conjugation in *Paramœcium* is probably necessary in order to supply one conjugant with traces of chemicals the other lacks, and so sustain the ferment-forming activity, and increase the digestive function, thus preventing physiological degeneration, CALKINS (51).

In *Dendrocometes* the three micro-nuclei normally present in each conjugant each divide; of the resulting six, one forms the sexual nucleus, the others degenerating; noteworthy conjugation of the mega-nuclei also, and distinct cytoplasmic "mixing," HICKSON & WADSWORTH (158).

3. Nuclear changes: mitosis: directive centres, etc.

Multiplication processes and loose relationship between nuclear and protoplasmic division in the Protozoa; origin of centrosomes etc.; the conclusion is arrived at that the achromatic nuclear basis or ground-substance, centrosomes, and the basal granules of cilia and flagella (including the "Geisselwurzel" of Trypanosomes) are analogous formations, with one and the same substance for their foundation, and that in all cases they act as locomotive or directive centres, which not only govern the nucleus and cell-division, but also in some indefinable way exert an influence on the motile appendages of the cell; the influence of the centrosome on the protoplasm makes possible, by the separation of the chromatin from this latter [see II, B, 2], a change or modification of the cytoplasmic network, into a substance agreeing with the nuclear network and exercising the same functions: HERTWIG (153).

Nuclear division (teleomitosis) in *Amœba gleichenii* quite comparable to that in the cells of higher organisms, DANGEARD (78).

After association of the two sporonts in *Monocystis*, the nuclear membrane ruptures, and a portion of the nucleus passes out into the cytoplasm; this becomes the segmentation- or "micro"-nucleus. Occurrence of centrospheres and spindles, PROWAZEK (303).—A part of the nuclear contents in an associated *Monocystis* is expelled into the cytoplasm, and gives rise to the secondary or segmentation nucleus; this divides up by successive mitoses, to form the ultimate sporoblast nuclei, CECCONI (56 & 57).—Curious "halo" or zone round the karyosome in *Gregarina cuneata* and *G. polymorpha*; in these, and also in *G. steini*, the karyosome becomes absorbed, either whole or after fragmentation *in situ*, and no part is expelled from the nucleus. In sporoblast-formation the nucleus takes on a characteristic "flame-shape," and gives rise quite irregularly to many daughter-nuclei—without any obvious karyokinesis, except in the latest stages, where a simple mitosis was seen (*G. cuneata*), BERNDT (19).—Karyokinetic divisions in the formation of the sexual elements in *Stylorhynchus*; the karyosomes are retained and fusion of these takes place in the copulative act; the attendant centrosomes probably also fuse, LÉGER (215).

Behaviour of the karyosome during formation of the microgametes in *Cyclospora caryolytica*; maturation of the macrogametocyte; formation of two reduction-nuclei (extremely like polar-body formation), which are finally absorbed in the cytoplasm; the microgametes possess at the base of the flagella a deeply staining centrosomic corpuscle or "blepharoplast" recalling that of *Trypanosoma* and of the male gametes of *Stylorhynchus*, SCHAUDINN (335).

Varied behaviour of the karyosome as regards manner of division, time of absorption or expulsion, and its relation to maturation processes and

nuclear changes generally, in *Adelea*, SIEDLÉCKI (359A), *Coccidium*, SCHAUDINN (334), and *Plasmodium*, id. (336).

GRAY (144A) has been able to make out two polar-bodies in nearly every case in the malarial parasite.

Nuclear division and mitosis in *Polytoma uvella*, PROWAZEK (306).—The blepharoplast and associated structures in *Polytoma* [see II, A, 2] said to be protoplasmic differentiations, and not comparable to a centrosome. The zoospores are thought to be the ancestors of spermatozoa, in which similar structures have been described, and the author opines that the spermatozoon centrosome does not play the rôle assigned to it, DANGEARD (81).

In nuclear division in *Trepomonas agilis*, each resulting "individual" receives two nuclear elements of different origin, which become the nuclei of the double cell, DANGEARD (80).

BRADFORD & PLIMMER (40) term the debated body in *Trypanosoma*, "micronucleus," since it fuses with the corresponding one of another organism in "conjugation," and they have seen it apparently given off from the "macronucleus"; they admit, however, that the fact of its dividing before the latter in longitudinal division favours its centrosomic nature.

In longitudinal fission of *Trypanosoma remaki* and *Trypanoplasma borreli*, the nucleus divides directly and amitotically; discussion of the morphological significance of the "Geisselwurzel," or blepharoplast in Webber's sense, which is held to be a true centrosome, though here a kinetic centre for external movements only. Phyletic origin of the centrosome, LAVERAN & MESNIL (196).—In *T. gambiense* the centrosome is near the posterior end, and intimately connected with the flagellum, DUTTON (94A); while in *T. transvaaliense* it is always very near the nucleus, an important point in favour of its being a "centrosomic" body, and a point of distinction from *T. theileri*, LAVERAN (190) & (203).

Nuclear divisions and karyokinesis in the conjugation of *Bursaria* and *Stylonichia*, PROWAZEK (300).—Nuclear changes during conjugation in *Euplotes*: different behaviour of "upper" and "lower" parts of the macronucleus, PROWAZEK (302).

Division of the mega-nucleus in *Dendrocometes*, is purely amitotic—no trace of karyokinesis; in division of the micro-nuclei, however, a distinct spindle is formed, but there is no sign of centrospheres or similar bodies, HICKSON & WADSWORTH (158).

4. Development and life-cycle.

Life-cycle of *Physarum leucophæum ferox*, CHRZĄSZCZ (63).

Cymbalopora is possibly only a life-stage (a sexual form assumed at intervals) of the closely allied *Discorbina*, EARLAND (95).

Marked dimorphism in *Siphogenerina columellaris*, which occurs in a rarer micro- and a commoner megalo-spheric form, SILVESTRI (361).

Early stages in the life-history of various Gregarines from Tracheates; penetration of the sporozoites in the host-cells and the changes caused therein by the growing trophozoites, LÉGER & DUBOSCQ (218).

Life-cycle of; *Adelea ovata*, SIEDLEČKI (359A); *Caryotropha mesnilii*,—an undoubted case of a Coccidian with polyzoic sporocysts, SIEDLEČKI (358); *Coccidium schubergi*, and *Cyclospora caryolytica*, SCHAUDINN (334 & 335); *Isospora lieberkühni*, LAVERAN & MESNIL (200).

SMITH & JOHNSON (368) describe "sporulation" for *Klossiella muris*, there resulting many "spores" each with several "sporozoites." [The Rec. thinks the authors have mistaken schizogony for sporogony.]

Oocyst with naked sporozoites of *Legerella testiculi*, CUÉNOT (75).—The ripe sporozoites of *Paracoccidium prevoti* are free in the oocyst, the early formed sporocysts dissolving up, LAVERAN & MESNIL (206).

Complete life-cycle of *Plasmodium vivax*, SCHAUDINN (336).—In the life-cycle of the malarial parasite, GRASSI (144) disputes Schaudinn's statement that the "ookinete" penetrating into the gut-wall of the mosquito secretes a cyst; the enclosing cyst being rather solely a product of the host. Contrasting the further development of the oocyst in Coccidia with what takes place here, where the sporoblasts do not become completely separated from one another, he proposes the term "sporoblastoids" for these bodies in the malarial parasite.

HINTZE's (159) chief ground for believing that cysts in the hinder part of the frog's gut were those of *Lankesterella*, was because of the absence of sporocysts. But only very young cysts were seen, and the formation of sporoblasts and sporozoites not observed. As Lühe in the Zool. Centrlbl. abstr. surmised, it was quite likely that the author had been mistaken, and Schaudinn (Arch. f. Protistenk. ii, p. 340) has recently admitted it.

Crithidia fasciculata, from the intestine of *Anopheles maculipennis*, may represent a certain stage in the life-cycle of one of the Flagellates parasitic in Vertebrates, LÉGER (213).

Probable life-cycle of *Trypanosoma brucei*, BRADFORD & PLIMMER (40); in the life-cycle of *T. brucei*, LAVERAN & MESNIL (197) have only observed longitudinal fission as a mode of multiplication, and do not admit a "conjugation." [Nor do they appear to have seen any multiple fission in this species,—a difference from *T. lewisi* and *T. equinum*.]

The life-cycle of *Paramœcium*, experiments on; the degeneration-tendency can be overcome, and the depression-periods successfully passed, by artificial means, without having recourse to conjugation: over five hundred generations were thus obtained by "artificial parthenogenesis" [See II, B, 2], CALKINS (50).

E. EVOLUTION; GROUP RELATIONSHIPS AND CLASSIFICATORY CHANGES.

DOFLEIN (87 & 88) arranges the Protozoa in two divisions, *Plasmodroma*, forms with pseudopodia or flagella as motile organs, and *Ciliophora*, forms with cilia at one period of life or another. The author holds that these two are sharply marked off from each other, but entirely leaves out of account *Monomastix* which so strikingly unites Ciliate and Flagellate characters (see below). This leads to the grouping together of the classes Rhizopods, Sporozoa, and Flagellates on the one hand, and the Ciliates and Acinetarians on the other. Why the allied Ciliates and Acinetarians are raised to the dignity of classes, while Mycetozoa, Radiolaria, Foraminifera, etc. are placed together as orders, the Recorder could not gather. A much more natural attempt at classifying the group is that of HALLER (150) who lays stress on the differentiation into flagellated and ciliated types, of the simple amœboid forms of Rhizopods, and traces the gradual evolution of the former from the latter. The following are suggested as different grades or levels, (1) *Amœbæ*, (2) *Mastigamœbæ*, (3) *Mastigociliata* (including *Monomastix* and *Mallomonas*), (4) Rhizopods (from 1), (5) Sporozoa, (6) Flagellates (from 2), and (7) Infusoria (from 3).

SCHUBERT (347) "sees in the multiform types ('mischtypen') of Foraminifera, transition-forms, which are the expression of certain directions of development; and in this manner, that.....the embryonic chambers point to the ancestral condition, while the later-formed ones, on the other hand, indicate the ultimate arrangement characterizing the form in question. This direction of development may be either leading from a lower to a higher type of organisation, or the reverse."—From a consideration of the "coil-variations" in the primary part of biformed shells in the genus *Textularia*, SCHUBERT (345) concludes that it is "not a natural genus, but

merely an inclusive term for externally similar stages in (at least three) different directions of development," which are pointed out.

The classification of the Colloidea:—Haeckel's division into two orders Colloidea and Beloidea, founded on the absence or presence of silicious needles shewn to be untenable, as needles occur in *Thalassophysa*, *Thalassophila*, etc. BRANDT (41) says the most important character for generic distinctions is the nucleus, and based chiefly on this he divides the order Colloidea (which he terms Collida) into three families, the *Thalassicollidæ* (including part of *Actissa* and most of the *Thalassosphæridæ*), the *Thalassophysidæ* (including the *Pachysphæra*, n. g., and part of the *Thalassosphæridæ*), and the *Physematidæ* (with part of *Actissa*). Further he unites the *Sphærozoida* with the *Collozoida* to form one family, the *Sphærozoidæ*, of a second order, the Sphærozoea, containing also the family *Collosphærida*; in other words he groups the monozoic forms (in vegetative life possessing a single highly differentiated nucleus) together as the order Collida, the polyzoic forms (with numerous simple nuclei) together as the order Sphærozoea.

SCHAUDINN (334) proposes to distinguish two sub-classes of Sporozoa, (a) *Telosporidia*, in which the vegetative ("trophic") period ceases on commencement of sporulation, and (b) *Neosporidia*, comprising the remaining orders which sporulate during their vegetative life.

SENN (353) does not include the Phytomastigina (Volvocineæ) in the Flagellata, but leaves them to be placed in the Green Algæ proper. He divides the class into seven orders, (1) Pantostomatineæ, in which all parts of the cell-surface can ingest food, exs. *Multicilia*, *Mastigamœba*, (2) Distomatineæ, in which food-injestion can take place at only two spots, ex. *Megastoma*, (3) Protomastigina, injestion at only one point, the animals holozoic or saprophytic, flagellæ 1–4 never paired, including several families, the *Oicomonadaceæ* (=*Cercomonadina*, *Cercomonas* itself however being placed in an appendix as of uncertain position), *Bodonaceæ*, *Tetramitaceæ*, etc., (4) Chrysomonadineæ, as the last but with yellow-brown chromatophores, exs. *Hydrurus*, *Dinobryon*, and *Epipyxis*, (5) Cryptomonadineæ, for *Chilo-* and *Crypto-monas*, (6) Chloromonadineæ, with many contractile-vacuoles united into a system, *Vacuolaria*, *Chloramœba*, etc., and lastly (7) the Eugleninеæ.

SCHERFFEL (337) discusses the affinities of the lowly Flagellates and their origin. He is of the opinion that chromatophore formation has (originally) taken place in very lowly *Ciliophrys-* or *Mastigamœba*-like forms. Probably these alone became the starting-point of the coloured groups, which have proceeded independently since. He derives chromatophore-containing groups from such forms, and colourless ones from colourless forms, admitting of course that individuals may secondarily lose their chromatophores (members of the *Euglenidae*, *Polytomidæ*, etc.).

LÉGER (212) thinks the occurrence of a "gregariniform" variety of *Herpetomonas* is a strong argument in favour of the Flagellate ancestry of Sporozoa.

LOHMANN (231) considers the Coccolithophoridæ as closely related to the family *Chrysomonadina*, but remarks that the latter have very frequently an eye-spot which never occurs in the former. He divides them into two sub-families, the *Syracosphærinæ*, with the shell composed of imperforated coccoliths, and the *Coccolithophorinæ*, with the "basal plate" of the coccoliths always perforated.

The Silicoflagellata are divided into two orders, the Siphonotestales, where the skeleton consists of hollow rods, containing the family *Dictyochaceæ*, forms possessing one flagellum, and the Stereotestales, with the skeleton of solid rods, containing the family *Ebriaceæ*, forms with two flagella, LEMMERMANN (222). The author thinks that this sub-class is allied to the *Peridinida* (Dinoflagellata).

SCHÜTT (351) divides the Peridiniales (=Dinoflagellata) into three orders, (1) the Gymnodinaceæ, comprising the naked forms, *Pyrocystis*, *Gymnodinium*, etc., (2) the Prorocentraceæ with cuticular "shields" of two plates or pieces, *Exuviella* and *Prorocentrum*, and (3) Peridiniaceæ, with shields of more than two plates, including *Pirophacus*, *Ceratium* and (Syllabus, p. 8) *Noctiluca*!

Group Mastigotricha Schew., intermediate between, and combining the characters of, Flagellata and Ciliata, maintained by ROUX (321 & 322) for *Monomastix ciliatus*, n. g., n. sp. In the same sense, HALLER (150) proposes the term *Mastigociliata*, to include *Monomastix*, *Mallomonas*, etc.

ROUX (322) divides the Ciliata into the five orders, Holotricha, Heterotricha, Oligotricha, Hypotricha, and Peritricha. He divides the Holotricha into the two sub-orders *Stomata* and *Astomata*, the latter for the parasitic *Opalinidæ*. The former is further sub-divided into the sections *Gymnostomata* and *Trichostomata*.

SHVEIER (356) in classifying the Infusoria follows chiefly Bütschli & Schewiakoff. He divides the Ciliates into Aspiro- and Spirotricha. The latter he sub-divides according to Stein, the former, as Roux treats the Holotricha, after Schewiakoff.

F. MISCELLANEA.

1. Cultivation and infection.

Use of *Fucus crispus* and other media for the cultivation of Amœbæ Cultivation one of the safest means of distinguishing Amœbæ from certain normal and pathological tissue-cells, FEINBERG (110).

Cats infected by the fæces from cases of amœbic dysentery, UCKE (396).

Artificial infection of meal-worms with different spp. of *Gregarina*, BERNDT (19).

Infection of Moles by *Cyclospora caryolytica*, is not caused by a healthy animal eating an infected one, which often occurs. Infection rather takes place by the animals eating wood-lice etc., which have themselves fed on oocyst-containing fæces of the Mole. Apparently only oocysts can resist the salivary and gastric juices. The Arthropods serve only as "carriers," SCHAUDINN (335). Artificial infection experiments with *Coccidium schubergi*, SCHAUDINN (334); wood-lice serve also here as the carriers of the oocysts from one *Lithobius* to another. A difference seems to be that in this case, infection can take place directly (by cannibalism), mature schizonts, etc. not being digested.

Infection of Frogs with *Lankesterella minima*, HINTZE (159).

Probability of the transmission of Hæmogregarines of Reptiles by *Ixodes* or other ectoparasites, LAVERAN (191).

The "Tristeza" parasite (*P. bigeminum*) is conveyed by ticks, which serve as a true "intermediate" host (different stages of the parasite's development taking place in the tick's stomach), and not merely as a carrier; non-inoculability of rabbits, sheep, pigeons, etc., LIGNIÈRES (227).

As regards the transmission of *Trypanosoma equinum*, VOGES (403) thinks that either the fly *Mosca brava*—very similar to the Tse-tse fly—or one of the *Tabanidæ* (common in South America) may be the agent; LAVERAN & MESNIL (203) suggest the possibility of the fly *Stomyxes calcitrans* being the conveyer. [We are yet quite in the dark as to whether the fly acts simply as a "carrier" or whether a Trypanosome undergoes a specific part of its life-cycle therein, as in the case of other blood-parasites.] A new sp. of *T.* in central Africa, carried by the "aino," a fly allied to, if not identical with, *Glossina morsitans*, BRUMPT (47). Inoculation of fishes with Trypanosomes, LAVERAN & MESNIL (196 & 199).

Infection of mice with *Sarcocystis muris*, by feeding them with muscular tissue containing gymnospores, SMITH (367). [It is noteworthy that the forms supposed to be primarily for self-infection should be capable of resisting the digestive juices and infecting a fresh host; as cannibalism is frequent among mice this may be a common mode of cross-infection, though whether the normal one is doubtful. In view of the importance of ecto-parasites in transmitting other parasites, the frequent occurrence of mites (*Myocoptes musculinus*) in the sub-cutis may be of more consequence than Smith could ascertain.]

Dileptus anser infected with *Zoochlorellæ* from *Stentor polymorphus*; unsuccessful attempts to infect *Difflugia* spp. and *Hyalosphænia* sp. with *Zoochlorellæ* from a different sp. of *Difflugia* and from *Stentor*, AVERINTZEV (8).

2. Technique.

DOFLEIN (88) pays considerable attention to the best methods of technique, for parasitic Protozoa and their culture in certain cases.

Romanowsky's stain (Methylene-blue-Eosin); used to distinguish unicellular organisms from cancerous-tissue in which they occur, FEINBERG (109); good for encysted *Amœbæ*, FEINBERG (110); differentiates the nuclei of *Plasmodiophora brassicæ* in the same manner as those of *Amœbæ* etc., FEINBERG (111); effect of, on ganglion cells, as contrasted with that on Protozoa, FEINBERG (114).

PAPPENHEIM (281), although agreeing with Feinberg's ideas on the individuality of the Protistan "vesicular" nucleus (obtained by relying on Methylene-blue and Toluidin-blue stains, see above), nevertheless believes that is not sufficient evidence on which to base the "parasitic-Protozoan" nature of his cancer cell-inclusions, since many histocyte-nuclei have a similar elective affinity for the red constituent from those stains.

Methods used in the study of the Tertian parasite, ARGUTINSKY (5); staining technique for malarial parasites, WRIGHT (421), SCHAUDINN (336), GIEMSA (137), and REES (310).

A new stain for the malarial parasites, CRAIG (72), REUTER (313).—Malaria and Methylene-blue, KUNST (180). -Methylene-blue-Eosin stains for malarial plasmodia, REUTER (312).

Technique (staining methods) for the gametes of "*Hæmamœba*" *danilewskyi*, LAVERAN (192).

Technique for the Hæmatozoan of piroplasmosis (*Piroplasma bigeminum*), NICOLLE & ADIL-BEY (274), NOCARD & MOTAS (276).

LOHMANN (231) ingeniously used the branchial sac of *Appendicularia* spp., as the finest procurable net for capturing Coccolithophoridæ, the minute forms of which would otherwise have escaped him.

Intra-vitam staining with Löffler's methylene-blue, for shewing up the plan of arrangement of the cilia in *Paramœcium*, SCALES (333).

3. Bibliography, etc.

LÜHE in (238) gives a useful comparative review of the recent treatises on Protozoa by Delage (Zool. Rec. 1896), Calkins (Zool. Rec. 1901, No. 26), Lang (Zool. Rec. 1901, No. 127) and Doflein (Zool. Rec. 1901, No. 62).

Protozoan bibliography for 1901, with short abstracts, MAYER (251); for 1889 & 1890, with short abstracts, PROWAZEK (307).

MACBRIDE (242) criticises Rostafinski's application of nomenclature laws to the Myxomycetes (Mycetozoa).

Need of a new edition of Williamson's monograph on the recent Foraminifera of Great Britain, EARLAND (96).

Bibliography of †*Buliminidæ* and †*Cassidulinidæ*, from Italy, FORNASINI (121).

On the date of publication of Costa's memoir on the Foraminifera of Messina,—which is fixed as 1857, FORNASINI (125).

Costa's part of the "Fauna del Regno di Napoli," containing the Foraminifera was published from 1838–1853. It is uncertain whether two other works of C. "Foraminiferi fossili della marna blù del Vaticano" and "Foraminiferi fossili della marna terziarie di Messina" were published in 1855 or 1857, FORNASINI (128).

Date of Costa's "Palæontologia del Regno di Napoli" was 1856, FORNASINI (129).

A new terminology for the various stages in the life-cycle of the malarial parasite, LANKESTER (187).

Good bibliography on Surra and allied Trypanosomatic diseases, SALMON & STILES (329).

BOYCE, ROSS, & SHERRINGTON (37), FORDE (115B) and various Students of the Lond. Sch. Trop. Med. (Lancet ii, 1902, p. 1487, B. M. J. ii, 1902, p. 1741) engage in an undignified altercation as to who is entitled to the credit of first discovering a Trypanosome in human blood. SAMBON (329A) shews that neither Dutton nor Forde can claim the honour, NEPVEU (Zool. Rec. 1898, No. 155) having described several cases of human trypanosomosis which had come under his notice between 1890 and 1898, and in (272A) NEPVEU himself points this out.

III. DISTRIBUTION.

A. GEOGRAPHICAL.

Europe:—Varied European distribution of *Bursaria truncatella*, PROWAZEK (300).

Exe Estuary, Foraminifera from, WORTH (414).—Firth of Forth, Foraminifera occurring as marine deposits, PEARCEY (284).—Rathlin Island and Sound, Foraminifera, including *Botellina labyrinthica* and *Frondicularia millettii* new to British fauna, WRIGHT (418).

Helsinfors, west of, in fresh and brackish water, the curious Rhizopod *Paullinella chromatophora* Lauterb., LEVANDER (224).

Lake Onega (gulf of Pétrosawodsk), Protozoa, LINKO (228).

Bologoé (Novgorod), Protozoa from the biological station, including n. spp., AVERINTZEV (7).

Bay of Sévastopol, Protozoa, including several freshwater forms, MĪNKEVĪCH (266).

Sea of Marmora, Rhizopoda (Foraminifera), AVERINTZEV (10).

Adriatic *Foraminifera*, with n. spp., FORNASINI (116 & 118).—Adriatic *Buliminidæ*, many new to the district, FORNASINI (119).

Italian thermal springs, Protozoan fauna, nine additional species, ISSEL (162 & 163).

Plön, a new Heliozoan (*Heterophrys pusilla*, n. sp.), ZACHARIAS (426).—Lake of Plön, on Desmids (*Closterium ehrenbergi*), *Histiona zachariasi*, n. g., n. sp., VOIGT (405). —Great Lake of Plön, Protozoan fauna on stems of *Phragmites*, ZACHARIAS (432).

Geneva, *Ciliata*, many new forms, ROUX (321 & 322); constitution of Infusorian fauna, ROUX (323).—Lake of Geneva, *Clathrella foreli*, n. g., n. sp., PENARD (288); Rhizopod (Lobosa) fauna of, and distribution with regard to vegetation, PENARD (289).—Neuchâtel, Protozoa, GODET (139).

Asia, Australia, and the Pacific islands:— Indian Ocean, Foraminiferal deposits, LOMAS (232). — Andaman Sea, occurrence of *Masonella patelliformis*, ALCOCK (1) p. 296.

Malay Archipelago, recent Foraminifera, including n. spp., MILLETT (262).

Suddin Sea, near Saigon, *Heteroceras schroeteri*, n. g., n. sp., FORTI (130).

Gulf of Siam, *Tintinnodea*, including n. spp., SCHMIDT (341).

Riukiu Island (Loochoo), Japan, Foraminiferal sand consisting of *Calcarina spengleri* and thick deposit of enormous *Operculina* sp. between two coral reefs, YOSHIWARA (424).

Cocos-Keeling Atoll (near Christmas Island), Foraminifera, CHAPMAN (60).

From Hardwicke Bay, Yorke Peninsula, *Cymbalopora bulloides*, noteworthy occurrence, EARLAND (95).

Funafuti Atoll (ocean and lagoon beaches, etc.), Foraminifera, including n. spp., CHAPMAN (59).

America:—Californian coast, San Pedro, *Gonyaulax* turning the water red by day and phosphorescent by night, TORREY (389).

Colorado Protozoa, with n. spp., BEARDSLEY (17).

America, Protozoa new to, BEARDSLEY (17).

From Provincetown, Cape Cod, *Discorbina rugosa* d'Orb., BAGG (13).

Ancora, N. J., *Trachelomonas*, 5 n. spp., PALMER (279).

Brazil (Blumenau), Mycetozoa, including *Didymium excelsum*, n. sp., JAHN (167).

Malaria and mosquitoes, Trypanosomosis and Piroplasmosis in various districts; see II, C, 2: also XIII. INSECTA, pp. 92 & 254.

B. GEOLOGICAL.

Quaternary:—Late Neolithic Foraminifera from East Barry Dock (Cardiff), WOTTON (415).

Lists of Foraminifera from Glacial and Post-Glacial deposits of the Lune estuary, including n. spp., READE (309).

Boulder Clay, British Isles and Canada, *Nonionina depressula* in great abundance, WRIGHT (419).

Marine Boulder Clay, Co. Cork, Foraminifera, READE (308).

Pleistocene Clay, Shellag, Ramsey, Isle of Man, Foraminifera, WRIGHT (420).

Pleistocene Clay, Bovevagh, Co. Derry, Foraminifera, WRIGHT (417).

Quaternary freshwater deposits (Torf, Gyttja), Sweden and Finnland, Protozoa (especially Rhizopods) periods of appearance, etc., including n. spp., LAGERHEIM (184).

From Sub-Arctic to Sub-Atlantic periods in chalky deposits of Gottland, Upland, Schonen, etc., *Quadrula subglobosa* Lagerh., LAGERHEIM (185).

Tertiary:—Miocene, Pliocene and Recent *Textularia* spp., originally described by d'Orbigny, notes on, FORNASINI (122 & 126).

Tertiary and Quaternary, Italy, *Buliminidæ* and *Cassidulinidæ*, FORNASINI (121).

Pliocene of Catania, Sicily, Foraminifera, n. spp., SILVESTRI (362).

Miocene and Pliocene, Italy, various localities, *Nodosaridæ*, many new vars., FORNASINI (117A).

Miocene and Pliocene, province of Rome, Foraminifera, DE STEFANI (373 & 373A).

Miocene in neighbourhood of Kolomea, Foraminifera, v. ŁOMNICKI (235).

Miocene near Ponti, Foraminifera, MARIANI (244).

Miocene, Italy, Arcevia and Montegibio, Radiolaria, many n. spp., VINASSA DE REGNY (399).

Lower Oligocene (calcareous), near Vicentino, *Nummulites*, PATRINI (282).

Eocene and Miocene, *Polymorphina* spp. originally described by d'Orbigny, notes on, FORNASINI (123).

Eocene and Miocene foraminiferal limestones, Egypt, CHAPMAN (58).

Aldabra islands, calcareous reef (probably of Tertiary age) composed of coccoliths and rhabdoliths; VOELTZKOW (401) considers these organisms of considerable geological importance, maintaining that a large part of marine calcareous rocks consist of Foraminifera and coccoliths in varying proportions.

Upper part of "creta superiore," Suessonian (=Eocene), near Firenze, *Nummulites* spp., TRABUCCO (390).

Eocene *Nummulites*, Senegal, from a sounding made at Saint Louis, VASSEUR (397).

Eocene, Metkovich in Dalmatia and from Herzegovina, Foraminifera, DE STEFANI & MARTELLI (375).

Eocene, near Bribir, Croatia, *Nummulitidæ*, DE STEFANI & DAINELLI (374).

Middle Eocene of Dalmatia, List of Foraminifera from, including *Gaudryina*, n. sp., *Clavulina szaboi* Hautk. new for Middle Eocene, *Dentalina mucronata* Neug. *Truncatulina refulgens* Montf. and *T. tenera* Brady, new for the Eocene, SCHUBERT (346).—Eocene *Nummulitidæ*, Spalato, MARTELLI (246); full description of, including *Orbitoides dalmatina*, n. sp., megalo- and micro-spheric forms, id. (247).

Eocene, province of Rome, Foraminifera, DE STEFANI (372).

Middle Eocene, Algeria and Tunis, *Nummulites*, PERVINQUIÈRE (291).—Middle Eocene, Souk Ahrras (Constantine), *Nummulites*, BLAYAC (25).

Eocene limestone ("calcaire grossier"), Foraminifera from silicious tuffs, MEUNIER (259).

Eocene, Potenza, Italy, *Nummulitidæ*, PREVER (298); these, and others, from Forcadi Presta (Apennines), including many n. spp., id. (299).

Eocene, islands of Paxos and Antipaxos, Foraminifera, n. spp., MARTELLI (245).

Occurrence of *Orbitoides* sp. in Tertiary sandstones of the Southern Rhætic district, LORENZ (236).

Eocene of St. Barthélemy (Landes) and Gomerfontaine (Oise), varieties (or races) of *Nummulites lævigatus* from, contrasted with some from Soh, Persia, DOUVILLÉ (90).

Eocene *Nummulitidæ* from the Aquitaine basin, DOUVILLÉ (89).

Eocene (calcareous breccia), meridional Italy, *Nummulites*, GENTILE (136A).

Early Tertiaries of the Southern Tyrol, Foraminifera, n. g., n. spp., SCHUBERT (347A).

Secondary:—Cretaceous, Osninberg range, Teutoburger Wald., Foraminifera, also the Radiolarian *Stylodictya haeckelii*, ELBERT (99).

From the upper White Chalk of the Libyan desert, a few Foraminifera incl. *Frondicularia*, n. sp., WANNER (409A).

Cretaceous, Upper Bavarian Alps and Jura district, *Orbitolinidæ*, EGGER (98).

Chalk, Antrim, Foraminifera, WELCH (412).

Cretaceous Radiolaria, island of Carpathos, many new forms, VINASSA DE REGNY (400).

Cretaceous and Eocene of Order (Asia Minor), *Nummulitidæ*, SCHUBERT (347).

Cretaceous ("Dordonian" and "Senonian"), various districts, *Orbitoides*, n. spp., SCHLUMBERGER (340).

Upper Chalk, of the Southern Rhaetic district, Foraminifera, LORENZ (236).

Cretaceous ("Tithonique") of Bastille near Grenoble, new Foraminiferan *Calpionella alpina*, n. g., n. sp., LORENZ (236).

Chalk, Paris basin, Foraminifera, general account, — (223).

Cretaceous ("Campanien"), environs of Sarlat, *Præsorites*, n. g., *moureti*, n. sp., and from Landiras, *Fallotia*, n. g., *jacquoti*, n. sp., DOUVILLÉ (91).

Cretaceous of South-West France, distribution of *Orbitolitidæ* and *Orbitoideæ*, DOUVILLÉ (92).

Cretaceous, Lombardy, Foraminifera, names only, DE ALESSANDRI (2).

Junction of Jurassic and Cretaceous in Portugal, *Dicyclina lusitanica*, n. sp., and *Spirocyclina infravalanginiensis*, n. sp., CHOFFAT (62).

Primary:—Upper Permian, Western Texas, *Fusulina elongata* in great profusion, GIRTY (138).

Discovery of Chalk with *Fusulina*, and *Schwagerina* in the Carboniferous (Permocarboniferous ?) near Forni Avolti, Western Carnia, GORTANI (141).

Carboniferous (Coal layers) of the Philippines, *Orbitoides* sp., MARTIN (248).

Carboniferous, in the pollen chambers of *Stephanospermum*, silicified Infusoria, allied to the genus *Cinetoconia*, RENAULT (311).

Carboniferous Limestone, East Fife, Foraminifera, PEACH (283).

Devonian of Bohemia, Foraminifera, SCHUBERT & LIEBUS (348).

C. PARASITIC (including commensalism).

General:—Parasitic Protozoa and the hosts they occur in, DOFLEIN (88).

List of hosts of parasitic Infusoria, SHVEIER (356).

Algae:—Usually on *Chætoceros boreale* a diatom, *Cothurnia maritima* (= *Tintinnus borealis*), APSTEIN (4).

On Desmids (*Closterium ehrenbergi*); *Histiona zachariasi*, VOIGT (405).

In cells of *Nitophyllum punctatum* a Rhodophycean, *Crapulo intrudens*, n. g., n. sp., MIEHE (261).

Protozoa:—In ectoplasm of *Actinosphærium eichhorni*, a new commensal *Zoochlorella*, *Z. actinosphærii*, AVERINTZEV (8).

In *Acanthometra cuspidata*, a Sporozoan (!) parasite, allied (!) to *Amœbophrya acanthometræ*, PORTA (294).

Attached to the outside of resting-cysts of Colpoda, a Myxamœba, DOFLEIN (87).

In *Euglena deses*: a new bacterial intranuclear parasite, *Caryococcus hypertrophicus*, DANGEARD (79).

In *Hæmatococcus butschlii*, *Amœba blochmanni*, n. sp., DOFLEIN (88).

Rotifera:—List of Rotiferan hosts for *Ascosporidium blochmanni* (= *Bertramia asperospora*), ZACHARIAS (425).

Archiannelida:—In *Polygordius* sp., intestine, *Monocystis foliacea* Fraip. rediscovered, MĪNKEVĪCH (266).

Chaetopoda:—In intestinal epithelium of *Lagis koreni*, *Joyeuxella toxoides*, n. g., n. sp., BRASIL (42).

In intestine of *Lumbricus*, *Hoplitophrya lumbrici* and *Anoplophrya circulans*, BORTOLOTTI (30).

In *Polymnia nebulosa*, spermatogonial cells, *Caryotropha mesnilii*, a new Coccidian, SIEDLEČKI (358).

In body cavity of *Polymnia*, *Herpetophrya astoma*, a new Holotrichous Infusorian, SIEDLEČKI (359).

Crustacea:—In body-cavity and organs of *Branchipus grubei* Dyb., *Polycaryum*, n. g., *branchiopodianum*, n. sp., STEMPELL (378 & 379).

Ectoparasitic on *Cyclops* sp.: on the mouth-parts, *Choanophrya infundibulifera* (n. g. for *Podophrya* (!) *infundibulifera* Hartog); on 4th thoracic sternum, *Rhyncheta obconica*, n. sp., HARTOG (151).

Parasitic on *Diaptomus graciloides*, *Podophrya cyclopum*, VOIGT (406).

Very frequent on gills of *Gammarus pulex*, *Dendrocometes paradoxus*, HICKSON & WADSWORTH (158).

In *Gammarus pulex*, muscles, *Thelohania mülleri*, STEMPELL (377).

Myriapoda:—In mid-gut of Chilopoda from the Mediterranean region: *Scolopendra africana*,—*Pterocephalus giardi*, n. sp.; *Lithobius calcaratus*, —*Echinocephalus horridus*, n. sp.; *Himantarium gabrielis*,—*Rhopalonia stella*, n. sp., LÉGER (216).

In *Lithobius forficatus*, intestine, *Coccidium schubergi*, n. sp., SCHAUDINN (334).

In Testes only of *Glomeris marginata*, *Legerella testiculi*, n. sp., CUÉNOT (75).

In *Polyxenus lagurus*, intestinal epithelium, a Polycystid Gregarine, LÉGER & DUBOSCQ (218)

Hexapoda:—In the intestine of *Anopheles maculipennis* (females), *Crithidia fasciculata*, n. g., n. sp., LÉGER (213).

In female *Anopheles maculipennis*, on the stomach wall, a Sporozoan parasite [identified as a Gregarine, but which is very like the ookinete-stage of the malarial parasite, (with which the mosquitoes were also infected)], JOHNSON (171).

In *Carabus auratus*, cœlome, *Monocystis légeri*, n. sp., BLANCHARD (23).

In digestive tube of larvæ of various Culicidæ, Gregarines, ROSS (319).

In *Glossina morsitans* (?) (the "aino") various organs, *Trypanosoma*, n. sp., BRUMPT (47).

In rectum of *Hodotermes ochraceus* Burm., *Trichonympha* sp., LAMEERE (186).

In intestine of *Nepa cinerea*, *Herpetomonas jaculum*, n. sp., LÉGER (212), and of *Nepa* sp., *Otomonas tremula*, n. g., n. sp., LÉGER (214).

In larvæ of *Tenebrio molitor* (meal-worms) intestine, *Gregarina cuneata*, *G. polymorpha* and *G. steini* n. sp., BERNDT (19).

Arachnida:—In *Dermacentor reticulatus*, various organs, *Piroplasma canis*, NOCARD & MOTAS (276).

In *Hæmaphysalis leachi*, various organs, *Piroplasma canis*, NOCARD & MOTAS (276) and ROBERTSON (317).

Mollusca:—In the mantle cavity of Polyplacophora from Chili, viz. *Chætopleura peruviana*, *Tonica fastigiata*, *Chiton cumingsi*, and *Isnochiton imitator*,—*Chitonicium simplex*, n. g., n. sp., PLATE (292).

Pisces:—In gall-bladder of *Abramis brama*, "Bresse," [for Brasse = Bream ?], *Sphærospora masovica*, n. sp., COHN (67).

In *Anguilla vulgaris*, blood, a *Trypanosoma*, SABRAZÉS & MURATET (327), probably *T. granulosum*, n. sp., LAVERAN & MESNIL (196).

In blood of:—*Anguilla vulgaris*,—*Trypanosoma granulosum*, n. sp.; *Esox lucius*,—*T. remaki*, *Raja punctata* and *R. mosaica*,—*T. rajae*, n. sp.; *Scardinius* (*Leuciscus*) *erythrophthalmus*,—*Trypanoplasma borreli* L. & M.; *Scyllium stellare* (*S. catulus*),—*Trypanosoma scylliumi*, n. sp.; and *Solea vulgaris*,—*T. soleæ*, LAVERAN & MESNIL (196).

In *Blennius montagui* (non *B. gattorugine*), blood, *Hæmogregarina bigemina*, LAVERAN & MESNIL (201).

In *Clupea harengus* and *Pomolobus pseudoharengus* ("alewife"), muscles, Sporozoan (Myxosporidian) cysts [a *Chloromyxum*], LINTON (229) also TYZZER (394).

Ectoparasitic on gills of *Cottus gobio*, *Glossatella tintinnabulum* var. *cotti*, VOIGT (405).

Ectoparasitic on skin and gills of sick carp (*Cyprinus*), *Chilodon cyprini*, n. sp., MOROFF (267).

In gut contents of *Dasyatis* (= *Trygon*) *centrura* (Sting-Ray) numbers of pale ovoid bodies (Sporozoa ?), LINTON (229).

In *Pleuronectes platessa*, intestine, a Sporozoan parasite [a *Glugea*, probably *G. stephani* Hagenm.], JOHNSTONE (172).

In *Pseudopleuronectes americanus* ("winter Flounder") wall of intestine, Sporozoan cysts, [an allied *Glugea*, if not the same as that described in *Pleuronectes platessa*], LINTON (229).

In *Raja punctata* and *R. mosaica*, blood, *Hæmogregarina delagei*, n. sp., LAVERAN & MESNIL (201).

In *Rhombus triacanthus* (= *Stromateus t.*), muscles, "sporocysts" [probably also Myxosporidian cysts], LINTON (229).

In *Scyllium*, *Coccidium scyllii*, n. sp., DRAGO (93).

Amphibia:—In *Rana esculenta*, intestine, *Paracoccidium prevoti*, n. g., n. sp., and *Coccidium ranarum*, n. sp., LAVERAN & MESNIL (206).

Reptilia:—In blood of:—*Ancistrodon piscivorus*,—*Hæmogregarina mocassini*, n. sp.; *Crotalus confluentus*,—*H. crotali*, n. sp.; *Naja tripudians*,—*H. najæ*, n. sp.; and *Zamenis hippocrepis*,—*H. zamenis*, n. sp., LAVERAN (191).

In *Chamæleo vulgaris*, intestine, *Isospora mesnili*, n. sp., SERGENT (354).

In *Damonia reevesii*:—*Myxidium danilewskyi*, kidneys; *Hæmogregarina stepanowiana*, n. sp., and *H. rara*, n. sp., blood; *Coccidium mitrarium*, n. sp., intestine; and *Trypanosoma damoniæ*, n. sp., blood, LAVERAN & MESNIL (202).

Aves:—In *Athene noctua*, blood, *Hæmamœba ziemanni*, n. sp., LAVERAN (195).

In Alpine Birds (neighbourhood of Vältelin, Italy), blood, *Hæmoproteus danilewskyi* (1) and *Halteridium danilewskyi* (2), including as new hosts, *Accentor collaris* (1 & 2), *Alauda arborea* (1), *Anthus trivialis* (1 & 2), *Budytes flavus* (1), *Carduelis elegans* (= *C. carduelis*) (1 & 2), *Emberiza cia* (1), *Hirundo rustica* (1), *Parus ater* (1), *P. palustris* (1), *Pratincola rubetra* (1 & 2), *Phylloscopus bonellii* (2 ?), *P. rufus* (1), *Ruticilla phœnicurus* (1), *Saxicola œnanthe* (1), *Sitta cæsia* (1), *Sylvia cinerea* (1) and *Troglodytes parvulus* (2 ?), GALLI-VALERIO (134).

In *Parus major*, blood, *Hæmamœba majoris*, n. sp., LAVERAN (195).

Mammalia:—In *Bubalus* sp. (a variety of Javan buffalo), *Sarcocystis blanchardi*, n. sp., DOFLEIN (88).

In Camels, Horses, Mules, Asses etc., blood, a *Trypanosoma*, n. sp., BRUMPT (47).

In the blood of cattle in the Transvaal, *Trypanosoma theileri*, n. sp., BRUCE (46) & LAVERAN (188) and *T. transvaaliense*, n. sp., LAVERAN (190).

In *Equus caballus*, muscles, *Sarcocystis bertrami*, n. sp., DOFLEIN (88).

In the blood of South-American horses, *Trypanosoma equina*, n. sp., VOGES (403).

In the Sheep, intestinal epithelium, *Coccidium faurei*, n. sp., MOUSSU & MAROTET (268).

In *Talpa europæa*, intestinal epithelium, *Cyclospora caryolytica*, n. sp., SCHAUDINN (335).

Sarcocystis tenella (common in Sheep) found by Dr Hoche in man, VUILLEMIN (407).

In Man, blood, *Trypanosoma gambiense*, n. sp., DUTTON (94A).—In human intestine, *Balantidium coli* and *Cercomonas intestinalis*, COLLMANN (69).—In the hollows of decayed human teeth, *Trichomonas hominis*, probably a harmless commensal, PROWAZEK (304).—Protozoan parasites, GARZON-MACEDA (136).—*Amœba* (?) *kartulisi*, n. sp., DOFLEIN (88).

IV. SYSTEMATIC.

A. *PROTOZOA IN GENERAL.*

Parasitic Protozoa : full account of, DOFLEIN (88).

Protozoa parasitic in Man, GARZON-MACEDA (136).

List of Protoza from :—neighourhood of Bologoje (or Bologoé), AVERINTZEV (7) pp. 238–244 ; the biological station of Bologoé, MĪNKEVĪCH (265) pp. 240–242 ; the Bay of Sévastopol, MĪNKEVĪCH (266) pp. 355–359 ; Canton of Neuchâtel, GODET (139) pp. 306 & 307.

B. *GYMNOMYXA.*

1. MYCETOZOA.

Mycetozoa in general : a Myxamœba ectoparasitic on cysts of *Colpoda*, DOFLEIN (87).

(a) **Protomyxidea :—**

Plasmodiophora brassicæ, notes on (4 figg. in text), FEINBERG (106) ; effect of Romanowski's stain on nuclei of, FEINBERG (111) p. 282, & (112) p. 533.

Vampyrella attheyæ, **n. sp.**, occurrence, plankton from the Volga, ZYKOFF (439) p. 178.

(b) **Mycetozoidea :—**

Chondrioderma asteroides, **n. sp.**, diagnosis and occurrence, LISTER (230), p. 209, pl. 438, fig. 1.

Didymium excelsum, **n. sp.** (Lister), diagnosis and occurrence, pp. 275 & 276, figg. 5–10, pl. 13, JAHN (167) ; *D. umbilicatum* Schrader, general account, JAHN (166) pp. 97–115, pl. 5.

Fuligo varians, nuclei of, and nuclear division in, PAMMEL (280).

Physarum gyrosum Rost., notes on, LISTER (230) p. 210, pl. 438, fig. 2 ; *P. leucophæum* var. (?) *ferox* **n. v.**, description and life-cycle of, and relations to ferment-yeasts, CHRZĄSZCZ (63) pp. 431–441, with 1 pl.

2. RHIZOPODA.

(a) **Lobosa :—**

Full description of the Lobosa of Lake Geneva and neighbourhood, with a text-fig. of every sp. described, PENARD (289).

Amœba annulata, **n. sp.**, p. 52, *A. beryllifera*, **n. sp.**, p. 53, *A. botryllis*, **n. sp.**, p. 76, *A. citrina*, **n. sp.**, p. 102, *A. clavarioides*, **n. sp.**, p. 75, *A. fasciculata*, **n. sp.**, p. 73, *A. gorgonia*, **n. sp.**, p. 78, *A. hylobates*, **n. sp.**, p. 81, *A. h.* var. *simplex*, **n. v.**, p. 83, *A. laureata*, **n. sp.**, p. 131, *A. lucens* (=*Saccamœba lucens* Frenz.), p. 55, *A. nitida* Pen., p. 61, *A. nobilis* Pen., p. 65, *A. radiosa* var. *granulifera*, **n. v.**, p. 89, *A. saphirina* Pen., p. 50, *A. vespertilio* Pen., p. 92, described, text-fig. for every sp., PENARD (289).

A. actinophora, Auerb. occurrence, bay of Sévastopol, MĪNKEVĪCH (266) ; *A. blochmanni*, **n. sp.**, diagnosis and occurrence, p. 17, text-figg. 5–7, ?*A. kartulisi*, **n. sp.**, diagnosis and occurrence, p. 30, DOFLEIN (88) ; *A. comminuens*, **n. sp.**, description, RHUMBLER (315) p. 317, fig. 111 ;

A. coli, and *dysenteriæ* Lösch, distinctions between, SHIGA (355) p. 352; *A. dysenterica* [=*A. dysenteriæ*?], life cycle, GOLDSMITH (140) pp. 372–374; *A. gleichenii* Duj., teleomitosis in, DANGEARD (78) p. 1127: this author would divide up the genus *Amœba* according to the different varieties of nuclear division occurring in it; *A. limicola*, fluid nature of protoplasm of, deduced from experiments on the animal's behaviour at the water-surface, RHUMBLER (315) p. 309; *A. proteus*, leucin-crystals in, and relation of, to neutral-red, STOLC (385) pp. 209–219; *A. spatula*, description and occurrence, Colorado, BEARDSLEY (17) p. 49, pl. 11, fig. 1; *A. tentaculata* Grub., occurrence, Bay of Sévastopol, MĪNKEVĪCH (266).

Arcella, chromidial network in, HERTWIG (153) p. 6; *A. vulgaris*, structure of shell, AVERINTZEV (10), p. 348.

†*A. catinus* and *A. vulgaris*, Quaternary, Sweden, time of appearance, LAGERHEIM (184) pp. 519 & 520.

†*Centropyxis aculeata*, Quaternary, Sweden, time of appearance, LAGERHEIM (184) pp. 519 & 520.

C. arcelloides, **n. sp.**, p. 309, *C. delicatula* Pen., p. 308, Lake of Geneva, described, PENARD (289).

Clathrella **n. g.**, *foreli*, **n. sp.**, Lake of Geneva, description, PENARD (288) p. 554.

Clypeolina marginata Pen., p. 459, described, PENARD (289).

Cochliopodium erinaceum, **n. sp.**, p. 202, described, PENARD (289); *C. bilimbosum*, described, ZACHARIAS (432) pp. 22–24, pl. i, figg. 8–10.

Corycia coronata, **n. sp.**, p. 178, described, PENARD (289).

Cryptodifflugia compressa, **n. sp.**, p. 428, *C. sacculus*, **n. sp.**, p. 429, descr., PENARD (289).

Cucurbitella, **n. g.**, *mespiliformis*, **n. sp.**, p. 311, described, PENARD (289).

Cyphoderia lævis, **n. sp.**, described, PENARD (289) p. 489; *C. margaritacea*, structure of shell, AVERINTZEV (9) p. 348.

Difflugia acuminata var. *umbilicata*, **n. var.**, p. 235, *D. bidens* Pen., p. 264, *D. binucleata*, **n. sp.**, p. 262, *D. capreolata* Pen., p. 222, *D. glans*, **n. sp.**, p. 246, *D. gramen*, **n. sp.**, p. 281, *D. hydrostatica* (?), var. *lithophila*, **n. var.**, p. 274, *D. lithoplites*, **n. sp.**, p. 284, *D. manicata*, **n. sp.**, p. 226, *D. molesta*, **n. sp.**, p. 248, *D. pristis*, **n. sp.**, p. 254, D. *pulex* Pen., p. 229, *D. pyriformis*, vars. *atricolor*, *bryophila*, *venusta* **n. vars.**, pp. 220, 221 & 220 resp., *D. varians*, **n. sp.**, p. 240, *D. viscidula* Pen., p. 259, described, PENARD (289).

Difflugia acuminata and *D. pyriformis*, zoochlorellar experiments with, AVERINTZEV (8) p. 346 [see II, B, 2 and II, F, 1]; *D. hydrostatica*, occurrence in Pomeranian lakes and notes on, VOIGT (406) p. 80; *D. planctonica*, **n. sp.**, occurrence and diagnosis, MĪNKEVĪCH (265) p. 268; *D. urceospira* var. *nova*, occurrence and diagnosis, MĪNKEVĪCH (265) p. 267.

†*D. constricta*, *D. oliiformis*, **n. sp.**, and *D. pyriformis*, Quaternary, Sweden, time of appearance, LAGERHEIM (184) pp. 519 & 520.

Frenzelina reniformis Pen., p. 464, described, PENARD (289).

Gloidiam horridum, **n. sp.**, p. 30, *G.* (?) *inquinatum*, **n. sp.**, p. 32, *G. mutabile*, **n. sp.**, p. 29, described, PENARD (289).

Heleopera cyclostoma, **n. sp.**, p. 390, described, PENARD (289).

†*H. rosea*, Quaternary, Sweden, time of appearance, LAGERHEIM (184) pp. 519 & 520.

Hyalodiscus limax, occurrence in Italian thermal springs; ISSEL (163).

Hyalosphænia lata, zoochlorellar experiments with, AVERINTZEV (8) p. 346 [see II, B, 2 and II, F, 1].

†*H. papilio*, Quaternary, Sweden, time of appearance, LAGERHEIM (184) pp. 519 & 520.

Lecquereusia epistomium, **n. sp.**, described, PENARD (289) p. 331.

†*L. spiralis*, Quaternary, Sweden, time of appearance, LAGERHEIM (184) pp. 519 & 520.

Nebela marginata, **n. sp.**, p. 359, described, PENARD (289).

Pareuglypha reticulata Pen. p. 492, described, PENARD (289).

Parmulina, **n. g.**, *agathus*, **n. sp.**, p. 207, described, PENARD (289).

Paulinella chromatophora Lauterb., occurrence, Helsingfors, LEVANDER (224) p. 161 B.

Pelomyxa paradoxa, **n. sp.**, p. 149, *P. vivipara* Pen., p. 156, described, PENARD (289).

Phryganella nidulus Pen., p. 419, *P. paradoxa*, **n. sp.**, p. 423, described, PENARD (289).

Placopus korotnewi Merej., occurrence, Bay of Sévastopol, MĪNKEVĪCH (266).

Pontigulasia gibbosa Pen., p. 322, *P. bryophila*, **n. sp.**, p. 324, *P. spectabilis* Pen., p. 318, described, PENARD (289).

Pyxidicula cymbalum Pen., p. 417, described, PENARD (289).

†*Quadrula subglobosa*, **n. sp.**, Quaternary deposits of Sweden, LAGERHEIM (184) pp. 519 & 520, and (185) pp. 346–352, 1 text-fig. (differences of, from *Q. globulosa* Pen.).

Q. symmetrica, occurrence in hot springs (Terme di Valdieri), ISSEL (162) p. 1, fig. 1, pl. i.

Saccamœba lucens Frenz. is changed to *Amœba lucens*; PENARD (289) p. 55.

Various Testacea (chiefly *Euglypha* and *Trinema*), copulation phenomena in, and reproduction of, PROWAZEK (301) pp. 243–257, pl. i, figg. 1–14.

(b) Foraminifera:—

[Note. Papers containing lists of Foraminifera mentioned by name only, are referred to generally below; only new forms, forms whose occurrence is specially noted, and forms described and figured, are mentioned specifically.]

Foraminifera from:—Cretaceous of Lombardy, DE ALESSANDRI (2) p. 201; Sea of Marmora, AVERINTZEV (10) pp. 182 & 183; Funafuti Atoll, some described, CHAPMAN (59); †Foraminiferal limestones, Eocene and Miocene, Egypt, CHAPMAN (58); different Cretaceous beds of the Teutoburger Forest, ELBERT (99) pp. 91–96; the Adriatic, FORNASINI (116); the same described, with text-figg, id. (118) pp. 357–402; Miocene, Kolomea, noted, ŁOMNICKI (235) pp. 15–18; Chalk and Jurassic, Southern Rhaetia, LORENZ (236) pp. 40–65; Miocene of Italy near Ponti, noted, MARIANI (244) pp. 114–117; Eocene, islands of Paxos and Antipaxos, notes on, MARTELLI (245) pp. 409–430; silicious tufts in the Eocene limestone ("Calcaire grossier") at Grignon, MEUNIER (259); Carboniferous Limestone, East Fife, PEACH (283) p. 360; Firth of Forth, PEARCEY (284); Pliocene of Catania, Sicily, SILVESTRI (362) pp. 26–28; Miocene, province of Rome, DE STEFANI (373) pp. 40–45; Middle Eocene, Dalmatia, SCHUBERT (346) p. 268; Devonian, Bohemia, some generically uncertain, SCHUBERT & LIEBUS (348) p. 66; Exe estuary, WORTH (414) pp. 336–343; Pleistocene Clay, Shellag, Isle of Man, and Bovevagh (Derry), WRIGHT (417 & 420); Chalk, Paris basin, general account, — (223).

Foraminifera; cause of shell form-modifications in, RHUMBLER (315) pp. 183–302, text-figg. 32–108 & 1 pl.; general account of, CHAPMAN (61).

†*Allomorphina*, provisionally placed in the *Buliminidæ*, FORNASINI (121).

†*Alveolina* (*Flosculina*) *decipiens* Schwag., Eocene, islands of Paxos and Antipaxos, description, p. 416, pl. 7, fig. 5, and *A. ellipsoidalis* Schwag., p. 416, pl. 7, fig. 6, MARTELLI (245).

†*Ammofrondicularia*, **n. g.**, *angusta*, **n. sp.**, Tertiary, Southern Tyrol, notes on, p. 24, pl. 1, fig. 30, SCHUBERT (347A).

†*Assilina* d'Orb. [see under *Nummulites*, PREVER (299).]
†*Astrorhiza granulosa* Brady, Tertiary, Southern Tyrol, note on, SCHUBERT (347A) p. 17, pl. 1, fig. 2.
†*Bathysiphon taurinensis* Sacco, Tertiary, Southern Tyrol, note on, p. 18, pl. 1, figg. 14 & 15, SCHUBERT (347A).
Bifarina limbata (Brady), Funafuti Atoll, CHAPMAN (59) p. 409, pl. 36, fig. 12.
†*Bigenerina digitata* d'Orb., Tertiary, Southern Tyrol, note on, p. 25, text-figg. 1 & 2, SCHUBERT (347A).
†*Biloculina borchi*, **n. sp.**, p. 26, *depressa* d'Orb. var. *denticulata*, **n. var.**, p. 26, *dolomieui*, **n. sp.**, p. 26, *guerrerii*, **n. sp.**, pp. 19–29, 5 text-figg., *ovata*, p. 26, *perremutoi*, **n. sp.**, p. 26, *tarantoi*, **n. sp.**, p. 26, occurrence, Pliocene, Catania, *B. guerrerii* (megalospheric form) described, SILVESTRI (362).
B. inflata, **n. sp.**, Post-Glacial, or Recent, Lune estuary, READE (309) p. 183, pl. 13, figg. 1–4.
Botellina labyrinthica, occurrence, Rathlin Island and Belfast Lough, WRIGHT (418) p. 211.
†*Bolivina æmariensis* Costa, p. 25, pl. 1, figg. 33, *B. vaceki*, **n. sp.**, p. 25, pl. 1, fig. 29, Tertiary, Southern Tyrol, notes on, SCHUBERT (347A).
†*B. beyrichi*, new from British Pleistocene clay (Bovevagh), WRIGHT (417); also Pleistocene clay, Isle of Man, WRIGHT (420); *B. incrassata* Reuss, White Chalk, Libyan desert, WANNER (409A) p. 96; *B. serrata*, occurrence, Pleistocene clay, Isle of Man, WRIGHT (420); and Chalk, Antrim, also *B. obsoleta*, WELCH (412) pp. 179 & 180.
B. dilatata, from the Adriatic, described, FORNASINI (119) p. 380, pl. O, fig. 43.
†*Buliminidæ*, complete list of Italian, mostly Miocene and Pliocene; in this group are provisionally placed *Chilostomella* and *Allomorphina*, FORNASINI (121).
Buliminidæ, from the Adriatic; FORNASINI (119) first figures (from the "planches inédites"), several species described by d'Orbigny, which are also discussed. These are:—
Bulimina aculeata, p. 373, fig. 4, *brevis*, p. 374, fig. 7, *elongata*, p. 373, fig. 5, *punctata*, p. 374, fig. 6, *striata*, p. 371, fig. 1, *sulcata*, p. 372, fig. 2, and *trilobata*, p. 373, fig. 3.
He then describes the following forms (all figures refer to pl. O):—
B. echinata d'Orb., p. 379, fig. 38, *elegans* d'Orb., p. 375, var. *marginata*, p. 376, figg. 7, 14, 33 & 39, *elongata* d'Orb., p. 376, figg. 10 & 20 (A form), 12 & 37 (B form), var. *ariminensis* d'Orb., p. 377, figg. 8 & 11, *fusiformis* Will. (A form), p. 377, figg. 6, 9, 16, 18, 23, 36, 40 & 41, (B form) p. 378, figg. 1, 3, 4, 21 & 27, var. *baccata*, p. 378, figg. 2, 5 & 30, var. *marginata*, p. 378, figg. 24 & 25, var. *pupoides*, p. 378, figg. 13 & 17, and *gibba*, **n. sp.**, p. 378, figg. 32 & 34, var. *marginata*, **n. var.**, p. 379, figg. 15, 19, 22, 26, 35 & 42.
†*Bulimina ariminensis* d'Orb., occurrence, Pliocene, Italy, FORNASINI (121) p. 178, text-fig. 3 (after d'Orb. "planches inédites").
B. consobrina, **n. sp.**, Adriatic, described, FORNASINI (118) p. 374, fig. 23.
†*B. costata* d'Orb., occurrence, Pliocene, Italy, FORNASINI (121) p. 174, text-fig. 1 (after d'Orb. "planches inédites"); *B. echinata* d'Orb., occurrence, Pliocene, Italy, FORNASINI (121) p. 176, text-fig. 2 (after d'Orb. "planches inédites"); *B. elegans*, occurrence, Pleistocene clay, Bovevagh, WRIGHT (417); *B. elegantissima* d'Orb., var. *seminuda* Terq., Eocene, Egypt, CHAPMAN (58) p. 108, pl. 5, fig. 6; *B. lævigata* d'Orb., occurrence, Pliocene, Italy, FORNASINI (121) p. 182, text-fig. 4 (after d'Orb. "planches inédites").
B. minutissima, **n. sp.**, Post-Glacial or Recent, Lune estuary, note on, READE (309) p. 189, pl. 13, figg. 9–12.

†*B. semistriata* d'Orb. Pliocene, Italy, FORNASINI (121) p. 200, text-fig. 5 (after d'Orb. "planches inédites"); *B.*, **n. sp.**, plankton, Devonian, Bohemia, SCHUBERT & LIEBUS (348) p. 66.

Calcarina spengleri, occurrence, Japanese islands, YOSHIWARA (424) p. 3.

†*Calpionella*, **n. g.**, *alpina*, **n. sp.** (allied to *Lagena*): from Jurassic, Southern Rhaetia, diagnosed, LORENZ (236) p. 60, pl. 9, fig. 1.

†*Camerina* Brug. [See under *Nummulites*, PREVER (299).]

Carpenteria rhaphidodendron, p. 395, pl. 35, fig. 2; *C. serialis*, **n. sp.**, Funafuti Atoll, diagnosed, CHAPMAN (59) p. 395, pl. 35, fig. 3.

†*Cassidulina bradyi*, occurrence, Boulder Clay, Cork, READE (308) pp. 32 & 33.

†*Cassidulinidæ*, list of Italian, mostly Miocene and Pliocene, FORNASINI (121).

†*Chilostomella* provisionally placed in the *Buliminidæ*, FORNASINI (121).

†*Clavulina szaboi* Hantk., occurrence, Middle Eocene, Dalmatia, SCHUBERT (346) p. 268.

†*Cristellaria cumulicosta* Gümb. var. *spinata* Schub., Tertiary, Southern Tyrol, note on, p. 24, pl. 1, fig. 34, SCHUBERT (347A); *C. italica* (Defr.) var. *felsinea*, **n. var.**, p. 63, text-fig. 15, *C. seguenziana*, **n. sp.**, p. 64, fig. 16, described, Italian Tertiary, FORNASINI (117A).

C. mirabilis, **n. sp.**, Funafuti Atoll, diagnosed, CHAPMAN (59) p. 410, pl. 36, fig. 15.

†*C. rotulata*, occurrence, White Chalk, Libyan desert, WANNER (409A) p. 96.

†*Cyclammina fontinensis* (Terq.), p. 23, pl. 1, fig. 28, *pusilla* Brady, p. 22, pl. 1, fig. 32, *uhligi*, **n. sp.**, p. 22, pl. 1, fig. 27, *C.* sp., p. 23, pl. 1, fig. 26, *C.* sp., p. 22, pl. 1, fig. 24, Tertiary, Southern Tyrol, notes on, SCHUBERT (347A).

Cycloclypeus carpenteri Brady, microspheric form of, obtained from Funafuti Atoll, CHAPMAN (59)—[described and figured, p. 27, pl. 3, fig. 2 in former work, Zool. Rec. 1900, No. 19].

Cymbalopora bulloides, account of, EARLAND (95) pp. 309–322, pl. 16; *C.* (*Tretomphalus*) *inversa*, **n. sp.**, Funafuti Atoll, diagnosed, CHAPMAN (59) p. 411, pl. 36, fig. 18.

†*Dendrophrya excelsa* Grzyb., Tertiary, Southern Tyrol, note on, SCHUBERT (347A) p. 17, pl. 1, figg. 16–19.

†*Dentalina mucronata* Neug., occurrence, Eocene, Dalmatia, SCHUBERT (346) p. 269.

†*Dicyclina lusitanica*, **n. sp.**, Jurassic, Portugal, CHOFFAT (62), p. 112; *D. l.* Choffat should be *Iberina l.* (Choffat), MUNIER-CHALMAS (271) p. 350; *D. l.* Choffat, Cretaceous, described, EGGER (98) p. 585, pl. 6, figg. 3–5; *D. præcursor* Gümbel, Cretaceous, described, EGGER (98) p. 582, pl. 1, figg. 10–20.

Discorbina acuminata, **n. sp.**, Funafuti Atoll, diagnosed, CHAPMAN (59) p. 385, pl. 36, fig. 3; *D. bradyana*, **n. sp.**, Adriatic, described, FORNASINI (118) p. 393, fig. 43.

†*D. minutissima*, occurrence, Pleistocene Clay, Shellag, WRIGHT (420); *D. obtusa* (D'Orb.), Glacial deposits, Lune estuary, READE (309) p. 178, pl. 13, figg. 5–8; *D. pustulosa*, occurrence, Pleistocene Clay, Bovevagh, WRIGHT (417); *D. tuberculata*, occurrence, Pleistocene Clay, Shellag, WRIGHT (420).

D. rugosa d'Orb., from Province town (Mass.), note on, BAGG (13) p. 755; *D. valvulata*, occurrence of "twinned"-shells in, RHUMBLER (314) p. 235, pl. 8, fig. 41.

†*Fallotia*, **n. g.**, *jacquoti*, **n. sp.**, Cretaceous, Landes, description, DOUVILLÉ (91) p. 298, pl. 9, fig. 5, pl. 10, figg. 1 & 2.

The †"*Faujasina*," spp. described from Italy by Costa, do not belong to this genus. His *F. carinata* from Pozzuoli is a *Polystomella crispa*, his *F. contraria* from Ischia is an *Anomalina ariminensis*, and his *F.* sp.

from Casamicciola is an *Operculina ammonoides*, FORNASINI (124) p. 15.

Frondicularia millettii, occurrence, Rathlin Island, WRIGHT (418) p. 211; *F. nitida* Terq., Malay Archipelago, noted, p. 525, pl. xi, fig. 19, MILLETT (262); *F.*, **n. sp.**, White Chalk, Libyan desert, diagnosed, WANNER (409A) p. 96, pl. 13, fig. 4; *F. spathulata* Brady, Funafuti Atoll, CHAPMANN (59) p. ?, pl. 36, fig. 14.

†*F. millettii* (?), occurrence, Pleistocene Clay, Shellag, WRIGHT (420).

†*Fusulina elongata*, Upper Permian, Texas, GIRTY (138) p. 364; *Fusulina*-Chalk, from Carboniferous, Forni Avoltri, Carnia, GORTANI (141).

Gaudryina attenuata, **n. sp.**, p. 409, pl. 36, fig. 10, and *G. rotunda*, **n. sp.**, p. 409, pl. 36, fig. 11, from Funafuti Atoll, diagnosed, CHAPMAN (59); *G. baccata* Schwager, occurrence, Cocos-Keeling Island, and note, CHAPMAN (60) p. 232.

†*Gaudryina*, **n. sp.**, occurrence, Eocene, Dalmatia, SCHUBERT (346) p. 268.

Glandulina, distinctions between megalo- and microspheric forms of; the genus to be kept separate from *Nodosaria*, SILVESTRI (360).

†*G. lævigata* d'Orb., var. *marginulinoides*, **n. var.**, p. 55, text-fig. 8, var. *subornata*, **n. var.**, p. 56, fig. 9, Italian Tertiary, described, FORNASINI (117A).

Globigerina sp., occurrence of "twinned"-shells in, RHUMBLER (314) p. 235, fig. i; *G. subcretacea*, **n. sp.**, Funafuti Atoll, diagnosed, CHAPMAN (59) p. 410, pl. 36, fig. 16.

Gromia linearis, **n. sp.**, p. 567, *G. nigricans*, **n. sp.**, p. 568, Lake of Geneva, described, PENARD (289).

Gypsina inhærens Schultze, occurrence, Cocos-Keeling Island, and note, CHAPMAN (60) p. 232, and Boulder Clay, Cork, READE (308) p. 33.

Haddonia minor, **n. sp.**, Funafuti Atoll, diagnosed, CHAPMAN (59) p. 384, pl. 36, figg. 1, 2 & 7, occurrence, Cocos-Keeling Island, id. (60) p. 231; *H. torresiensis* Chapm., occurrence, Funafuti Atoll, CHAPMAN (59) p. 393, pl. 35, fig. 1.

Haplophragmium cassis (Parker), occurrence, Funafuti Atoll, CHAPMAN (59) p. 408, pl. 36, fig. 8; *H. tesselatum*, **n. sp.**, Funafuti Atoll, diagnosed, CHAPMAN (59) p. 408, pl. 36, fig. 9.

†*H. irregulare* Roem., White Chalk, Libyan desert, mentioned, WANNER (409A) p. 95, pl. 13, figg. 1 & 2; *H.* aff. *lobsannense* Andreæ, Tertiary, Southern Tyrol, note, p. 21, pl. 1, fig. 23, SCHUBERT (347A).

†*Hyperammina arborescens* (Normann.), occurrence, Devonian, Bohemia, SCHUBERT & LIEBUS (348) p. 66; *H. elongata* Brady, p. 19, pl. 1, fig. 1, *pellucida*, **n. sp.**, p. 20, pl. 1, fig. 3, *H.* (*Girvanella*) *vagans* Brady, p. 20, pl. 1, fig. 11, Tertiary, Southern Tyrol, notes on, SCHUBERT (347A).

†*Iberina*, correct genus for *Dicyclina lusitanica* Choffat, MUNIER-CHALMAS (271) p. 350.

†*Lagena acuta* (Reuss), var. *sacculus*, **n. var.**, p. 49, text-fig. 3, *bicarinata* (Terq.) var. *placentina*, **n. var.**, p. 51, fig. 5, *lævigata* (Reuss), var. *calostoma*, **n. var.**, p. 48, fig. 2, described, Italian Tertiary, FORNASINI (117A); *L. acuticosta*, occurrence, Pleistocene Clay, Shellag, WRIGHT (420); *L. fimbriata*, occurrence, Boulder Clay, Cork, READE (308) pp. 32 & 33, var. *danica*, Pleistocene Clay, Shellag, WRIGHT (420); *L. gracillima*, occurrence, Chalk, Antrim, WELCH (412) pp. 179 & 180; †*L. lagenoides*, and the var. *tenuistriata*, both tri- and quadri-gonal forms, occurrence, Chalk, Antrim, WELCH (412) pp. 179 & 180.

L. quinquelatera Brady, Post-Glacial or Recent, Lune estuary, note, READE (309) p. 191, pl. 13, figg. 13 & 14.

†*Lenticulina* Lamck. [See under *Nummulites*, PREVER (299).]

Lingulina carinata d'Orb., occurrence, Funafuti Atoll, CHAPMAN (59) p. ?, pl. 36, fig. 13, and Chalk, Antrim, WELCH (412) pp. 179 & 180;

L. limbata, **n. sp.**, p. 523, pl. 11, fig. 15, *L. pagoda*, **n. sp.**, p. 524, pl. 11, figg. 16 & 17, *L.*, sp. indet., p. 524, pl. xi, fig. 18, diagnoses and occurrence, MILLETT (262).

Masonella patelliformis Brady, occurrence, Andaman Sea, ALCOCK (1) p. 296, fig. 98.

Marginulina costata Batsch, p. 526, pl. xi, fig. 20, MILLETT (262).

†*Meandropsina vidali* Schlumberger, Cretaceous, described, EGGER (98) p. 586, pls. 3–6, figg. 1 & 2, & 6–12.

Miliolina funafutiensis Chapm., *M. linnæana* (D'Orb.), and *M. parkeri* H. B. Brady, occurrence, Cocos-Keeling Island, and notes, CHAPMAN (60) p. 231.

"*Nautilus* (*Orthoceras*) *pennatula*" of Batsch, held to be a *Spiroplecta*, FORNASINI (127).

†*Nodosaridæ*, various, Italian Miocene and Pliocene, described, FORNASINI (117A), pp. 45–76, 27 text-figg.

†*Nodosaria ambigua* Neug., retained in place of †*N. subæqualis* Costa, FORNASINI (128); †*N. hispida* d'Orb., microspheric form, p. 52, text-fig. 6, described, Italian Tertiary, FORNASINI (117A); *N. irregularis* Asch., Middle Eocene, Souk Ahrras (Constantine), BLAYAC (25) p. 42.

N. (*Glandulina*) *æqualis* Reuss, p. 511, pl. xi, fig. 3, *N. bicamerata* (F. W. O. Jones), p. 518, pl. xi, fig. 8, *N. capitata* Boll., p. 517, pl. xi, fig. 6, *N.* (*G.*) *comata* (Batsch), p. 512, pl. xi, fig. 2, *N.* (*G.*) *echinata*, **n. sp.**, p. 511, pl. xi, fig. 4, *N.* (*G.*) *lævigata* d'Orb., p. 509, pl. xi, fig. 1, *N. limbata* d'Orb., p. 518, pl. xi, fig. 7, *N. obscura* (?) Reuss, p. 521, pl. xi, figg. 13 & 14, *N. proxima* O. Silv., p. 519, pl. xi, fig. 9, *N. scalaris* (Batsch), p. 520, pl. xi, fig. 10, var. *separans* Brady, p. 520, pl. xi, figg. 11 & 12, *N. semirugosa* d'Orb., p. 515, pl. xi, fig. 5, diagnoses and occurrence, MILLETT (262).

N. scalaris, aberrant forms in, SILVESTRI (360) pp. 49–58, 9 text-figg.

†*N. zippei* Reuss, White Chalk, Libyan desert, WANNER (409A) p. 95, pl. 13, fig. 3; *N. zitteli*, Middle Eocene, Souk Ahrras (Constantine), BLAYAC (25) p. 42; *N.*, sp., Tertiary, Southern Tyrol, note on, p. 24, pl. i, fig. 25, SCHUBERT (347A).

†*Nonionina depressula*, Boulder Clay, WRIGHT (419) p. 598.

†*Nummulitidæ* from :—Eocene, Aquitaine basin, DOUVILLÉ (89); Eocene, Spalato in Dalmatia, described, MARTELLI (247) pp. 43–97, pls. 6 & 7; Eocene of Potenza (Italy), notes on, PREVER (298) pp. 488–505; Cretaceous and Eocene of Ordu (Asia Minor), notes on, SCHUBERT (347) pp. 94–98; Eocene, Miocene, and Pliocene, province of Rome, lists of, DE STEFANI (372–373A); Eocene, near Croatia, DE STEFANI & DAINELLI (374) pp. 155–157.

PREVER (299) pp. 10–13, splits up the genus *Nummulites* into two genera, *Camerina* Brug. 1792, forms with shell ornamented by reticular striations (type *N. lævigata* Lamck.), and *Lenticulina* Lamck. 1804, forms with shell having more or less radiate striations (type *N. beaumonti* d'Arch.). These are each subdivided into sub-genera. The name *Nummulites* Lamck. is retained as a group-name for these two, together with the genus *Assilina* d'Orb. 1821, forms with granulated shell.

Nummulites Lamarck, 1801, description of genera and species grouped together under this name, from the Eocene of Potenza and other Apennine districts of Italy, PREVER (299) pp. 23–112, 8 pls.—The following are **all new**, mostly **n. spp.**:—

Genus *Camerina* Brug. 1792.

(*a*) Sub-genus or section *Bruguieria* Prev.

†*B. capederi*, p. 24, pl. 1, fig. 4, *depressa*, p. 30, pl. 1, fig. 16, *ficheuri*, p. 28, pl. 6, figg. 1–4, *rara*, p. 35, pl. 1, fig. 18, *silvestri*,

p. 26, pl. 5, figg. 24 & 25, *sub-capederi*, p. 25, pl. 1, figg. 5–8, pl. 6, fig. 5, *sub-taramellii*, p. 34, pl. 1, figg. 13–15, *taramellii*, p. 32, pl. 1, fig. 12, *virgilioi*, p. 29, pl. 1, figg. 9 & 10.

(*b*) Sub-genus or section *Laharpeia* Prev.

†*L. basilisca*, p. 39, pl. 1, fig. 31, *benoisti*, p. 40, pl. 1, figg. 27–29, *molli*, p. 44, pl. 2, figg. 3 & 4, *sub-defrancei*, p. 43, pl. 2, figg. 1 & 2.

Genus *Lenticulina* Lamck. 1804.

(*a*) Sub-genus or section *Gümbelia* Prev.

†*G. douvillei*, p. 55, pl. 2, figg. 25 & 26, *gentilei*, p. 57, pl. 3, figg. 7–9, *lucana*, p. 67, pl. 3, fig. 26, *oosteri*, p. 53, pl. 6, figg. 6–8, *paronai*, p. 59, pl. 3, figg. 12 & 13, *parva*, p. 68, pl. 7, figg. 1 & 2, *sub-douvillei*, p. 56, pl. 3, figg. 1–6, *sub-gentilei*, p. 58, pl. 3, figg. 10 & 11, *sub-paronai*, p. 60, pl. 3, figg. 14–17.

(*b*) Sub-genus or section *Hantkenia* Prev.

†*H. adriatica*, p. 105, pl. 5, fig. 23, *airaghii*, p. 102, pl. 5, figg. 17 & 18, *bassanii*, p. 101, pl. 5, fig. 16, *bonarellii*, p. 103, pl. 5, fig. 15, *borelloi*, p. 73, pl. 6, figg. 13–15, *eocenica*, p. 69, pl. 7, figg. 3–5, *fornasinii*, p. 99, pl. 5, figg. 5–9, *guettardi* d'Arch. var. *prima*, **n. var.**, p. 76, pl. 4, fig. 18, *laharpei*, p. 94, pl. 4, fig. 38, *latispira* Meneg. var. *antiqua*, **n. var.**, p. 73, pl. 4, figg. 5 & 6, *marianii*, p. 79, pl. 4, fig. 19, *rzehaki*, p. 90, pl. 4, figg. 32–34, *subairaghii*, p. 103, pl. 5, figg. 19–22, *subfornasinii*, p. 100, pl. 5, figg. 10–13, *submarianii*, p. 80, pl. 4, fig. 20, *subtellinii*, p. 78, pl. 7, figg. 8–12, var. *meridionalis*, p. 79, no fig., *szaboi*, p. 104, pl. 5, fig. 14, *tchihatcheffi* d'Arch. var. *præcursor*, **n. var.**, p. 71, pl. 3, fig. 30 & pl. 4, fig. 1, *tellinii*, p. 77, pl. 7, figg. 6 & 7.

Genus *Assilina* d'Orb.

†*A. formai*, p. 107, pl. 8, figg. 4 & 14, *mamillata* d'Arch. var. *picena*, **n. var.**, p. 107, pl. 8, fig. 3, *paronai*, p. 112, pl. 8, fig. 13, *pulcra*, p. 111, pl. 8, figg. 11, 12, & 17, *subformai*, p. 108, pl. 8, figg. 5–8, 15 & 16.

†*Nummulites biaritzensis*, Arch. p. 97, fig. 2, *N. murchisoni* Brun. p. 97, fig. 3, and *N. tchihatcheffi* var. *subdistans* **n. v.** p. 95, fig. 1, Cretaceous and Eocene, Ordu (Asia Minor), diagnosed, SCHUBERT (347); *N. cocchii* Trab., occurrence, "Suessonian" (Eocene), Firenze, TRABUCCO (390) p. 285, text-figg. 2 & 3; *N. complanata*, Eocene, Metkovich, DE STEFANI & MARTELLI (375) pp. 115–117; *N. discorbina*, var. *la harpei*, **n. var.** (B form), p. 57, pl. 6, fig. 5, *perforata*, var. *stefani*, **n. var.** (B), p. 77, pl. 7, figg. 1 & 2, *sub-œnotria*, **nov.** (A form of *N. œnotria*), p. 78, pl. 7, fig. 3, Eocene, Spalato in Dalmatia, diagnosed, MARTELLI (247); *N. ehrenbergi* de la Harpe, Eocene, Saint Louis, Senegal, VASSEUR (397); *N. fiesolana*, occurrence, "Suessonian" (Eocene), Firenze, TRABUCCO (390) p. 285, text-fig. 1; *N. garganica* Tell., p. 4, fig. 1, *guettardi* d'Arch. & Haime, p. 4, fig. 2, *italica* Tell., p. 5, fig. 3, *lævigata* Lam., p. 6, fig. 4, *lamarcki* d'Arch. & Haime, p. 7, fig. 5, *lucasana* Defr. (?) var. *meneghinii* d'Arch. & Haime, p. 8, fig. 6, *molli* d'Arch., p. 9, fig. 7, *perforata* d'Orb. var. *granulata* Tell., p. 10, fig. 8, var. *renevieri* de la H., p. 10, fig. 9, *striata* d'Orb., p. 11, fig. 10, *subgarganica* Tell., p. 11, fig. 11, *tchihatcheffi* d'Arch. & Haime, p. 12, fig. 12, and *variolaria* p. 12, fig. 13, calcareous Eocene, Mid Italy, described, GENTILE (136A); †*N. græca*, **n. sp.**, Eocene, islands of Paxos and Antipaxos, description, p. 427, pl. 7, fig. 12, *N. jonica*, **n. sp.**, p. 428, pl. 7, figg. 8 & 9,

MARTELLI (245); *N. lævigatus* characteristics of varieties of, from Eocene, neighbourhood of St. Barthélemy and Gomerfontaine, DOUVILLÉ (90) pp. 208–211, pl. 5; *N. rollandi* Mun.-Chalm., middle Eocene, Algeria and Tunis, PERVINQUIÈRE (291) p. 40, also from Souk Ahrras (Constantine) BLAYAC (25) p. 42; *N. tchihatcheffi*, Eocene, Metkovich, DE STEFANI & MARTELLI (375) pp. 115–117; *N.*, **n. sp.**, Eocene, Metkovich, DE STEFANI & MARTELLI (375) p. 115; *N.*, spp., lower Oligocene of Vicentino, mentioned, PATRINI (282) p. 666.

Ophthalmidium cornu, **n. sp.**, Funafuti Atoll, diagnosed, CHAPMAN (59) p. 408, pl. 36, fig. 6.

†*Operculina ammonoides*, occurrence, Boulder Clay, Cork, READE (308) pp. 31, 33; *O. silvestri*, **n. sp.**, Eocene, islands of Paxos and Antipaxos, description, p. 414, pl. 7, figg. 10 & 11, MARTELLI (245); *O.* sp. large specimens, in coral reefs of Japan, p. 10, pl. i, YOSHIWARA (424).

†*Orbitoideæ*, distribution of, in Cretaceous of South-west France, DOUVILLÉ, (92) pp. 307–313.

†*Orbitoides* sp., occurrence, coal layers in the Philippines, MARTIN (248) pp. 326 & 327; *O.* (*Lepidocyclina*) *dispansa* (A form), p. 84, pl. 7, fig. 7, *O.* (*L.*) *dalmatina*, **n. sp.** (A & B), p. 84, pl. 7, figg. 11 & 12, *O.* (*Discocyclina*) *aspersa* (A) p. 85, pl. 7, fig. 9, Eocene, Spalato in Dalmatia, diagnosed, MARTELLI (247); *O. gensacica* (Leym.), p. 256, pl. 6, figg. 4 & 5, pl. 7, figg. 8–14, *O. mamillata*, **n. sp.**, p. 259, pl. 8, figg. 17–20, *O. socialis* (Leym.), p. 258, pl. 6, figg. 6 & 7, pl. 8, figg. 15 & 16, Cretaceous ("Dordonian"), Haute-Garonne, and *O. tissoti*, **n. sp.**, p. 259, pl. 8, figg. 21–25, "Senonian" (?), province of Constantine, described, SCHLUMBERGER (340); *O. nummulitica* Gümbel, Eocene, islands of Paxos and Antipaxos, description, p. 417, pl. 7, fig. 7, MARTELLI (245); *O. socialis* (Leym.), Cretaceous, described, EGGER (98) p. 596, pl. 2.

†*Orbiculinidæ*, revision of the sub-family with creation of a new genus †*Fallotia*, DOUVILLÉ (91) pp. 297–303.

†*Orbitolina lenticularis* Blumenb., Lower Chalk, Southern Rhætia, LORENZ (236) p. 49, text-figg. 1 & 2; Cretaceous, Bavaria, etc., described, EGGER (98) p. 579, pl. i, figg. 1–9.

†*Orbitolitidæ*, revision of the sub-family with creation of a new genus †*Præsorites*, DOUVILLÉ (91) pp. 290–297; distribution of, in Cretaceous of South-west France, DOUVILLÉ (92) pp. 307–313.

Orbitolites complanata, occurrence of "twinned"-shells in, RHUMBLER (314) p. 196; *O. duplex*, "twinned"-shells in, description, RHUMBLER (314) pp. 193–296, pls. 7 & 8.

Pamphagus arcuatus, **n. sp.**, p. 440, described, PENARD (289); *P. hyalinus*, description and occurrence, ZACHARIAS (432) pp. 21 & 22, pl. 1, figg. 1–7.

†*Pavonina agglutinans*, **n. sp.**, Tertiary, Southern Tyrol, notes on, p. 23, pl. i, fig. 31, SCHUBERT (347A).

P. flabelliformis d'Orb., occurrence, Cocos-Keeling Island, and note, CHAPMAN (60) p. 231.

†*Pithonella* (*Lagena*) *ovalis*, Upper Chalk, Southern Rhætia, stratigraphically important, LORENZ (236) p. 46, pl. 9, fig. 2.

†*Placopsilina cenomana* d'Orb., occurrence, Eocene, Egypt, CHAPMAN (58) p. 107, pl. 5, fig. 4.

Plagiophrys parvipunctata, **n. sp.**, p. 442, described, PENARD (289).

†*Polymorphina*, various Eocene and Miocene spp., originally described by D'Orbigny in "Tableau Méthodique" and "Prodrome," mentioned and figured (figg. taken from "planches inédites"), FORNASINI (123) pp. 11–13: all figures refer to pl. i; *P. aculeata*, p. 11, fig. 1, *P. consecta*, p. 12, fig. 4, *P.* (*Globulina*) *deformis*, p. 13, fig. 9, *P.* (*G.*) *depressa*, p. 12, fig. 8, *P. dilatata*, p. 12, fig. 5, *P.* (*G.*) *elongata*, p. 12, fig. 7, *P.*

(*G.*) *grateloupi*, p. 12, fig. 6, *P. pupa*, p. 12, fig. 3, and *P. tuberosa*, p. 12, fig. 2.

†*P. amygdaloides* Reuss., var. *lepida*, **n. var.**, p. 71, text-fig. 24, var. *terquemiana*, **n. var.**, p. 72, fig. 25, *burdigalensis* d'Orb., var. *lequilensis*, **n. var.**, p. 73, fig. 26, *communis* d'Orb., var. *etrusca*, **n. var.**, p. 70, fig. 23, *gibba* d'Orb., var. *glomulus*, **n. var.**, p. 68, fig. 20, *rotundata*, var. *hydrula*, **n. var.**, p. 67, fig. 19, *sororia*, Reuss, var. *consobrina*, **n. var.**, p. 69, fig. 21, *vitrea* (Born.), var. *glandulinoides*, **n. var.**, p. 66, fig. 18, described, Italian Tertiary, FORNASINI (117A); *P. myristiformis*, occurrence, Boulder Clay, Cork, READE (308) p. 33.

†*Polystomella macella*, var. *aculeata*, **n. var.**, occurrence, Pliocene, Catania, SILVESTRI (362) p. 27.

Polytrema miniaceum (Pallas), var. *alba* Carter, occurrence, Cocos-Keeling Island, CHAPMAN (60) p. 232; *P. planum*, occurrence, Funafuti Atoll, CHAPMAN (59) p. 396, pl. 35, figg. 2 & 4.

†*Præsorites*, **n. g.**, *moureti*, **n. sp.**, Cretaceous, Sarlat, description, DOUVILLÉ (91) p. 291, pl. 9, figg. 1–4.

Pseudodifflugia horrida, **n. sp.**, p. 452, *P. fascicularis*, **n. sp.**, p. 453, described, PENARD (289).

Pulvinulina adriatica, **n. sp.**, occurrence, FORNASINI (116) p. 35; described, ibid. (118) p. 395, fig. 45; *P. punctulata* (d'Orb.), var. *scabra*, **n. var.**, Funafuti Atoll, diagnosed, CHAPMAN (59) p. 411, pl. 36, fig. 19.

†*P. karsteni*, occurrence, Pleistocene Clay, Bovevagh, WRIGHT (417); *P. micheliniana*, occurrence, Boulder Clay, Cork, READE (308) p. 33; *P. natidula*, occurrence, Pleistocene Clay, Shellag, WRIGHT (420).

†*Quinqueloculina calathæ*, **n. sp.**, p. 27, *galvanoi*, **n. sp.**, p. 28, *philippi*, **n. sp.**, p. 28, *ruggerii*, p. 28, occurrence, Pliocene, Catania, SILVESTRI (362).

†*Reophax difflugiformis* Brady, p. 20, pl. 1, figg. 12 & 13, *pilulifera* Brady, p. 21, pl. 1, fig. 21, Tertiary, Southern Tyrol, notes on, SCHUBERT (347A); *R.* sp., occurrence, Devonian, Bohemia, SCHUBERT & LIEBUS (348) p. 66.

†*Rhabdammina abyssorum* Sars, p. 17, pl. 1, figg. 5–9, and *discreta* Brady, p. 18, pl. 1, figg. 4 & 10, Tertiary, Southern Tyrol, notes on, SCHUBERT (347A).

†*Saccamina carteri* (Brady), occurrence, Devonian, Bohemia, SCHUBERT & LIEBUS (348) p. 66.

Siphogenerina columellaris, marked dimorphism in, the microspheric form being much the rarer, SILVESTRI (361) pp. 101–104, 2 text-figg.

Spirillina decorata Brady var. *unilatera*, **n. var.**, Funafuti Atoll, diagnosed, CHAPMAN (59) p. 410, pl. 36, fig. 17; *S. tuberculo-limbata* Chapm., occurrence, Cocos-Keeling Island, and note, CHAPMAN (60) p. 232.

†*Spirocyclina infravalanginiensis*, **n. sp.**, from "Infravalanginien," Portugal, CHOFFAT (62) p. 112.

Spiroloculina parvula, **n. sp.**, Funafuti Atoll, diagnosed, CHAPMAN (59) p. 408, pl. 36, fig. 5; *S. terquemiana*, **n. sp.**, occurrence, Adriatic, FORNASINI (116) p. 34, described, ibid. (118) p. 360, fig. 3.

†*S. tenuiseptata*, occurrence, Boulder Clay, Cork, READE (308) p. 32.

Spiroplecta carinata d'Orb., researches on, SPANDEL (371) pp. 163–174, 6 figg.; *S.* sp., mode of growth of test, p. 212, figg. b & x, pl. 3, and in *S. sagittula*, pl. 3, figg. c–e, WRIGHT (418).

Spiroplectina, **n. g.**, for a Frondicularian-type developed from a *Spiroplecta*, name only, SCHUBERT (345).

†*Stacheia* sp., occurrence, Devonian, Bohemia, SCHUBERT & LIEBUS (348) p. 66.

†*Textilaria* [*Textularia*], various Miocene and recent spp. originally described by d'Orbigny (in "Tableau méthodique" and "Prodrome")

redescribed and figured (figures taken from the "planches inédites"), FORNASINI (122); [all figures refer to pl. iii]—*T. acuta*, p. 105, fig. 2, *T. communis*, p. 106, fig. 9, *T. consecta*, p. 104, fig. 1, *T. elongata*, p. 105, fig. 4, *T. lingula*, p. 105, fig. 7, *T. lobata*, p. 105, fig. 5, *T. marginata*, p. 105, fig. 6, *T. quadrangularis*, p. 106, fig. 8, and *T. myosa*, p. 105, fig. 3; three Pliocene spp. of d'Orbigny, similarly described, FORNASINI (126): *T. plana*, p. 45, text-fig. 2, *T. punctata*, p. 44, text-fig. 1, and *T. trochoides*, p. 46, text-fig. 3.

T. adriatica, **n. sp.**, occurrence, FORNASINI (116) p. 34, described, ibid. (118) p. 369, fig. 19.

†*Textularia exigua*, **n. sp.**, p. 28, *papillosa*, **n. sp.**, p. 28, occurrence, Pliocene, Catania, SILVESTRI (362); *T. globulosa*, occurrence, Pleistocene Clay, Bovevagh, WRIGHT (417), and Shellag, ibid. (420); *T.* sp., mode of growth of test, WRIGHT (418) p. 212, pl. 3, fig. a.

Tinoporus baculatus var. *florescens*, **n. var.**, Funafuti Atoll, diagnosed, CHAPMAN (59) p. 386, pl. 36, fig. 4.

†*Trigenerina*, **nom. nov.** for *Schizophora hæringensis* Gümb., as a "triformed" type (=a Cristellaria+Textularia+Lingulina), p. 26, text-fig. 3, SCHUBERT (347A).

†*Triloculina crescimonei*, **n. sp.**, occurrence, Pliocene, Catania, SILVESTRI (362) p. 28.

†*Truncatulina akneriana*, occurrence, Pleistocene Clay, Shellag, WRIGHT (420); *T. refulgens* Montf., and *T. tenera* Brady, occurrence, Eocene, Dalmatia, SCHUBERT (346) p. 269.

Uvigerina bradyana, **n. sp.**, occurrence, Adriatic, FORNASINI (116) p. 34, described, ibid. (118) p. 390, fig. 40.

Vaginulina formosa, **n. sp.**, p. 527, pl. 11, fig. 22, *V. legumen* (Linné), p. 527, pl. 11, fig. 21, diagnoses and occurrence, MILLETT (262).

†*V. lævigata* Roem. var. *lequilensis*, **n. var.**, p. 60, text-fig. 13, described, Italian Tertiary, FORNASINI (117A).

†*Valvulina schwageri*, **n. sp.**, Eocene, Egypt, note, CHAPMAN (58) p. 107, pl. 5, fig. 5.

Virgulina schreibersiana Czjrek, p. 379, pl. O, figg. 28 & 44, and *V. subsquamosa* Egger, p. 379, pl. O, figg. 25, 29 & 41, from the Adriatic, described, FORNASINI (119).

3. HELIOZOA.

(a) Aphrothoraca:—

Actinophrys sol., occurrence, plankton, Lake Aber or Wolfgang, v. KEISSLER (175) p. 312.

A peculiar Heliozoan (near *Actinophrys*) described, CRAWLEY (74) pp. 256 & 257, 1 fig.

Actinosphærium eichhorni, the chromatic grains in the protoplasm of, termed *chromidia*, HERTWIG (153) p. 4; a new *Zoochlorella*, *Z. actinosphærii*, symbiotic with, AVERINTZEV (8) p. 345.

(b) Chlamydophora:—

Heterophrys pusilla, **n. sp.**, description, and occurrence, ZACHARIAS (426) p. 666.

(c) Chalarothoraca:—

Acanthocystis setifera, **n. sp.**, p. 268, var. *bologoensis*, **n. var.**, p. 268, occurrence and diagnosis, MĪNKEVĪCH (265); *A. myriospina* (!) Pén., occurrence, Bay of Sévastopol, MĪNKEVĪCH (266).

Myxodiscus, **n. g.**, *crystalligerus*, **n. sp.**, description, PROWAZEK (301) pp. 294–296, pl. 2, figg. 1 & 2.

Pinaciophora fluviatilis, an autopotamic plankton organism from the Volga, ZYKOFF (439).
Raphidiophrys pallida, occurrence in Dratzig Lake, VOIGT (406) p. 80.

(d) **Desmothoraca**:—

†*Clathrulina elegans*, Quaternary, Sweden, time of occurrence, LAGERHEIM (184) pp. 519 & 520.

4. RADIOLARIA.

Radiolaria in plankton from:—Faröe Channel, WOLFENDEN (413); Indian Ocean and Malay Archipel., CLEVE (65) p. 10, and North Sea and Skagerack, CLEVE (66) p. 23.
†Radiolaria from Miocene of Italy, described, VINASSA DE REGNY (399) pp. 565–595, pls. 1–3, and from Cretaceous, Island of Carpathos, id. (400) pp. 497–512, pl. 1.
†Radiolaria (possibly *Dictyomitra* and *Spongodiscus*) from Upper Gondwana Beds, Madras, COOMARASWAMY (71) pp. 305 & 306, pl. 17, figg. 1–6.

(a) **Peripylaria**:—

†*Acanthosphæra parvula*, **n. sp.**, p. 572, pl. 1, fig. 29, *A. simplex*, **n. sp.**, p. 572, pl. 1, fig. 28, Miocene, Italy, diagnosed, VINASSA (399); *A.* sp. *α*, p. 502, pl. 1, fig. 15, *A.* sp. *β*, p. 502, pl. 1, fig. 16, Cretaceous, Carpathos, diagnosed, VINASSA (400).
†*Amphibrachium acum*, **n. sp.**, p. 503, pl. 1, fig. 26, Cretaceous, Carpathos, diagnosed, VINASSA (400); *A. robustum*, **n. sp.**, p. 577, pl. 2, fig. 11, Miocene, Italy, diagnosed, VINASSA (399).
†*Amphistylus crassispina*, **n. sp.**, Cretaceous, Carpathos, diagnosed, VINASSA (400) p. 569, pl. 1, fig. 16.
†*Cannartiscus canavarii*, **n. sp.**, p. 574, pl. 1, fig. 45, Miocene, Italy, diagnosed, VINASSA (399).
†*Cannartus haeckelianus*, **n. sp.**, p. 574, pl. 1, fig. 44, Miocene, Italy, diagnosed, VINASSA (399).
†*Carposphæra serratipora*, **n. sp.**, p. 567, pl. 1, fig. 6, *C. stöhri*, **n. sp.**, p. 567, pl. 1, fig. 5, Miocene, Italy, diagnosed, VINASSA (399); *C.*, **n. sp.**, Cretaceous, Carpathos, diagnosed, VINASSA (400) p. 500, pl. 1, fig. 7.
†*Cenellipsis annuligera*, **n. sp.**, p. 573, pl. 1, fig. 37, *C. dreyeri*, **n. sp.**, p. 573, pl. 1, fig. 38, *C.* (?) *lens*, **n. sp.**, p. 573, pl. 1, fig. 35, *C. ovum*, **n. sp.**, p. 572, pl. 1, fig. 32, *C. parvipora*, **n. sp.**, p. 572, pl. 1, fig. 33, *C. raripora*, **n. sp.**, p. 573, pl. 1, fig. 34, *C. scabra*, **n. sp.**, p. 573, pl. 1, fig. 36, Miocene, Italy, diagnosed, VINASSA (399).
†*Cenosphæra doderleini*, **n. sp.**, p. 567, pl. 1, fig. 2, *C. porosissima*, **n. sp.**, p. 567, pl. 1, fig. 3, *C. varieporata*, **n. sp.**, p. 567, pl. 1, fig. 1, Miocene, Italy, diagnosed, VINASSA (399); *C. rossi*, p. 500, pl. 1, fig. 1, *C.*, sp. *α*, p. 500, pl. 1, fig. 2, *C.*, sp. *β*, p. 500, pl. 1, fig. 3, Cretaceous, Carpathos, diagnosed, VINASSA (400).
†*Chitonastrum tricorne*, **n. sp.**, p. 504, pl. 1, fig. 35, Cretaceous, Carpathos, diagnosed, VINASSA (400).
Collozoum brandtii, **n. sp.**, description and occurrence, p. 346, WOLFENDEN (413).
†*Dorydictyum majori*, **n. sp.**, Cretaceous, Carpathos, diagnosed, VINASSA (400) p. 501, pl. 1, fig. 9.
†*Dorydruppa*, **n. g.**, *simonellii*, **n. sp.**, p. 574, pl. 1, fig. 42, Miocene, Italy, diagnosed, VINASSA (399).
†*Dorylonchidium hexactus*, **n. sp.**, Miocene, Italy, diagnosed, p. 568, pl. 1, fig. 12, VINASSA (399).

†*Dorypruinum*, **n. g.**, *apenninicum*, **n. sp.**, p. 574, pl. 1, fig. 43, Miocene, Italy, diagnosed, VINASSA (399).

†*Dorysphæra baculum*, **n. sp.**, p. 568, pl. 1, fig. 11, *D. ehrenbergi*, **n. sp.**, p. 568, pl. 1, fig. 10, var. *longispina*, **n. var.**, p. 568, Miocene, Italy, diagnosed, VINASSA (399); *D. græca*, **n. sp.**, Cretaceous, Carpathos, p. 501, pl. 1, fig. 10, diagnosed, VINASSA (400).

†*Druppula apenninica*, **n. sp.**, p. 573, pl. 1, fig. 40, Miocene, Italy, diagnosed, VINASSA (399).

†*Etmosphæra carpathica*, **n. sp.**, p. 500, pl. 1, fig. 5, Cretaceous, Carpathos, diagnosed, VINASSA (400); *E. rara*, **n. sp.**, p. 567, pl. 1, fig. 4, Miocene, Italy, diagnosed, VINASSA (399).

†*Haliomma læve*, **n. sp.**, p. 572, pl. 1, fig. 31, *H. magneporatum*, **n. sp.**, p. 572, pl. 1, fig. 30, Miocene, Italy, diagnosed, VINASSA (399).

Haliommatidium mülleri [=*Lychnaspis m.*], reproduction of, PORTA (294) pl. 1, fig. 2.

†*Hexacladus*, **n. g.**, *pantanellii*, **n. sp.**, p. 570, pl. 1, fig. 21, Miocene, Italy, diagnosed, VINASSA (399).

†*Hexacontium multiporum*, **n. sp.**, p. 571, pl. 1, fig. 26, Miocene, Italy, diagnosed, VINASSA (399).

†*Hexacromyum difficile*, **n. sp.**, p. 571, pl. 1, fig. 27, Miocene, Italy, diagnosed, VINASSA (399).

†*Hexaloncharium archimedis*, **n. sp.**, p. 571, pl. 1, fig. 25, Miocene, Italy, diagnosed, VINASSA (399).

†*Hexalonche acutispina*, **n. sp.**, p. 571, pl. 1, fig. 24, *H. microsphæra*, **n. sp.**, p. 571, pl. 1, fig. 23, *H. parvispina*, **n. sp.**, p. 570, pl. 1, fig. 22, Miocene, Italy, diagnosed, VINASSA (399).

†*Hexastylus simplex*, **n. sp.**, p. 570, pl. 1, fig. 20, Miocene, Italy, diagnosed, VINASSA (399).

†*Liosphæra*, **n. sp.**, p. 500, pl. 1, fig. 8, Cretaceous, Carpathos, diagnosed, VINASSA (400).

†*Lithapium lagena*, **n. sp.**, p. 503, pl. 1, fig. 21, var. *elliptica*, **n. var.**, p. 503, pl. 1, fig. 22, Cretaceous, Carpathos, VINASSA (400).

Lychnaspis:—see *Haliommatidium*.

Myelastrum auricillii, **n. sp.**, occurrence, plankton, Malay Archipel. and diagnosis, CLEVE (65) pp. 11 & 53, pl. 8, fig. 1.

Pachysphæra, **n. g.**, diagnosis, p. 66, *P. globosa*, **n. sp.**, p. 67, *P. octofurcata*, **n. sp.**, diagnosis and occurrence, p. 67, BRANDT (41).

†*Perichlamidium irregulare*, **n. sp.**, p. 576, pl. 2, fig. 3, *P. radiatum*, **n. sp.**, p. 576, pl. 1, fig. 46, Miocene, Italy, diagnosed, VINASSA (399).

Physematium, to include *Thalassolampe margarodes*, BRANDT (41).

†*Pipettella fallax*, **n. sp.**, p. 573, pl. 1, fig. 39, Miocene, Italy, diagnosed, VINASSA (399).

†*Porodiscus discospira*, **n. sp.**, p. 575, pl. 2, fig. 10, *P. hirtus*, **n. sp.**, p. 575, pl. 2, fig. 8, *P. microporus* Stöhr, var. *polipora*, **n. var.**, p. 575, pl. 2, figg. 6 & 7, *P. pseudospiralis*, **n. sp.**, p. 575, pl. 2, fig. 4, *P. uniserialis*, **n. sp.**, p. 575, pl. 2, fig. 1, Miocene, Italy, diagnosed, VINASSA (399).

†*Primulum simplex*, **n. sp.**, p. 573, pl. 1, fig. 41, Miocene, Italy, diagnosed, VINASSA (399).

†*Rhopalastrum* (?), **n. sp.**, p. 504, pl. 1, fig. 32, Cretaceous, Carpathos, diagnosed, VINASSA (400).

†*Sphæropyle crassa*, **n. sp.**, p. 568, pl. 1, fig. 9, Miocene, Italy, diagnosed, VINASSA (399).

†*Spongodiscus* (?) *ellipticus*, **n. sp.**, p. 577, pl. 2, fig. 9, Miocene, Italy, diagnosed, VINASSA (399).

†*Stauracontium mutinense*, **n. sp.**, p. 570, pl. 1, fig. 19, Miocene, Italy, diagnosed, VINASSA (399).

†*Staurancistra elegans*, **n. sp.**, p. 569, pl. 1, fig. 18, Miocene, Italy, diagnosed, VINASSA (399).

†*Staurosphæra insularis*, **n. sp.**, p. 502, pl. 1, fig. 14, Cretaceous, Carpathos, diagnosed, VINASSA (400); *S. miocænica*, **n. sp.**, p. 569, pl. 1, fig. 17, Miocene, Italy, diagnosed, VINASSA (399).

†*Stigmosphæra cruxequites*, **n. sp.**, p. 500, pl. 1, fig. 25, Cretaceous, Carpathos, diagnosed, VINASSA (400).

†*Stylodictya biporata*, p. 576, pl. 2, fig. 5, *S. elliptica*, p. 576, pl. 1, fig. 47, Miocene, Italy, diagnosed, VINASSA (399); *S. haeckelii*, occurrence, Chalk, Teutoburger Forest, ELBERT (99) pp. 150 & 151.

†*Stylosphæra fornasinii*, **n. sp.**, p. 569, pl. 1, fig. 15, Miocene, Italy, diagnosed, VINASSA (399).

Thalassiosolen, **n. g.**, *atlanticus*, **n. sp.**, plankton, Faröe Channel, described, WOLFENDEN (413).

Thalassolampe. This genus held to be unnecessary, and the sp. *margarodes* placed in the genus *Physematium*, BRANDT (41).

Thalassopila. Diagnosis of the genus and spp., p. 66, *T. laciniata*, **n. sp.**, p. 66, *T. pustulosa*, **n. sp.**, p. 66, diagnosis and occurrence, BRANDT (41).

Thalassophysa. Diagnosis of the genus and its chief spp., p. 64, *T. guttulosa*, **n. sp.**, p. 65, *T. hirsuta*, **n. sp.**, p. 65, *T. pelagica*, p. 64, pl. 2, figg. 1, 4, 5, 10, 11 & 13 and pl. 3, figg. 7–11, 13, *T. sanguinolenta*, p. 64, pl. 2, figg. 3, 9, 12, *T. spiculosa*, **n. sp.**, p. 65, pl. 2, figg. 2, 6–8, description and occurrence, BRANDT (41).

†*Thecosphæra grecoi*, **n. sp.**, p. 568, pl. 1, fig. 8, *T. magneporata*, **n. sp.**, p. 567, pl. 1, fig. 7, Miocene, Italy, diagnosed, VINASSA (399).

Triastrum, **n. g.**, *aurivillii*, **n. sp.** (near Haeckel's genera *Dicranastrum*, *Pentophiastrum* and *Myelastrum*), occurrence, plankton, Malay Archipel. and diagnosis, CLEVE (65) pp. 12 & 53, pl. 8, figg. 16 & 17.

†*Tripodictya hellenica*, **n. sp.**, p. 503, pl. 1, fig. 29, Cretaceous, Carpathos, diagnosed, VINASSA (400).

†*Xyphodictya uniserialis*, **n. sp.**, p. 576, pl. 2, fig. 2, Miocene, Italy, diagnosed, VINASSA (399).

†*Xiphostylus barbeyi*, **n. sp.**, p. 501, pl. 1, fig. 11, *X. de stefanii*, **n. sp.**, p. 501, pl. 1, fig. 13, Cretaceous, Carpathos, diagnosed, VINASSA (400).

†*Xyphosphæra apenninica*, **n. sp.**, p. 569, pl. 1, fig. 14, *X. mutinensis*, **n. sp.**, p. 569, pl. 1, fig. 13, Miocene, Italy, diagnosed, VINASSA (399).

(b) Acantharia or Actipylaria:—

Acanthometridæ, reproduction of, PORTA (294) pp. 811–822.

Acanthometra, months of occurrence in plankton from Gulf of Trieste, STEUER (380) pl. 1; *A. cuspidata*, pl. i, fig. 1*b*, & pl. ii, fig. 5, *A. elastica*, pl. i, figg. 1, 1*a*, 3 & 4, and pl. ii, figg. 1 & 2, reproduction, PORTA (294).

Acanthometra and *Acanthophracta*, nature of skeleton and hydrostatic apparatus in, SCHEWIAKOFF (338) p. 686.

Acanthostaurus purpurascens, reproduction of, PORTA (294) pl. i, fig. 5.

Amphilonche elongata, reproduction of, PORTA (294) pl. i, fig. 4*b*.

Xiphicantha quadridentata, reproduction of, PORTA (294) pl. i, fig. 4*c*.

(c) Monopylaria:—

†*Acerahedrina*, **n. g.**, *hirta*, **n. sp.**, p. 581, pl. 2, fig. 32, Miocene, Italy, diagnosed, VINASSA (399).

†*Acerocanium*, **n. g.**, *globosum*, **n. sp.**, p. 581, pl. 2, fig. 28, Miocene, Italy, diagnosed, VINASSA (399).

†*Archicapsa lagena*, **n. sp.**, p. 505, pl. 1, fig. 18, Cretaceous, Carpathos, diagnosed, VINASSA (400).

†*Artocapsa dunikowskyi*, **n. sp.**, p. 591, pl. 3, fig. 51, Miocene, Italy, diagnosed, VINASSA (399).

†*Artostrobus elongatus*, **n. sp.**, p. 586, pl. 3, fig. 20, *A. zittelii*, **n. sp.**, p. 586, pl. 3, fig. 19, Miocene, Italy, diagnosed, VINASSA (399).

†*Bathropyramis apenninica*, **n. sp.**, p. 579, pl. 2, fig. 21, *B.* (*l*) *reticulata*, **n. sp.**, p. 579, pl. 2, fig. 22, Miocene, Italy, diagnosed, VINASSA (399).

†*Botryocella apenninica*, **n. sp.**, p. 578, pl. 2, fig. 38, Miocene, Italy, diagnosed, VINASSA (399).

†*Carpocanistrum brevispina*, **n. sp.**, p. 579, pl. 2, fig. 33, Miocene, Italy, diagnosed, VINASSA (399).

†*Clathospyris minuta*, **n. sp.**, p. 578, pl. 2, fig. 16, Miocene, Italy, diagnosed, VINASSA (399).

†*Cyrtocalpis bütschlii*, **n. sp.**, p. 580, pl. 2, fig. 24, *C. tabulosa*, **n. sp.**, p. 580, pl. 2, fig. 25, Miocene, Italy, diagnosed, VINASSA (399).

†*Cyrtocapsa bicornis*, **n. sp.**, p. 589, pl. 3, fig. 39, *C. brevicornis*, **n. sp.**, p. 589, pl. 3, fig. 35, *C. hirta*, **n. sp.**, p. 589, pl. 3, fig. 36, *C. lævigata*, **n. sp.**, p. 590, pl. 3, fig. 41, *C. longicornis*, **n. sp.**, p. 589, pl. 3, fig. 40, *C. macropora*, **n. sp.**, p. 589, pl. 3, fig. 37, *C. miocenica* var. *lævicauda*, **n. var.**, p. 590, pl. 3, fig. 43, *C. rothpletzi*, **n. sp.**, p. 588, pl. 3, fig. 34, *C. strangulata*, **n. sp.**, p. 589, pl. 3, fig. 38, Miocene, Italy, diagnosed, VINASSA (399).

†*Dicolocapsa acuta*, **n. sp.**, p. 582, pl. 2, fig. 37, *D. elongata*, **n. sp.**, p. 582, pl. 2, fig. 36, Miocene, Italy, diagnosed, VINASSA (399); *D. kalilimnii*, **n. sp.**, p. 506, pl. 1, fig. 36, *D. spinulosa*, **n. sp.**, p. 505, pl. 1, fig. 39, Cretaceous, Carpathos, diagnosed, VINASSA (400).

†*Dictyocephalus hirtus*, **n. sp.**, p. 582, pl. 2, fig. 35, Miocene, Italy, diagnosed, VINASSA (399); *D. jonicus*, **n. sp.**, p. 505, pl. 1, fig. 37, Cretaceous, Carpathos, diagnosed, VINASSA (400).

†*Dictyomitra fucinii*, **n. sp.**, p. 585, pl. 3, fig. 14, *D. inexpleta*, **n. sp.**, p. 585, pl. 3, fig. 16, *D. mutinensis*, **n. sp.**, p. 585, pl. 3, fig. 15, Miocene, Italy, diagnosed, VINASSA (399).

†*Dictyospyris biporata*, **n. sp.**, p. 578, pl. 2, fig. 17, *D. uniporata*, **n. sp.**, p. 578, pl. 2, fig. 18, Miocene, Italy, diagnosed, VINASSA (399).

†*Eucyrtidium globicephalum*, **n. sp.**, p. 586, pl. 3, fig. 23, *E. hirtum*, **n. sp.**, p. 586, pl. 3, fig. 22, *E. typus*, **n. sp.**, p. 587, pl. 3, fig. 24, Miocene, Italy, diagnosed, VINASSA (399).

†*Eusyringium haeckelianum*, **n. sp.**, p. 587, pl. 3, fig. 25, *E. marianii*, **n. sp.**, p. 587, pl. 3, fig. 27, *E. oligoporum*, **n. sp.**, p. 587, pl. 3, fig. 26, Miocene, Italy, diagnosed, VINASSA (399).

†*Lithocampe apenninica*, **n. sp.**, p. 588, pl. 3, fig. 32, *L. biconica*, **n. sp.**, p. 588, pl. 3, fig. 30, *L. globicephala*, **n. sp.**, p. 588, pl. 3, fig. 31, *L. micropyla*, **n. sp.**, p. 587, pl. 3, fig. 28, *L. multipora*, **n. sp.**, p. 588, pl. 3, fig. 29, *L. ovum*, **n. sp.**, p. 588, pl. 3, fig. 33, Miocene, Italy, diagnosed, VINASSA (399); *L. giattinii*, **n. sp.**, p. 509, pl. 1, fig. 57, *L. telegraphica*, **n. sp.**, p. 509, pl. 1, fig. 55, Cretaceous, Carpathos, diagnosed, VINASSA (400).

†*Lithomitra embrionalis*, **n. sp.**, p. 586, pl. 3, fig. 21, Miocene, Italy, diagnosed, VINASSA (399).

†*Lithostrobus parvispina*, **n. sp.**, p. 585, pl. 3, fig. 13, Miocene, Italy, diagnosed, VINASSA (399).

†*Lychnocanium obtusicorne*, **n. sp.**, p. 580, pl. 2, fig. 26, *L. spinatum*, **n. sp.**, p. 580, pl. 2, fig. 27, Miocene, Italy, diagnosed, VINASSA (399).

†*Lychnodictyum simplex*, **n. sp.**, p. 581, pl. 2, fig. 29, Miocene, Italy, diagnosed, VINASSA (399).

†*Podocyrtis dilatata*, **n. sp.**, p. 582, pl. 2, fig. 40, *P. strangulata*, **n. sp.**, p. 583, pl. 2, fig. 39, Miocene, Italy, diagnosed, VINASSA (399).

Pteroscenium auriwillii, **n. sp.**, plankton, Malay Archipelago, diagnosed, CLEVE (65) pp. 11 & 53, pl. 8, fig. 2.

†*Sethocapsa dolium*, **n. sp.**, p. 505, pl. 1, fig. 51, Cretaceous, Carpathos, diagnosed, VINASSA (400).

†*Sethochytris serrata*, **n. sp.**, p. 582, pl. 2, fig. 33, Miocene, Italy, diagnosed, VINASSA (399).

†*Sethocyrtis longicornis*, **n. sp.**, p. 582, pl. 2, fig. 34, Miocene, Italy, diagnosed, VINASSA (399).

†*Spirocapsa rüsti*, **n. sp.**, p. 591, pl. 3, fig. 52, Miocene, Italy, diagnosed, VINASSA (399).

†*Stichocapsa elongata*, **n. sp.**, p. 590, pl. 3, fig. 45, *S. hexagona*, **n. sp.**, p. 590, pl. 3, fig. 44, *S. hirta*, **n. sp.**, p. 591, pl. 3, fig. 48, *S. lævigata*, **n. sp.**, p. 590, pl. 3, fig. 46, *S. longicauda*, **n. sp.**, p. 591, pl. 3, fig. 50, *S. macropora*, **n. sp.**, p. 591, pl. 3, fig. 47, *S. strangulata*, **n. sp.**, p. 591, pl. 3, fig. 49, Miocene, Italy, diagnosed, VINASSA (399).

†*Stichocorys multipora*, **n. sp.**, p. 585, pl. 3, fig. 18, *S. saccoi*, **n. sp.**, p. 585, pl. 3, fig. 17, Miocene, Italy, diagnosed, VINASSA (399).

†*Tetrahedrina elongata*, **n. sp.**, p. 581, pl. 2, fig. 31, *T. gibbosa*, **n. sp.**, p. 581, pl. 2, fig. 30, Miocene, Italy, diagnosed, VINASSA (399).

†*Theocampe latipora*, **n. sp.**, p. 583, pl. 3, fig. 4, *T. microstoma*, **n. sp.**, p. 583, pl. 3, fig. 5, *T. tubulosa*, **n. sp.**, p. 583, pl. 3, fig. 3, Miocene, Italy, diagnosed, VINASSA (399).

†*Theocapsa cayeuxi*, **n. sp.**, p. 584, pl. 3, fig. 7, *T. elongata*, **n. sp.**, p. 584, pl. 3, fig. 8, *T. valida*, **n. sp.**, p. 584, pl. 3, fig. 6, Miocene, Italy, diagnosed, VINASSA (399); *T. tricornis*, **n. sp.**, p. 507, pl. 1, fig. 56, Cretaceous, Carpathos, diagnosed, VINASSA (400).

†*Theocorys globosa*, **n. sp.**, p. 583, pl. 3, fig. 2, Miocene, Italy, diagnosed, VINASSA (399).

†*Theocyrtis hirta*, **n. sp.**, p. 583, pl. 3, fig. 1, Miocene, Italy, diagnosed, VINASSA (399).

†*Tricolocampe* sp. *a*, p. 506, pl. 1, fig. 42, *T.* sp. *β*, p. 506, pl. 1, fig. 43, *T.* sp. *γ*, p. 506, pl. 1, fig. 44, Cretaceous, Carpathos, diagnosed, VINASSA (400).

†*Tricolocapsa elliptica*, **n. sp.**, p. 584, pl. 3, fig. 10, *T. hexagonata*, **n. sp.**, p. 584, pl. 3, fig. 9, *T. parva*, **n. sp.**, p. 584, pl. 3, fig. 11, *T. paucipora*, **n. sp.**, p. 584, pl. 3, fig. 12, Miocene, Italy, diagnosed, VINASSA (399); *T.*, **n. sp.**, p. 507, pl. 1, fig. 41, Cretaceous, Carpathos, diagnosed, VINASSA (400).

†*Tripodiscium globosum*, **n. sp.**, p. 579, pl. 2, fig. 20, Miocene, Italy, diagnosed, VINASSA (399).

†*Tripodonium caputmortis*, **n. sp.**, p. 579, pl. 2, fig. 19, Miocene, Italy, diagnosed, VINASSA (399).

†*Triospyris byzantina*, **n. sp.**, p. 577, pl. 2, fig. 12, *T. capellinii*, **n. sp.**, p. 577, pl. 2, fig. 14, *T. mutinensis*, **n. sp.**, p. 577, pl. 2, fig. 13, Miocene, Italy, diagnosed, VINASSA (399).

†*Tristilospyris bursa*, **n. sp.**, p. 578, pl. 2, fig. 15, Miocene, Italy, diagnosed, VINASSA (399).

†*Trisyringium*, **n. g.**, *capellinii*, **n. sp.**, p. 507, pl. 1, fig. 49, Cretaceous, Carpathos, diagnosed, VINASSA (400).

(d) Tripylaria or Phaeodaria:—

Various Tripylaria, Atlantic plankton, BORGERT (27).

Aulodendron boreale, **n. sp.**, p. 358, pl. 1, fig. 4, plankton, Faroe Channel, diagnosed, WOLFENDEN (413).

Aulographis furcellata, **n. sp.**, p. 357, pl. 1, fig. 1, plankton, Faroe Channel, diagnosed, WOLFENDEN (413).

Challengeron walwini, **n. sp.**, p. 359, pl. 2, fig. 1, *C. zetlandica*, **n. sp.**, p. 361, pl. 2, fig. 5, plankton, Faroe Channel, diagnosed, WOLFENDEN (413).

Circogonia (!) *longispina*, **n. sp.**, p. 574, fig. K, Atlantic plankton, diagnosed, BORGERT (27).

Circoporus hexapodius, **n. sp.**, p. 572, fig. J, *C. oxyacanthus*, **n. sp.**, p. 571, fig. H, Atlantic plankton, diagnosed, BORGERT (27).

Euphysetta elegans, **n. sp.**, p. 569, fig. F, *E. rara*, **n. sp.**, p. 567, fig. E, Atlantic plankton, diagnosed, BORGERT (27).

Gazelleta fragilis, **n. sp.**, p. 570, fig. G, Atlantic plankton, diagnosed, BORGERT (27).

Medusetta ansata, **n. sp.**, p. 564, fig. B, *M. inflata*, **n. sp.**, p. 563, fig. A, and *M. robusta*, **n. sp.**, p. 565, fig. C, Atlantic plankton, diagnosed, BORGERT (27).

Appendix to Radiolaria:—

Stilolonche sp., months of occurrence in plankton from Gulf of Trieste, STEUER (380) pl. 1.

C. *SPOROZOA.*

General account of the Sporozoa, LABBÉ (183).

1. TELOSPORIDEA. [See II, E.]

(a) Gregarinidea:—

Various Gregarines from Tracheates, description of their attachment to, and relations with, the intestinal epithelium, LÉGER & DUBOSCQ (218) pp. 377–472, pls. 2–6; Gregarines (unspecified) from the digestive-tube of larvæ of various *Culicidæ*, ROSS (319).

A polycystid Gregarine entirely intracellular in the intestinal epithelium of *Polyxenus lagurus*, LÉGER & DUBOSCQ (218).

Echinocephalus horridus, **n. sp.**, from *Lithobius calcaratus*, diagnosed, LÉGER (216).

Echinomera hispida, cause of the gliding movements in, CRAWLEY (73) pp. 4–20, pl. 1, fig. 7, pl. 2, fig. 8.

Gregarina cuneata, p. 414, pl. 11, & pl. 12, figg. 29–31, *G. polymorpha*, p. 414, pl. 12, figg. 32–54, and *G. steini*, **n. sp.**, p. 415, pl. 13, figg. 55–85, diagnoses and general account, BERNDT (19).

Monocystis "agilis" Stein, conjugation and sporulation in, CECCONI (57) pp. 122–140, pl. 5 & (56) pp. 132–135, also PROWAZEK (303) pp. 297–305, pl. 9; *M. ascidiæ*, effects on the intestinal epithelium of host, and manner of nutrition, SIEDLECKI (357) pp. 87–96, 5 figg.; *M. légeri*, **n. sp.**, occurrence in *Carabus auratus*, and diagnosis, BLANCHARD (23) pp. 1123 & 1124.

Pterocephalus, method of fixation to the intestinal cells of *Scolopendra*, SIEDLECKI (457) pp. 97–100, 4 figg.; *P. giardi*, **n. sp.**, from *Scolopendra africans*, diagnosed, LÉGER (216); *P. nobilis*, from *Scolopendra*, anisogamous conjugation in, LÉGER & DUBOSCQ (217) pp. 1148 & 1149.

Rhopalonia giardi, **n. sp.**, from *Himantarium gabrielis*, diagnosed, LÉGER (216).

Stenophora juli, cause of the gliding movements in, CRAWLEY (73) pp. 4–20, pl. 1, figg. 1–6, pl. 2, figg. 12 & 13.

Stylorhynchus longicollis, anisogamous conjugation in, LÉGER (215) pp. lxiv–lxxiv, 11 figg.

A Gregarine (?) in *Anopheles maculipennis* in the body cavity, attached to the stomach-wall or sometimes to the malpighian tubules,—no sporulation stages seen, JOHNSON (171) pp. 213–219, pl. xiv. [Probably (degenerating ?) ookinete stages of the Tertian-parasite,—the author admits the strong resemblance.]

Allied to the Gregarines [?]:—

Fam. *Trichosporidæ*, proposed by LAMEERE (186) to include the genus *Trichonympha* parasitic in *Hodotermes ochraceus*, which is held to be neither a Flagellate nor an Infusorian (with which it is usually placed), but allied to the Gregarines.

(b) Coccidiidea:—

Adelea ovata, life-cycle of, SIEDLEČKI (359A) pp. 169–192, pls. 1–3.

Caryotropha, **n. g.**, *mesnilii*, **n. sp.**, from the spermatogonial cells of *Polymnia nebulosa*, with peculiarities in development, general account of, SIEDLEČKI (358) pp. 561–568, 5 figg.

Coccidium faurei, **n. sp.**, from the intestine of sheep, large oocysts (30–40 μ. by 18–26 μ.), its nearest ally is probably *C. cuniculi* (= *C. oviforme*) from which however it differs considerably, MOUSSU & MAROTEL (268) pp. 82–98, 10 text-figg.; *C. oviforme*, general account, TYZZER (395) pp. 235–254, pls. 15–18; *C. mitrarium*, **n. sp.**, from *Damonia reevesii*, remarkable in being extracellular, and in having oocysts like a mitre, with short ornamental processes, LAVERAN & MESNIL (202) p. 613, figg. 12–14; *C. ranarum*, **n. sp.**, from the gut of *Rana esculenta*, an intranuclear parasite, LAVERAN & MESNIL (206) p. 860, 4 figg.; *C. schubergi*, **n. sp.**, life-cycle, SCHAUDINN (334) pp. 197–292, pls. 13–16; *C. scyllii*, **n. sp.**, from *Scyllium*, described, DRAGO (93) pp. 89–94, 7 figg.

Cyclospora caryolytica, **n. sp.**, from the intestinal epithelium of *Talpa europæa*, full account of, SCHAUDINN (335) pp. 378–416, pls. 12 & 13.

Eimeria stiedæ, correct name for the hepatic Coccidia (*Coccidium oviforme*) of Rabbits, STILES (382).

For *Eimeria nova* Léger, LÜHE (240) maintains that the generic name of *Légerella*, proposed by Mesnil, should be used. He further holds that "*Coccidium*" should be replaced by "*Eimeria*" which has the right of priority.

Eimeriella, **n. g.**, proposed for *Eimeria nova* [but antedated by Mesnil's *Legerella*], STILES (381).

Eucoccidium, **n. g.**, proposed for "*Benedenia*" *octopiana* Aimé Schn. LÜHE (240).

Isospora lieberkühni (Labbé) [= *Diplospora lieberkühni* (Labbé)], from the Frog's kidney, sexual reproduction and life-cycle of, LAVERAN & MESNIL (200) p. 83, figg. 1–11; *I. mesnili*, **n. sp.**, description and occurrence in *Chamæleo*, SERGENT (354) pp. 1260 & 1261.

Klossiella, **n. g.**, *muris*, **n. sp.**, a new Coccidian from the renal epithelium of the Mouse. The name is based on the description of what is taken [wrongly, the Rec. thinks] to be the sporogonic cycle, SMITH & JOHNSON (368) pp. 303–316, pls. 21–23.

Legerella testiculi, **n. sp.**, from the testis of Glomeris, account of, CUÉNOT (75) pp. xlix–liii, 6 figg.

Paracoccidium, **n. g.**, *prevoti*, **n. sp.**, from the gut of *Rana esculenta*, characterized by having the ripe sporozoites free in the oocyst, the sporocysts having dissolved up, LAVERAN & MESNIL (206) p. 858, 5 figg.

(c) Hæmosporidia:—

Undescribed Hæmatozoa of malaria in the Malay peninsula, BRADDON (39).

Dactylosoma splendens Labbé, is only *Lankesterella minima* undergoing schizogony, HINTZE (159).

Drepanidium magnum Grassi, probably only a stage of *Lankesterella monilis* Labbé, HINTZE (159).

"*Hæmamœba*" *danilewskyi*, from *Padda oryzivora*, gametes and conjugation in, LAVERAN (192) pp. 177–180, 13 figg.; "*H.*" *majoris*, **n. sp.**, from *Parus major*, described, LAVERAN (195) pp. 1122 & 1123, figg. 1–6; "*H.*" *ziemanni*, **n. sp.**, from *Athene noctua*, described, LAVERAN (195) p. 1124, figg. 7–10; Laveran's "*H.*" *kochi* of apes placed by SCHAUDINN (336) in the genus *Plasmodium*.

Hæmatophyllum malariæ, **nom. nov.** for the malarial parasite, GARZON-MACEDA (136).

Hæmogregarina crotali, **n. sp.**, from *Crotalus*, diagnosed, LAVERAN (191) p. 1038, figg. 7–9; *H. delagei*, **n. sp.**, from *Raia*, brief description, LAVERAN & MESNIL (201) pp. 568 & 569; *H. mocassini*, **n. sp.**, from *Ancistrodon*, diagnosed, LAVERAN (191) p. 1038, figg. 10–13; *H. najæ*, **n. sp.**, from *Naja*, diagnosed, LAVERAN (191) p. 1037, figg. 1–3; *H. rara*, **n. sp.**, p. 611, figg 6–10, and *H. stepanowiana*, **n. sp.**, p. 610, figg. 1–5, from *Damonia reevesii*, diagnosed, LAVERAN & MESNIL (202); *H. zamenis*, **n. sp.**, from *Zamenis*, diagnosed, LAVERAN (191) p. 1038, figg. 4–6.

Hæmoproteus danilewskyi, list of Alpine Birds containing, GALLI-VALERIO (134); SCHAUDINN (336) puts *H.* (*Proteosoma*) *danilewskyi* into the genus *Plasmodium*, as *P. præcox*, and retains the name for the other bird parasite, *Halteridium danilewskyi*.

Halteridium danilewskyi; list of Alpine Birds containing, GALLI-VALERIO (134); termed by SCHAUDINN (336) *Proteosoma* [*Hæmoproteus*] *danilewskyi*.

Karyolysus lacertarum, from the Lizard, account of, MARCEAU (243) pp. 135–142, 3 (46) text-figg.

Malarial parasites; on the specificity of the three different forms occurring in man, BILLET (20).

Lankesterella minima, life-cycle of, HINTZE (159) pp. 693–730, pl. 36.

Laverania malariæ, account of, dealing chiefly with schizonts and microgametes, MAURER (250) pp. 695–719, 3 pls.; SCHAUDINN (336) puts *L. m.*, the cause of pernicious malaria, into the genus *Plasmodium*, making it *P. immaculatum*.

Piroplasma bigeminum, account of, in the Tick, LIGNIÈRES (227) pp. 121–128, pl. 6; *P. canis*, general account of, NOCARD & MOTAS (276) pp. 257–290, pls. 5 & 6.

Plasmodium:—this genus to contain also *Laverania malariæ* as *P. immaculatum*, *Hæmoproteus danilewskyi* as *P. præcox*, and "*Hæmamœba*" *kochi* as *P. kochi*, SCHAUDINN (336); *P. vivax*, the cause of tertian fever, complete life-cycle of, SCHAUDINN (336) pp. 169–250, with 3 pls.; another account, chiefly of the young forms, schizonts and gametocytes, ARGUTINSKY (5) pp. 331–347, pl. 18.

Proteosoma; syn. *Hæmoproteus*, which see.

2. NEOSPORIDIA. [See II, E.]

(a) Myxosporidia:—

Myxosporidian cysts with squarish spores and four polar capsules [probably a *Chloromyxum*] from *Clupea harengus* and *Pomolobus pseudoharengus*, LINTON (229) pp. 416, 438 & 439, pl. 1, figg. 1–3, and TYZZER (394) pp. 66–68, pl. 6.

A Sporozoan parasite [a *Glugea*] from the intestine of the Plaice, described by JOHNSTONE (172) pp. 184–187, pl. D.

Sporozoan cysts [a *Glugea*] from the intestine of *Pseudopleuronectes americanus*, LINTON (229) pp. 416 & 487, pl. 1, fig. 4.

Henneguya zschokkei Gurley (= *H. kolesnikovi* Gurley, and *Myxobolus bicaudatus* Zschokke) from *Coregonus* sp., notes on, FUHRMANN (131) pp. 172 & 173.

Myxidium danilewskyi, occurrence in *Damonia reevesii*, LAVERAN & MESNIL (202) p. 609; *M. lieberkühni*, endogenous multiplication in, LAVERAN & MESNIL (205) p. 471, 5 figg., and COHN (67) p. 631; "sole" of attachment in, PRENANT (296) pp. 200–212, text-figg. 1–4, and (297) pp. 844–846.

Sphærospora masovica, **n. sp.**, from the gall bladder of a Bream, COHN (67) pp. 628–632, 3 text-figg.

Thelohania mülleri, description and life-history of, STEMPELL (377) pp. 235–272, pl. 25.

A "Sporocyst" [probably a Myxosporidian cyst] from the muscles of *Rhombus triacanthus*, LINTON (229) pp. 416 & 455.

(b) **Sarcosporidia:—**

Sarcocystis bertrami, **n. sp.**, from the horse, p. 219, and *S. blanchardi*, **n. sp.**, from *Bubalus*, p. 221, figg. 197 & 198, diagnosed, DOFLEIN (88); *S. muris*, account of, and infection of mice with, SMITH (367) pp. 1–21, pls. 1–4; spores [gymnospores] of, KOCH (177); *S. tenella*, of sheep, notes on, VUILLEMIN (407) pp. 1152–1154.

SPOROZOA INCERTÆ SEDIS.

Haplosporidia:—

Ascosporidium blochmanni, name given to the sausage-shaped parasites of Rotifers [*Bertramia asperospora*], ZACHARIAS (425).

Bertramia asperospora (Fritsch), account of, COHN (68) pp. 497–502; *B.*(?) *asplanchnæ* (the *Glugea asplanchnæ* of Fritsch), a distinct sp., COHN (68).

Polycaryum, **n. g.**, *branchiopodianum*, **n. sp.** (allied to *Cœlosporidium*), a new parasitic Protozoon from *Branchipus grubei*, STEMPELL (379) p. 685, and (378) pp. 591–596, pl. 31.

Exosporidia:—

Joyeuxella toxoides, **n. g.**, **n. sp.**, from *Lagis koreni*, description, BRASIL (42) pp. v–vii, 7 figg.

Chitonicium, **n. g.**, *simplex*, **n. sp.**, an intracellular parasite of the mantle epithelium in various Chitons, doubtfully placed in the Sporozoa near the Haplosporidia, PLATE (292) pp. 601–606, pl. 17.

Sporozoa (?), pale ovoid bodies from the gut contents of *Dasyatis centrura*, LINTON (229) pp. 416 & 433, pl. i, fig. 5.

A Sporozoan (?) parasite in *Acanthometra cuspidata*, perhaps a stage in the life-history of (or allied to) Köppen's *Amœbophrya acanthometræ*. [The author is apparently unaware of the Acinetarian nature of the latter.] PORTA (294) pp. 819–821, pl. ii, fig. 5.

D. *MASTIGOPHORA.*

1. EUFLAGELLATA.

(a) **Flagellata:—**

Type-spp. and synonymy of certain genera of parasitic Flagellates, STILES (383).

Amphimonas clavata, **n. sp.**, Colorado, description, BEARDSLEY (17) p. 51, pl. 11, fig. 1.

Astasia hæmatodes, water turned reddish by the abundance of, ZACHARIAS (430) p. 701.

Atractonema teres, occurrence in America, Colorado, noted, BEARDSLEY (17) pp. 51 & 57.

Carteria cordiformis, a green tinge given to water by the abundance of, ZACHARIAS (430) p. 700.

Cercomonas longicauda, occurrence in America, Colorado, noted, BEARDSLEY (17) pp. 51 & 57, and in Bay of Sévastopol, MĪNKEVĪCH (266) p. 365.

Chilomonas paramœcium, galvanotactic experiments on, WALLENGREN (409) pp. 376–380, pl. ii, figg. 15–17; adaptability of, to chemical solutions, YASUDA (423) pp. 118–121, figg. 1–46, pl. x.

Chlamydomonas pulvisculus Ehrb., occurrence, Bay of Sévastopol, MĪNKEVĪCH (266) p. 365.

Crapulo, **n. g.**, *intrudens*, **n. sp.**, occurrence and description, MIEHE (261) pp. 434–441, pl. 1. The author is uncertain whether to place this form among the *Bodonaceæ* or the *Eugleniaceæ*, but on the whole, inclines to the former position.

Crithidia, **n. g.**, *fasciculata*, **n. sp.**, occurrence in Anopheles, description, LÉGER (213) pp. 355 & 356, 10 figg.; it is probably to be placed between *Herpetomonas* and *Trypanosoma*, and may represent a stage in the life-history of one of the Flagellates parasitic in Vertebrates.

Dinobryon, diagnosis and general account of the genus, pp. 500–524, pls. 18 & 19, LEMMERMANN (221); *D. cylindricum*, var. *divergens*, distribution, Plankton, Lake Zürich, LOZERON (237) p. 177; *D. divergens*, occurrence in Lake Onega, LINKO (228) p. 270; *D. divergens*, *D. sertularia*, and *D. stipitatum*, time of occurrence in the plankton of lake Erlauf, BREHM & ZEDERBAUER (45) p. 401; of these and also of *D. cylindricum* in the Aber or Wolfgang Lake, v. KEISSLER (175) pp. 311 & 312; *D. elongatum*, var. *affine*, **n. var.**, p. 341, and var. *medium*, **n. var.**, p. 342, diagnoses, LEMMERMANN (220); *D. stokesii*, **n. sp.**, diagnosed, p. 512, pl. 18, fig. 3, LEMMERMANN (221).

Diplomonadina, **nom. nov.**, proposed for Flagellata of a "double" nature, e.g. *Trepomonas agilis*, DANGEARD (80) p. 1367.

Epipyxis deformans, **n. sp.**, and *E. utriculus*, var. *pusilla*, n. var. (?), diagnosed, AVERINTZEV (7) p. 263.

In *Euglena deses*, a new bacterial intranuclear parasite, *Caryococcus hypertrophicus*, DANGEARD (79) p. 1365; *E. viridis*, effect of concentrated solutions on, YASUDA (423) pp. 113–118, figg. 1–11, pl. xi.

Gonium sociale, occurrence, Colorado, America, BEARDSLEY (17) p. 57.

Herpetomonas, the genus to be retained for the sp. *H. muscæ-domesticæ*, LAVERAN & MESNIL (196) p. 481, and also for the sp. *H. bütschlii* from *Trilobus*, SENN (352) p. 345, and LÉGER (211) p. 666; *H. jaculum*, **n. sp.**, occurrence in *Nepa*, and description, LÉGER (212) pp. 781–784, 7 figg.

Herpetosoma, **n. subg.** See under *Trypanosoma*.

Heteroceras, **n. g.**, *schroeteri*, **n. sp.**, diagnosis and occurrence, pp. 6 & 7, 2 figg.; FORTI (130) considers it should be placed near *Phalacroma* and *Amphisolenia*.

Histiona zachariasi, **nom. nov.** for *Zachariasia velifera* Voigt, allied to *Bicosoeca*, description and occurrence, VOIGT (405) pp. 33–35, pl. 2, figg. 1 & 2.

Hyalobryon lauterbornii, **n. sp.**, diagnosis and occurrence, LEMMERMANN (219) p. 85, pl. 4, fig. 1; *H. l.*, var. *mucicola*, **n. var.**, diagnosis, LEMMERMANN (220) p. 340; notes on, VOIGT (405) pp. 43–45, pl. 2, figg. 3 & 4.

Lamblia intestinalis, from the gut of the Rabbit, short account of, PERRONCITO (290) pp. 151–155, 1 fig.

Lepocinclis bütschlii, **n. sp.**, p. 89, *L. ovum*, var. *steinii*, **n. var.**, p. 89, *L. globosa*, var. *cylindrica*, **n. var.**, p. 90, and var. *fusiformis*, **n. var.**, p. 90, diagnoses, LEMMERMANN (219).

Leptomonas, this genus to be absorbed in *Herpetomonas*, SENN (352), also LÉGER (211) p. 666.

Megastoma entericum Grassi [= *Lamblia intestinalis*], from the gut of the rabbit, description of, METZNER (258) pp. 299–320, pl. 15.

Micromonas, **n. g.**, *mesnili*, **n. sp.**, a new Flagellate *incertæ sedis*, described, BORREL (28) pp. 62 & 63, 10 figg.

Monas, relation of temperature to reproduction in, GREELEY (147).

Oikomonas, osmotic experiments on, ENRIQUES (101) pp. 395–397, and (102) p. 498.

Otomonas, **n. g.**, *tremula*, **n. sp.**, from *Nepa*, note on, LÉGER (214) p. 401.

Pandorina morum, distribution, plankton, Lake Zürich, LOZERON (237) p. 176.

Petalomonas mira, **n. sp.**, diagnosed, AVERINTZEV (7) p. 262.

Polytoma uvella, locomotor apparatus, zoospores and gametes of, DANGEARD (81) p. 270, fig. 1; nuclear division and cell-multiplication in, PROWAZEK (306) pp. 51–60, pl. 1.

Poterioochromonas, **n. g.**, *stipitata*, **n. sp.**, diagnosed, p. 147, pl. vi, figg. 7 & 8, SCHERFFEL (337).

Pteromonas volgensis, **n. sp.**, occurrence, Volga plankton, ZYKOFF (439) p. 179 and (440) p. 61.

Sphæroeca volvox, occurrence and note, VOIGT (404) p. 58.

Spondylomorum quaternarium, occurrence in America, Colorado, BEARDSLEY (17) pp. 52 & 57.

Synura uvella, nature of envelope in, AVERINTZEV (9) p. 347.

Trachelomonas hispida St. var. *globularis*, n. var.(?), diagnosed, p. 262, *T. perforata*, **n. sp.**, diagnosed, AVERINTZEV (7) p. 262; *T. minor*, **n. sp.**, p. 794, pl. 35, fig. 5, *T. spiculifera*, **n. sp.**, p. 793, pl. 35, fig. 4, *T. spinosa*, **n. sp.**, p. 794, pl. 35, fig. 6, *T. vermiculosa*, **n. sp.**, p. 793, pl. 35, fig. 3, *T. vestita*, **n. sp.**, p. 793, pl. 35, figg. 1 & 2, diagnoses and occurrence, PALMER (279); *T. setosa*, **n. sp.**, occurrence, Volga, plankton, and diagnosis, ZYKOFF (439) p. 179.

Trepomonas agilis Duj., "double" nature of, DANGEARD (80) pp. 1366 & 1367.

Trichomonas hominis, n. var.(?), description, p. 167, 4 figg., PROWAZEK (304).

Trypanomonas. See under *Trypanosoma*.

Trypanoplasma borreli L. & M., from *Scardinius*, diagnosed, LAVERAN & MESNIL (196) pp. 489–492, figg. 12–15, also SENN (352).

Trypanosoma. This genus to comprise three sub-genera, *Trypanosoma* s. str., *Trypanomonas*, and *Herpetosoma*, **n. subg.**, DOFLEIN (88); of these LAVERAN & MESNIL (196) erect *Trypanomonas* into a new genus *Trypanoplasma*, and say that *Herpetosoma* cannot be maintained. — *Trypanosoma*, *Trypanoplasma*, and *Trichomonas*, though possessing an undulating membrane in common, form a physiological rather than a morphological group, because of the different number of flagella; the first is probably a parasitically modified *Oikomonas* by way of *Herpetomonas*, the second related to the *Bodonidæ*, and the last to the *Tetramitidæ*, SENN (352) p. 353.

T. brucei, general account of, LAVERAN & MESNIL (197) pp. 1–55, 13 text-figg., also BRADFORD & PLIMMER (40) pp. 449–471, pls. 24 & 25; *T. damoniæ*, **n. sp.**, from a Chelonian *Damonia reevesii*, with diagnosis, LAVERAN & MESNIL (202) p. 612, fig. 11; *T. equina*, **n. sp.** (corrected to *T. equinum*, LAVERAN & MESNIL (203)), causing Mal de Caderas in South America, description and occurrence, VOGES (403); *T. equiperdum*, **n. sp.**, causing Dourine in horses in Algeria, etc., diagnosed, DOFLEIN (88) pp. 66 & 67, text-fig. 40; *T. gambiense*, **n. sp.**, occurrence in man, and description, DUTTON (94A) pp. 881–884, 1 text-fig.; *T. granulosum*, **n. sp.**, p. 487, fig. 11, *T. remaki*, var. *magna*, **n. var.**,

p. 483, fig. 4, var. *parva*, **n. var.**, p. 482, figg. 1–3, *T. rajæ*, **n. sp.**, p. 497, *T. scylliumi* [sic], **n. sp.**, p. 498, *T. soleæ*, p. 486, fig. 10, diagnoses, LAVERAN & MESNIL (196); *T. theileri*, **n. sp.**, infecting cattle only, notes on, BRUCE (46) and LAVERAN (188) pp. 512–514; *T. transvaaliense*, **n. sp.**, described, LAVERAN (190) pp. 719–721, figg. 3–5; *T.*, **n. sp.**, causing "Aino" in camels, horses, mules, etc., of Central Africa, BRUMPT (47); *T.* sp. from *Anguilla vulgaris*, described, SABRAZÉS & MURATET (327) pp. cxxvi–cxxviii, 9 figg. probably *T. granulosum*, LAVERAN & MESNIL (196).

Trypanosomes, diagnoses of the principal spp. and systematic position of the genus, SENN (352); also, with numerous text-figg., SALMON & STILES (329).

Trypanosomidæ, **n. fam.**, to contain the genus *Trypanosoma*, DOFLEIN (88).

Volvox sp., effect of Röntgen rays on, JOSEPH & PROWAZEK (173).

Zachariasia velifera Voigt, changed to *Histiona zachariasi*, VOIGT (405).

Appendix to the Flagellates.

Coccolithophoridæ, **n. fam.**, LOHMANN (231).

i. *Syracosphærinæ*, **n. subf.** Lohm., p. 127, [see II, E]

Calyptrosphæra, **n. g.**, p. 135, *C. globosa*, **n. sp.**, p. 135, pl. 5, figg. 53 & 54, *C. oblonga*, **n. sp.**, p. 135, pl. 5, figg. 43–46,

Pontosphæra, **n. g.**, p. 129, *P. huxleyi*, **n. sp.**, p. 130, pl. 4, figg. 1–9, pl. 6, fig. 69, *P. syracusana*, **n. sp.**, p. 130, pl. iv, fig. 10, *P. haeckeli*, **n. sp.**, p. 131, pl. 4, figg. 14 & 15, *P. pellucida*, **n. sp.**, p. 131, pl. 4, figg. 16–18 & 20, *P. inermis*, **n. sp.**, p. 131, pl. 4, figg. 11–13,

Scyphosphæra, **n. g.**, p. 132, *S. apsteini*, **n. sp.**, p. 132, pl. 4, figg. 26–30,

Syracosphæra, **n. g.**, p. 133, *S. spinosa*, **n. sp.**, 133, pl. 5, fig. 42, *S. mediterranea*, **n. sp.**, p. 134, pl. 4, figg. 31 & 32, *S. pulchra*, **n. sp.**, p. 134, pl. 4, figg. 33, 36 & 37, *S. tenuis*, **n. sp.**, p. 134, pl. 5, figg. 38–41, *S. dentata*, **n. sp.**, pl. 4, figg. 21–25, *S. robusta*, **n. sp.**, p. 135, pl. 4, figg. 34 & 35,

ii. *Coccolithophorinæ*, **n. subf.** Lohm., p. 136, [see II, E]

Coccolithophora (**nom. nov.** for *Coccosphæra*), p. 137, *C. wallichi*, **n. sp.**, p. 138, pl. 5, figg. 58–60,

Umbilicosphæra, **n. g.**, p. 139, *U. mirabilis*, **n. sp.**, p. 139, pl. 5, fig. 66,

Discosphæra Haeck., p. 140, *D. thomsoni* Ostenf., p. 141, pl. 5, fig. 49, *D. tubifer* (Murr. & Blackm.), p. 141, pl. 5, figg. 47, 48 & 50,

Rhabdosphæra Haeck., p. 142, *R. claviger* Murr. & Blackm., p. 142, pl. 5, fig. 51, and *R. stylifer*, **n. sp.**, p. 143, pl. 5, fig. 65, diagnoses and occurrence, LOHMANN (231).

Coccoliths and Coccosphæres from the deep-sea off the Aldabra Islands, account of, VOELTZKOW (401) pp. 467–509, text-fig. 1 (i–xvii).

Rhabdolithes claviger and *R. tubifer* [= *Rhabdosphæra claviger* and *Discosphæra tubifer*, LOHMANN (231)], from the deep-sea off the Aldabra Islands, rhabdoliths described, VOELTZKOW (401) pp. 467–509, text-fig. i (18–31).

2. SILICOFLAGELLATA.

General account, including diagnoses of all the spp., LEMMERMANN (222).

(a) **Siphonotestales**:—**n. order**, Lemm., p. 254 [See II, E].

Fam. *Dictyochaceæ*, **n. fam.** Lemm., p. 255:—

Cannopilus haeckelii, **n. sp.**, p. 267, pl. 11, fig. 26, *C. calyptra*, var. *spinosa*, **n. var.**, p. 267, pl. 11, fig. 24,

Dictyocha navicula, var. *biapiculata*, **n. var.**, p. 258, pl. 10, figg. 14 & 15, *D. triacantha*, var. *apiculata*, **n. var.**, p. 259, pl. 10, figg. 19 & 20, var. *inermis*, **n. var.**, p. 259, pl. 10, fig. 21, var. *hastata*, **n. var.**, p. 259, pl. 10, figg. 16 & 17, *D. fibula*, var. *aspera*, **n. var.**, p. 260, pl. 10, figg. 27 & 28, var. *longispina*, **n. var.**, p. 260, pl. 10, fig. 26, var. *brevispina*, **n. var.**, p. 260, var. *aculeata*, **n. var.**, p. 261, pl. 11, figg. 1 & 2,

Distephanus schauinslandi, **n. sp.**, p. 262, pl. 11, figg. 4 & 5, *D. crux*, var. *apiculatus*, **n. var.**, p. 262, *D. speculum*, var. *regularis*, **n. var.**, p. 263, pl. 11, figg. 12 & 13, var. *brevispinus*, **n. var.**, p. 264, pl. 11, fig. 14, var. *pentagonus*, **n. var.**, p. 264, pl. 11, fig. 19,

Mesocena polymorpha, **n. sp.**, p. 255, pl. 10, figg. 3–7, *M. circulus*, var. *apiculata*, **n. var.**, p. 257, pl. 10, figg. 9 & 10, LEMMERMANN (222).

(b) **Stereotestales, n. order**, Lemm., p. 268:—[See II, E].

Fam. *Ebriaceæ*, **n. fam.**, p. 268, for the single genus *Ebria*, LEMMERMANN (222).

3. DINOFLAGELLATA.

Dinoflagellata from plankton, Indian Ocean and Malay Archipelago, CLEVE (65) p. 13, and North Sea and Skagerack, CLEVE (66) p. 24.

(a) **Adinida**:—

Exuviella cordata, **n. sp.**, plankton, Caspian Sea, diagnosed, p. 134, fig. 3, OSTENFELD (277).

(b) **Dinifera**:—

Ceratium, time of occurrence in plankton from Gulf of Trieste, STEUER (380) pl. 1; *C. cornutum*, in plankton, Lake of Vrana (Dalmatia), CAR (55), noteworthy occurrence in plankton of Wolfgang See, v. KEISSLER (175) p. 311, and Schwarzsee, Tyrol, ZACHARIAS (431) note on, pp. 702 & 703; *C. curvirostre*, **n. sp.**, plankton, Norwegian lakes, description, p. 6, pl. i, figg. 10 & 11, HUITFELDT-KAAS (161); *C. dens*, **n. sp.**, p. 165, fig. 16, *C. lineatum*, var. *longiseta*, **n. var.**, p. 163, fig. 12, *C. patentissimum*, **n. sp.**, p. 168, fig. 22, *C. robustum*, **n. sp.**, p. 166, fig. 17, *C. tenue*, **n. sp.**, p. 166, fig. 18, *C. tripos*, var. *brevis*, **n. var.**, p. 164, fig. 13, Red Sea plankton, diagnosed, OSTENFELD & SCHMIDT (278); *C. furca*, *C. fusus*, and *C. tripos*, occurrence in Baltic plankton, APSTEIN (4); *C. hirundinella*, distribution in plankton, Lake Achen, BREHM (44) pp. 56, 78-80, figg. 1–3, Lake Zürich, LOZERON (237) pp. 143 & 169, Lake Erlauf, BREHM & ZEDERBAUER (45) p. 401, Lake Aber or Wolfgang, v. KEISSLER (175) p. 311, Lake of Alt-Ausser, id. (176) p. 706; in Pomeranian lakes, VOIGT (406) p. 79; lake Onega, LINKO (228) p. 270; enormous increase of, in shallow ponds, ZACHARIAS (428) p. 536.

Dinophysis acuta and *D. rotundata*, in plankton from the Baltic etc., APSTEIN (4).

Diplopsalis caspica, **n. sp.**, plankton, Caspian Sea, diagnosed, p. 132, fig. 1, OSTENFELD (277).

Glenodinium pusillum, distribution, plankton, Lake Zürich, LOZERON (237) pp. 143 & 170.

Gonyaulax elevei, **n. sp.**, plankton, Caspian Sea, diagnosed, p. 133, fig. 2, OSTENFELD (277); *G. hyalina*, **n. sp.**, Red Sea plankton, diagnosed, p. 172, fig. 42, OSTENFELD & SCHMIDT (278); *G.*, sp., unusual occurrence, Coast of California, TORREY (389) pp. 187–192, figg. 2 & 3.

Heterocapsa umbilicata St., occurrence, Bay of Sévastopol, MINKEVICH (266).

Peridinium achromaticum, **n. sp.**, description, LEVANDER (225) pp. 49–51, 2 text-figg.; *P. alatum*, **n. sp.**, plankton, Lake Monate, p. 123, 2 figg., GARBINI (135); *P. cinctum*, distribution, plankton, Lake Zürich, LOZERON (237) pp. 143 & 170, Lake of Alt-Ausser, v. KEISSLER (176) p. 706; *P. divergens*, in plankton from the Baltic, APSTEIN (4); *P. læve*, **n. sp.**, in plankton of Norwegian lakes, description, p. 4, pl. i, figg. 1–5, HUITFELDT-KAAS (161); *P. tabulatum*, plankton of Lake Aber or Wolfgang, v. KEISSLER (175) p. 311; *P. willei*, **n. sp.**, plankton, Norwegian lakes, description, p. 5, pl. i, figg. 6–9, HUITFELDT-KAAS (161).

Pirophacus horologium St., occurrence, Bay of Sévastopol, MĪNKEVĪCH (266).

4. RHYNCHOFLAGELLATA.

Noctiluca miliaris, different types of marine illumination due to phosphorescence in, WEITLAÜER (411) pp. 270–277.

Intermediate between *MASTIGOPHORA* and *CILIOPHORA*:— MASTIGOCILIATA, Haller (Mastigotricha, Schewiakoff).

Mallomonas dubia, distribution, plankton, Lake Zürich, LOZERON (237) p. 177, var. *longiseta*, **n. var.**, diagnosis and occurrence, LEMMERMANN (219) p. 87; *M. plössli*, effect of concentrated solutions on, YASUDA (423) pp. 121–123, figg. 1–21, pl. xii. [Tentatively placed here.]

Monomastix, **n. g.**, *ciliatus*, **n. sp.**, described, ROUX (321) p. 558, pl. 13, fig. 1.

E. *CILIOPHORA* (*INFUSORIA*). [See II, E.]

Systematic list of parasitic Infusoria with diagnoses, synonymy etc. (in Russian), SHVEIER (356) pp. 11–119.

Various Infusoria, osmotic experiments with, ENRIQUES (100 & 101); behaviour of, towards acids, JENNINGS & MOORE (170); reaction of, to electric stimuli, ROESLE (318).

Fossil Infusoria from the Carboniferous, allied to *Cinetoconia*, described, RENAULT (311) p. 1066, 3 figg.

1. CILIATA.

Ciliata: from plankton, Indian Ocean and Malay Archipelago, CLEVE (65) p. 9, North Sea and Skagerack, CLEVE (66) p. 21; from environs of Geneva, described and figured, ROUX (321 & 322); dissolution phenomena and disintegration processes in, KÖLSCH (178) pp. 285–422, pls. 26–28; movements and reactions of pieces, similar to those of the entire organism, JENNINGS & JAMIESON (169).

(a) **Holotricha**:—

Anoplophrya circulans, account of, pp. 195–204, 1 fig., BORTOLOTTI (30).

Chilodon cyprini, **n. sp.**, description and occurrence, MOROFF (267) pp. 5–8, 3 figg.; *C. cucullulus*, bearing towards salt and fresh water, ENRIQUES (103) pp. 49 & 50, curious habitat in cuckoo-spit of larvæ of *Aphrophora spumaria*, ZACHARIAS (429) p. 608.

Cinetochilum margaritaceum, Ehrbg. occurrence, Bay of Sévastopol, MĪNKEVĪCH (266), and Colorado, America, BEARDSLEY (17) pp. 54 & 58.

Colpidium colpoda, oxidising capacity of enucleated portions of, PROWAZEK (301) p. 388; galvanotactic experiments on, WALLENGREN (409) pp. 380–383, pl. ii, fig. 18; inanition changes in, id. (408) pp. 67–

128; effect of concentrated solutions on, YASUDA (423) pp. 124 & 125, figg. 12–41, pl. xi.

Colpoda cucullus, in Italian thermal springs, ISSEL (163).

Cristigera, **n. g.**, *pleuronemoides*, **n. sp.**, described, ROUX (321) p. 602, pl. 14, fig. 1.

Didinium cinctum Voigt, description, VOIGT (405) pp. 35–37, pl. 2, fig. 5, 1 text-fig.; *D. nasutum*, occurrence and note, VOIGT (404) p. 59; *D. n.* and *D. balbiani*, occurrence in America, Colorado, noted, BEARDSLEY (17) pp. 54 & 58.

Dileptus anser, infection with zoochlorellæ, AVERINTZEV (8) p. 347; *D.* sp., occurrence, Bologoé, MĪNKEVĪCH (265) p. 268.

Dysteropsis, **n. g.**, *minuta*, **n. sp.**, described, ROUX (321) p. 581, pl. 13, fig. 12.

Enchelys farcimen, in Italian thermal springs, ISSEL (163).

Epalxis, **n. g.**, *mirabilis*, **n. sp.**, described, ROUX (321) p. 596, pl. 13, fig. 18.

Frontonia elliptica, **n. sp.**, Colorado, diagnosed, BEARDSLEY (17) p. 54, pl. 11, fig. 4; *F. leucas*, occurrence in America, Colorado, noted, BEARDSLEY (17) pp. 54 & 58; var. *thermalis*, in Italian hot springs, ISSEL (163).

Herpetophrya, **n. g.**, *astoma*, **n. sp.**, from the body cavity of *Polymnia*, general account, SIEDLEČKI (359) pp. 356–362, pl. 32.

Holophrya heterostoma, **n. sp.**, Colorado, description, BEARDSLEY (17) p. 53, pl. 11, fig. 3.

Hoplitophrya lumbrici, account of, BORTOLOTTI (30) pp. 195–204, 3 figg.

Leucophrydium, **n. g.**, *putrinum*, **n. sp.**, described, ROUX (321) p. 589, pl. 13, fig. 15.

Lagynus lævis, occurrence in America, Colorado, noted, BEARDSLEY (17) pp. 54 & 57.

Nassula aurea, occurrence in America, Colorado, noted, BEARDSLEY (17) pp. 54 & 58; *N. elegans* in Italian thermal springs, ISSEL (163); *N. minima* (?), n. (?) sp., occurrence, Bologoé, MĪNKEVĪCH (265) p. 269.

Opalina dimidiata, anatomy of, KUNSTLER & GINESTE (181) pp. 188–193, 11 figg.; *O. ranarum*, galvanotactic experiments on, WALLENGREN (409) pp. 341–376, 9 text-figg., pl. ii., figg. 1–14; effect of protoplasmic poisons on, ZAHN (435) p. 156.

Paramœcium, sp., effect of Röntgen-rays on, JOSEPH & PROWAZEK (173) pp. 142–153; *P. aurelia*, minute structure of ectoplasm and trichocysts, KÖLSCH (178) pp. 280–285, 4 text-figg., and pl. 26, fig. 1; extrusion of trichocysts in, MASSART (249) pp. 91–106; *P. caudatum*, experiments with artificial stimuli on, CALKINS (50–52) and with LIEB (53); relation of binary fission to variation in, SIMPSON (364); oxidative capacity of enucleated portions of, PROWAZEK (305) p. 387; galvanotactic experiments on, WALLENGREN (409) pp. 380–383, pl. ii, fig. 19; inanition changes in, id. (408) pp. 67–128, pls. 1 & 2, 2 text-figg.; adaptability to concentrated solutions, YASUDA (423) pp. 126 & 127, figg. 22–28, pl. xii.

Prorodon teres, occurrence in America, Colorado, noted, BEARDSLEY (17) pp. 54 & 57.

Trachelophyllum apiculatum, occurrence in plankton, Schwarzsee, Tyrol, and note on, ZACHARIAS (431) p. 702.

Trichospira, **n. g.**, *dextrorsa*, **n. sp.**, described, ROUX (321) p. 584, pl. 13, fig. 13.

Urotricha farcta, occurrence, in America, Colorado, noted, BEARDSLEY (17) pp. 53 & 57 and at Bologoé, MĪNKEVĪCH (265) p. 268.

(b) Heterotricha:—

Amphorella acuta, **n. sp.**, Gulf of Siam, diagnosed, p. 184, fig. 2, SCHMIDT (341).

Amphorella borealis var. *caspica*, **n. var.**, plankton, Caspian Sea, p. 132, OSTENFELD (277).

Blepharisma lateritia var. *minima*, **n. var.**, described, ROUX (321) p. 606, pl. 14, fig. 2.

Bursaria truncatella, conjugation in, PROWAZEK (300) pp. 195–224, pls. 1 & 2.

†*Codonella cratera*, Quaternary, Sweden, time of appearance, LAGERHEIM (184) pp. 519 & 520.

C. fenestrata, **n. sp.**, occurrence, Plankton, Malay Archipelago, and diagnosis, CLEVE (65) pp. 9 & 53, pl. 7, fig. 15; *C. jörgensii*, occurrence, plankton of Skagerack, and diagnosis, CLEVE (66) p. 22, 1 text-fig.; *C. lacustris*, occurrence in Pomeranian lakes and note, VOIGT (406) p. 80; *C. ostenfeldii*, **n. sp.**, Gulf of Siam, diagnosed, p. 187, fig. 4, SCHMIDT (341).

Cyttarocyclis annulifera, **n. sp.**, p. 179, fig. 25, *C. poculum*, **n. sp.**, p. 179, fig. 27, *C. reticulata*, **n. sp.**, p. 180, fig. 28, and *C. undella*, **n. sp.**, p. 181, fig. 30, in Red Sea plankton, diagnosed, OSTENFELD & SCHMIDT (278); *C. ventricosa*, **n. sp.**, Gulf of Siam, diagnosed, p. 189, fig. 5, SCHMIDT (341).

Halteria grandinella, systematic position of, and constitution of the fam. *Halterina*, AVERINTZEV (12) p. 62.

Leprotintinnus simplex, **n. sp.**, Gulf of Siam, diagnosed, p. 184, fig. 1, SCHMIDT (341).

Metopus sigmoides, occurrence in hot springs (termali di Vinadio), ISSEL (162) p. 2, fig. 2, pl. i.

Stentor cœrulens, and *S. roeselii*, reactions to stimuli, JENNINGS (168) pp. 25–41, 10 figg.; *S. elongatus*, n. (?) sp., occurrence, Bologoé, MĪNKEVĪCH (265) p. 269; *S. polymorphus*, zoochlorellar experiments with, AVERINTZEV (8) p. 347; occurrence, pelagic zone, Lake of Neuchâtel, FUHRMANN (132) p. 305; *S.*, sp., changes in, produced by lowering the temperature, GREELEY (146).

Strombidium sulcatum, systematic position, AVERINTZEV (12) p. 62; *S. velox*, **n. sp.**, Colorado, description, BEARDSLEY (17) p. 55, pl. 11, fig. 5.

Tintinnidæ, time of occurrence in plankton from Gulf of Trieste, STEUER (380) pl. 1.

Tintinnopsis mortensenii, **n. sp.**, Gulf of Siam, diagnosed, p. 186, fig. 3, SCHMIDT (341).

Tintinnus borealis, *T. fistularis*, *T. subulatus*, and *T. ventricosus*, in Plankton of the Baltic etc., APSTEIN (4).

Undella campanula, **n. sp.**, Gulf of Siam, diagnosed, p. 190, fig. 5, SCHMIDT (341).

(c) Hypotricha:—

Balladina elongata, **n. sp.**, described, ROUX (321) p. 618, pl. 14, fig. 7.

Dipleurostyla, **n. g.**, *acuminata*, **n. sp.**, described, ROUX (321) p. 615, pl. 14, fig. 6.

Euplotes charon and *E. harpa*, relations to salt and fresh-water, ENRIQUES (103) pp. 49 & 50; *E. harpa*, general account of, and conjugation in, PROWAZEK (302) pp. 81–88, 1 pl.

Oxytricha fallax, and *O. pellionella*, in Italian hot springs, ISSEL (163); *O. pellionella*, occurrence, Colorado, America, noted, BEARDSLEY (17) p. 58; notes on, PROWAZEK (300) pp. 262–264, figg. 13, 14 & 16, pl. 3.

Phacodinium, **n. g.**, *muscorum*, **n. sp.**, description, PROWAZEK (301) pp. 296 & 297, pl. 2, fig. 3.

Stylonichia pustulata, general account of, and conjugation in, PROWAZEK (300) pp. 225–262, pls. 3 & 4; effect of various chemical solutions on, ZACHARIAS (427) pp. 216 & 217.

(d) **Peritricha**:—

Carchesium polypinum, reactions to stimuli, JENNINGS (168) pp. 48–50.
Cothurnia imberbis, in Italian hot springs, ISSEL (163).
Cothurniopsis longipes Voigt, notes on, VOIGT (405) pp. 40 & 41, pl. 2, figg. 8 & 9.
Epistylis rotans, occurrence and note, VOIGT (404) pp. 59–61; *E.* sp., occurrence in Lake Onega, LINKO (228) p. 270.
Glossatella tintinnabulum var. *cotti* **n. var.**, description, VOIGT (405) pp. 37–39, pl. 2, figg. 6 & 7.
Opercularia glomerata, **n. sp.**, described, ROUX (321) p. 628, pl. 14, figg. 16 & 17.
Ophrydium versatile var. *acaulis*, **n. var.**, described, ROUX (321) p. 631, pl. 14, figg. 18–23.
Pyxicola carteri, in Italian hot springs, ISSEL (163).
Vorticella microstoma, influence of anæsthetics on, STEFANOWSKA (376) pp. 545–547, 4 text-figg.
Zoothamnium limneticum, occurrence and note, VOIGT (404) pp. 59–61, fig. 5.

2. SUCTORIA (ACINETARIA).

Choanophrya, **n. g.**, *infundibulifera*, for *Podophrya* (?) *infundibulifera* Hartog, the "*Acineta ferrumequinum*" of Zenker., diagnosis and structure of tentacles, HARTOG (151) p. 373.
Dendrocometes paradoxus, conjugation in, HICKSON & WADSWORTH (158) pp. 325–362, pls. 17 & 18, 3 text-figg.
Podophrya cyclopum, occurrence on *Diaptomus graciloides*, VOIGT (406) p. 82.
Rhyncheta obconica, **n. sp.**, diagnosis and structure of gemmule, HARTOG (151) p. 374.
Staurophrya elegans, occurrence and note, VOIGT (404) p. 61.
Tetrædrophrya, **n. g.**, *planctonica*, **n. sp.**, occurrence, Volga plankton, ZYKOFF (439) p. 180.

CORRIGENDA.

General Subject, p. 29, line 11, for "*Diemyctilus*" read "*Diemictylus*".
„ „ p. 45, line 4, for "que" read "quae".
„ „ p. 47. Title (777) was recorded last year.
„ „ p. 58, line 18 from bottom, after "Mimicry" insert "Dean (179),".
„ „ p. 68, line 24 from bottom, instead of "Tachygenes" read "Tachygenesis".

Aves, p. 45, instead of "*Phæton*" read "*Phaëton*".
„ p. 49, instead of "*Phaethornis*" read "*Phaëthornis*".

Insecta, p. 107, line 11 from bottom, for "*Palæoedalia*" read "*Palæoedalea*".
„ p. 112, line 25, for "*Dinòscanis*" read "*Dinoscaris*".
„ p. 123, line 13, after "*t.c.*" add "p. 628".
„ p. 124, line 3 from bottom, after "pt. 1" add "p. 678".
„ p. 301, line 4, add at end "n. spp."
„ p. 310, line 17 from bottom, before "*t.c.*" insert "Krauss".
„ pp. 183, 215, 237, 273: in one or two cases on these pages "n. sp." is erroneously added to a sentence. The context points out the error in each case.
„ p. 234, line 10 from bottom, for "*Crysiplocia*" read "*Crypsiplocia*".

INDEX TO NAMES

OF

NEW GENERA AND SUBGENERA

MENTIONED IN VOLUME XXXIX,

INCLUDING NEW NAMES FOR GENERA PREVIOUSLY ESTABLISHED.*

Aaptus, *Richmond*, Aves 70
Abacops, *Tschitschérine*, Ins. 109
Abanchogastra, *Perkins*, Ins. 190
Abrarius, *Fairmaire*, Ins. 164
Abraxesis, *Hampson*, Ins. 232
Abrosius, *Fairmaire*, Ins. 142
Abryois, *Jordan and Snyder*, Pisces 24
Acanthobracon, *Szépligeti*, Ins. 195
Acanthocampa, *Packard*, Ins. 214
Acanthojoppa, *Cameron*, Ins. 190
Acanthonyx, *Hampson*, Ins. 221
Acanthophrys, *Loman*, Arachn. 53
Acanthopleurella, *Groom*, Crust. 80
Acerahedrina, *Vinassa*, Prot. 73
Aceratias, *Brauer*, Pisces 22
Aceratophallus, *Carl*, Myr. 13
Acerocranium, *Vinassa*, Prot. 73
Achynius, *Fairmaire*, Ins. 151
Acinixys, *Siebenrock*, Rept. 24
Acleasa, *Cameron*, Ins. 190
Acnissa, *Turner*, Ins. 214
Acœlohyrax, *Ameghino*, Mamm. 42
Acolasta, *Meyrick*, Ins. 246
Acontistoptera, *Brues*, Ins. 260
Acrojana, *Aurivillius*, Ins. 214
Acrophaea, *Melichar*, Ins. 280
Acropholius, *Simon*, Arachn. 25
Acrostigma, *Forel*, Ins. 184
Acrotoma, *Mocsáry*, Ins. 188
Actenopoda, *Ashmead*, Ins. 179
Actinotrophon, *Dall*, Moll. 70
Actites, *Lanchester*, Crust. 35
Acudorsum, *Loman*, Arachn. 53
Adansonia, *Pallary*, Moll. 70
Adeliopria, *Ashmead*, Ins. 199
Adelungia, *Melichar*, Ins. 285
Adialyta, *Fairmaire*, Ins. 164
Aditrochus, *Rübsaamen*, Ins. 199
Aednulus, *Breddin*, Ins. 267
Aemodogryllus, *Adelung*, Ins. 307
Aemopteryx, *Klapálek*, Ins. 298
Aeoliscus, *Jordan and Starks*, Pisces 34
Aërophilus, *Szépligeti*, Ins. 195
Aethalina, *Turner*, Ins. 221
Aethiopodes, *Warren*, Ins. 232
Aethocorys, *Shelley*, Aves 66
Aethostoma, *Sharpe*, Aves 58
Æthriscus, *Pocock*, Arachn.
Aflata, *Melichar*, Ins. 280
Agassa, *Simon*, Arachn. 42
Agathiella, *Szépligeti*, Ins. 195
Agenioideus, *Ashmead*, Ins. 179
Agenioxenus, *Ashmead*, Ins. 179
Agondas, *Kirkaldy*, Ins. 285
Agriopoma, *Dall*, Moll. 80
Ahngeria, *Kokujew*, Ins. 196
Ahngeria, *Melichar*, Ins. 285
Akermes, *Cockerell*, Ins. 289
Akronia, *Hine*, Ins. 256
Alabina, *Dall*, Moll. 72

* The total number of names in this Index is 1862, distributed as follows:—*Mammalia*, 103; *Aves*, 20; *Reptilia*, 29; *Pisces*, 72; *Tunicata*, 4; *Mollusca*, 166; *Brachiopoda*, 4; *Bryozoa*, 10; *Crustacea*, 98; *Arachnida*, 189; *Myriopoda*, 43; *Insecta*, 926; *Echinoderma*, 25; *Vermes*, 65; *Cœlenterata*, 39; *Spongiæ*, 15; *Protozoa*, 54. The total last year was 1589.

Alaotypus, *Schwarz*, Ins. 136
Alapadna, *Turner*, Ins. 221
Albardia, *Weele*, Ins. 294
Alcimonotus, *Simon*, Arachn. 42
Aleptina, *Dyar*, Ins. 221
Alfenus, *Simon*, Arachn. 42
Algathia, *Cameron*, Ins. 190
Alichtensia, *Cockerell*, Ins. 289
Aliturus, *Fairmaire*, Ins. 160
Allabenchelys, *Boulenger*, Pisces 36
Allæometrus, *Senna*, Ins. 159
Allantis, *Herouard*, Ech. 55
Allocyphonyx, *Ashmead*, Ins. 179
Allodahlia, *Verhoeff*, Ins. 304
Allopauropus, *Silvestri*, Myr. 12
Allorina, *Weise*, Ins. 164
Amblyjoppa, *Cameron*, Ins. 190
Amblytatus, *Ameghino*, Mamm. 43
Amerina, *Cerruti*, Verm. 51
Ammofrondicularia, *Schubert*, Prot. 62
Amorphococcus, *Green*, Ins. 289
Amphianthus, *Kükenthal*, Coel. 24
Amphicrossa, *Lower*, Ins. 232
Amphidolops, *Ameghino*, Mamm. 44
Amphinemura, *Ris*, Ins. 298
Ampullopsis, *Repelin*, Moll. 74
Anarcturus, *Zur Strassen*, Crust. 53
Anarrhotus, *Simon* Arachn. 42
Anaxerta, *Fairmaire*, Ins. 164
Ancaria, *Cameron*, Ins. 190
Anchonomorpha, *Champion*, Ins. 151
Ancudia, *Philippi*, Rept. 30
Ancylocaris, *Schenkel*, Crust. 45
Andinomys, *Thomas*, Mamm. 35
Andreæa, *Schrammen*, Spong. 24
Anepius, *Blackburn*, Ins. 114
Anepsiomyia, *Bezzi*, Ins. 259
Anethops, *Chamberlin*, Myr. 10
Angelica, *Distant*, Ins. 214
Anidora, *Melichar*, Ins. 280
Anisobathra, *Lower*, Ins. 214
Anisobole, *Warren*, Ins. 232
Anisorhizus, *Ameghino*, Mamm. 42
Anisotemnus, *Ameghino*, Mamm. 42
Anobocœlus, *Sharp*, Ins. 122
Anobrium, *Belon*, Ins. 160
Anomalococcus, *Green*, Ins. 289
Anomalodiscus, *Dall*, Moll. 80
Anomosaurus, *v. Huene*, Rept. 26
Anonchocephalus, *Lühe*, Verm. 51
Anortalia, *Weise*, Ins. 170
Antares, *Zur Strassen*, Crust. 53
Antenius, *Fairmaire*, Ins. 142
Anteoides, *Cognetti*, Verm. 40
Anteutatus, *Ameghino*, Mamm. 43
Anthedon, *Robertson*, Ins. 173
Anthemurgus, *Robertson*, Ins. 173
Anthoscenus, *Richmond*, Aves 50
Anthracojulus, *Fritsch*, Myr. 13
Anthropodus, *Lapouge*, Mamm. 28
Antiopella, *Hoyle*, Moll. 68
Antiophlebia, *Hampson*, Ins. 221
Antiphonus, *Attems*, Myr. 13
Antiplanes, *Dall*, Moll. 69
Antistius, *Fairmaire*, Ins. 152
Antistreptus, *Dall*, Moll. 70
Anutaetus, *Ameghino*, Mamm. 43
Aphigalia, *Dyar*, Ins. 246
Aphiloctenus, *Ashmead*, Ins. 179
Aphniolaus, *Druce*, Ins. 209
Aphroptera, *Bolivar*, Ins. 307
Aphyctoschema, *Simon*, Arachn. 28
Apionsoma, *Sluiter*, Verm. 33
Apodecta, *Turner*, Ins. 214
Apoecus, *Kobelt*, Moll. 65
Apoparmarion, *Collinge*, Moll. 59
Aporina, *Fuhrmann*, Verm. 51
Aporinus, *Ashmead*, Ins. 179
Aporoideus, *Ashmead*, Ins. 179
Apotettix, *Hancock*, Ins. 309
Arachnoclerus, *Fairmaire*, Ins. 142
Arachnophila, *Ashmead*, Ins. 179
Arachnophroctonus, *Ashmead*, Ins. 179
Arasia, *Simon*, Arachn. 42
Archaeutatus, *Ameghino*, Mamm. 43
Archalius, *Fairmaire*, Ins. 142
Archidrepana, *Warren*, Ins. 214
Archigalleria, *Rebel*, Ins. 242
Archiscudderia, *Fritsch*, Myr. 13
Arctobiella, *Coquillett*, Ins. 263
Arctobyrrhus, *Münster*, Ins. 124
Arctorthezia, *Cockerell*, Ins. 289
Ardozyga, *Lower*, Ins. 246
Argyrohippus, *Ameghino*, Mamm. 42
Argyrolestes, *Ameghino*, Mamm. 44
Ariscopus, *Jordan and Snyder*, Pisces 24
Arminiheringia, *Ameghino*, Mamm. 44
Arotes, *Fairmaire*, Ins. 142
Arrenurella, *Ribaga*, Arachn. 56
Arrhinotermes, *Wasmann*, Ins. 297
Arsinotherium, *Beadnell*, Mamm. 41
Artabrus, *Simon*, Arachn. 42
Aruanus, *Fleutiaux*, Ins. 135
Aruncus, *Philippi*, Rept. 30
Asaphobelis, *Simon*, Arachn. 42
Asbolius, *Fairmaire*, Ins. 147
Aspasma, *Jordan and Fowler*, Pisces 24
Aspidifrontia, *Hampson*, Ins. 221
Aspidonotus, *Voigt*, Verm. 70
Aspilogeton, *Breddin*, Ins. 270
Astacops, *Bernhauer*, Ins. 114

Astegotherium, *Ameghino*, Mamm. 43
Astrapothericulus, *Ameghino*, Mamm. 42
Asyngria, *Dognin*, Ins. 233
Atelurius, *Simon*, Arachn. 42
Atillum, *André*, Ins. 179
Atmosphyrus, *Simon*, Arachn. 42
Atollites, *Maas*, Cœl. 21
Atracodes, *Melichar*, Ins. 280
Atripatus, *Fairmaire*, Ins. 161
Audulla, *Chevreux*, Crust. 57
Aulacobothrus, *Bolivar*, Ins. 309
Aulocostethus, *Ashmead*, Ins. 180
Aurelianus, *Distant*, Ins. 270
Aurivillius, *Packard*, Ins. 214
Austrodosinia, *Dall*, Moll. 80
Austrolichtensia, *Cockerell*, Ins. 290
Austromiris, *Kirkaldy*, Ins. 275
Austrotrophon, *Dall*, Moll. 70
Authadistus, *Hampson*, Ins. 221
Autocoptis, *Pilsbry*, Moll. 65
Aviranus, *Fairmaire*, Ins. 152
Axiocœta, *Turner*, Ins. 222
Axiorata, *Turner*, Ins. 222
Aysenia, *Tullgren*, Arachn. 39
Azuma, *Jordan and Snyder*, Pisces 24

Babaiaxa, *Busck*, Ins. 246
Bactrocoptis, *Pilsbry*, Moll. 65
Balantionella, *Schrammen*, Spong. 24
Balta, *Sörensen*, Arachn. 53
Bambusaspis, *Cockerell*, Ins. 289
Baracus, *Kirkaldy*, Ins. 275
Barca, *Nicéville*, Ins. 211
Barianus, *Fairmaire*, Ins. 152
Barisana, *Moore*, Ins. 208
Barygnathus, *Bernhauer*, Ins. 114
Baryphas, *Simon*, Arachn. 43
Bathybothrium, *Lühe*, Verm. 51
Bathycotyle, *Darr*, Verm. 56
Bathygnathia, *Dollfuss*, Crust. 51
Bathylychnus, *Brauer*, Pisces 39
Batozonus, *Ashmead*, Ins. 180
Beanea, *Steindachner*, Pisces 32
Belliena, *Simon*, Arachn. 43
Belonoglanis, *Boulenger*, Pisces 37
Berta, *Kirkaldy*, Ins. 276
Bertiella, *Stiles and Hassall*, Verm. 51
Bicia, *Walcott*, Brach. 7
Bischofia, *Hendel*, Ins. 263
Biuterina, *Fuhrmann*, Verm. 51
Bizanus, *Péringuey*, Ins. 129
Blakistonia, *Hogg*, Arachn. 26
Blepharopsis, *Rehn*, Ins. 306
Blikana, *Péringuey*, Ins. 129
Bodargus, *Cameron*, Ins. 191
Boeckellina, *Mrázek*, Crust. 63
Boeckellopsis, *Mrázek*, Crust. 63
Boemigia, *Sabussow*, Verm. 47
Bongeia, *Sjöstedt*, Ins. 307
Bonnierella, *Chevreux*, Crust. 57
Böocercus, *Thomas*, Mamm. 39
Bopyrella, *Bonnier*, Crust. 54
Boreodon, *Lambe*, Mamm. 44
Boreoscala, *Kobelt*, Moll. 76
Bormansia, *Verhoeff*, Ins. 304
Borneria, *Axelson*, Ins. 302
Bostæra, *Ball*, Ins. 280
Botha, *Shelley*, Aves 66
Bothriomiris, *Kirkaldy*, Ins. 276
Bothrioxysta, *Kieffer*, Ins. 200
Bothynacrum, *Lea*, Ins. 152
Bournellum, *Saussure and Zehntner*, Myr. 13
Bouryiscala, *Cossmann*, Moll. 76
Bouvierella, *Chevreux*, Crust. 57
Brachybelistis, *Turner*, Ins. 246
Brachypimpla, *Strobl*, Ins. 191
Brachytheliscus, *Pocock*, Arachn. 26
Brachyurodesmus, *Silvestri*, Myr. 13
Brackenridgia, *Ulrich*, Crust. 56
Bradorona, *Matthew*, Crust. 71
Branchuropus, *Moore*, Crust. 51
Brancus, *Simon*, Arachn. 43
Braunsia, *Buckman*, Moll. 57
Braunsina, *Buckman*, Moll. 57
Broomiella, *Pocock*, Arachn. 52
Brotheus, *Distant*, Ins. 270
Brunsellius, *Distant*, Ins. 270
Bruntrutia, *Cossmann*, Moll. 82
Bryaxis, *Sars*, Crust. 63
Bryolophus, *Jordan and Snyder*, Pisces 24
Bryomima, *Turner*, Ins. 222
Buodias, *Cameron*, Ins. 191
Busckia, *Dyar*, Ins. 246
Büttikoferia, *Madarász*, Aves 57
Buyssonia, *Mocsáry*, Ins. 189
Bystra, *Cameron*, Ins. 191

Caccoleptus, *Sharp*, Ins. 123
Caccothryptus, *Sharp*, Ins. 124
Cacelice, *Busck*, Ins. 246
Cachicama, *Dugès*, Mamm. 43
Caconome, *Dyar*, Ins. 246
Cæcognathia, *Dollfus*, Crust. 51
Cæcopilumnus, *Borradaile*, Crust. 35
Cænonychus, *Oudemans*, Arachn. 56
Cænophanomyia, *Bezzi*, Ins. 257
Callenopsis, *Tullgren*, Arachn. 28
Calliopsis, *Crawford*, Ins. 173
Callithaca, *Dall*, Moll. 80

Callodistomum, *Odhner*, Verm. 56
Callogyra, *Verrill*, Cœl. 25
Callosobruchus, *Pic*, Ins. 160
Calobracon, *Szépligeti*, Ins. 196
Calophagus, *Lesne*, Ins. 147
Calpionella, *Lorenz*, Prot. 64
Calyptrosphæra, *Lohmann*, Prot. 82
Cameraria, *Chapman*, Ins. 246
Camerarius, *Distant*, Ins. 273
Camerunia, *Melichar*, Ins. 280
Campalecium, *Torrey*, Cœl. 16
Campyloprion, *Eastman*, Pisces 45
Campylopteryx, *Warren*, Ins. 215
Canavaria, *Buckman*, Moll. 57
Cannostomites, *Maas*, Cœl. 21
Cantharoprion, *Lameere*, Ins. 161
Capellea, *Bolivar*, Ins. 309
Capeulais, *Thor*, Arachn. 56
Capidava, *Simon*, Arachn. 43
Capromeryx, *Matthew*, Mamm. 39
Carcinonemertes, *Coe*, Verm. 45
Carcinoscorpius, *Pocock*, Crust. 79
Carolibergia, *Mercerat*, Mamm. 41
Carpathobyrrhulus, *Ganglbauer*, Ins. 124
Carpias, *Richardson*, Crust. 50
Carthæomorpha, *Melichar*, Ins. 280
Caryosmilia, *Wanner*, Cœl. 25
Caryotropha, *Siedlecki*, Prot. 77
Castetsia, *Bolivar*, Ins. 309
Catalebeda, *Aurivillius*, Ins. 215
Catopius, *Sharp*, Ins. 123
Cedrosius, *Fairmaire*, Ins. 147
Cemolobus, *Robertson*, Ins. 173
Centrasiobia, *Semenow*, Ins. 129
Centrobunus, *Loman*, Arachn. 53
Ceratixodes, *Neumann*, Arachn. 57
Ceratocopus, *Hintz*, Ins. 142
Ceratofulvius, *Reuter*, Ins. 276
Ceratogaulus, *Matthew*, Mamm. 36
Cercetius, *Simon*, Arachn. 39
Cerionesta, *Simon*, Arachn. 43
Cervimunida, *Benedict*, Crust. 40
Cerycostola, *Meyrick*, Ins. 246
Cestotrema, *Simon*, Arachn. 26
Chalaroachæus, *de Man*, Crust. 34
Chalcotropis, *Simon*, Arachn. 43
Chaograptis, *Meyrick*, Ins. 223
Chapalichthys, *Meek*, Pisces 34
Charactopygus, *Saussure and Zehntner*, Myr. 14
Charisea, *Torrey*, Cœl. 25
Charitopimpla, *Cameron*, Ins. 191
Chartronella, *Cossmann*, Moll. 78
Chartronia, *Cossmann*, Moll. 78
Chasidamna, *Simon*, Arachn. 43
Cheilocapsus, *Kirkaldy*, Ins. 276
Chelidurella, *Verhoeff*, Ins. 304
Chelisochella, *Verhoeff*, Ins. 305
Chelyoidea, *Buckton*, Ins. 284
Chelyzoon, *v. Huene*, Rept. 25
Chiaglas, *Cameron*, Ins. 191
Chilochromis, *Boulenger*, Pisces 29
Chinoscopus, *Simon*, Arachn. 43
Chitinopsis, *Whitelegge*, Crust. 51
Chitonicium, *Plate*, Prot. 79
Chloralictus, *Robertson*, Ins. 174
Chloridusa, *Simon*, Arachn. 43
Choanophrya, *Hartog*, Prot. 87
Chondrobunus, *Loman*, Arachn. 53
Chondrodonta, *Stanton*, Moll. 83
Choreutidia, *Sauber*, Ins. 246
Choridactylodes, *Gilchrist*, Pisces 26
Chunella, *Kükenthal*, Cœl. 26
Chropœcilus, *Fleutiaux*, Ins. 135
Chrysocryptus, *Cameron*, Ins. 191
Chrysorrhanis, *Kirkaldy*, Ins. 276
Cionesthes, *Fairmaire*, Ins. 153
Circulopsis, *Cossmann*, Moll. 78
Cissococcus, *Cockerell*, Ins. 290
Citharidium, *Boulenger*, Pisces 39
Citharocyathus, *Alcock*, Cœl. 26
Cladiucha, *Konow*, Ins. 201
Cladostreptus, *Brölemann*, Myr. 14
Clathrella, *Penard*, Prot. 61
Clavena, *Melichar*, Ins. 286
Climacobasis, *Laidlaw*, Ins. 299
Clitistes, *Simon*, Arachn. 33
Clynotis, *Simon*, Arachn. 44
Clypeotettix, *Hancock*, Ins. 310
Clythrocerus, *Milne Edwards and Bouvier*, Crust. 39
Cnemiandrus, *Distant*, Ins. 272
Cnodifrontia, *Hampson*, Ins. 223
Coccolithophora, *Lohmann*, Prot. 82
Cochilius, *Ameghino*, Mamm. 42
Codonocera, *Brady*, Crust. 71
Coega, *Péringuey*, Ins. 129
Cœlobunus, *Loman*, Arachn. 54
Cœlogenium, *Purcell*, Arachn. 26
Coelophrys, *Brauer*, Pisces 22
Coelutaetus, *Ameghino*, Mamm. 43
Cœnomorphus, *Lönnberg*, Verm. 51
Colanthura, *Richardson*, Crust. 52
Colganta, *Cameron*, Ins. 191
Coloboneura, *Melander*, Ins. 258
Colopisthus, *Richardson*, Crust. 52
Colopsus, *Simon*, Arachn. 44
Comastolopsis, *Warren*, Ins. 234
Comatacta, *Coquillett*, Ins. 261
Commellus, *Osborn and Ball*, Ins. 286
Commoris, *Simon*, Arachn. 44
Compsonannus, *Reuter*, Ins. 276
Conchyloctenia, *Spaeth*, Ins. 165
Congella, *Peringuey*, Ins. 129
Conicofrontia, *Hampson*, Ins. 223

Conomma, *Loman*, Arachn. 54
Conosanus, *Osborn and Ball*, Ins. 286
Copocrossa, *Simon*, Arachn. 44
Coptacrella, *Bolivar*, Ins. 310
Coptostethus, *Lewis*, Ins. 119
Coptotrophis, *Lewis*, Ins. 119
Coracodrymus, *Breddin*, Ins. 271
Corambis, *Simon*, Arachn. 44
Corethrella, *Coquillett*, Ins. 255
Coronoserica, *Brenske*, Ins. 129
Coryphasia, *Simon*, Arachn. 44
Coryphus, *Csiki*, Ins. 169
Cosmiella, *Verhoeff*, Ins. 305
Cosmiocryptus, *Cameron*, Ins. 191
Cosmiojoppa, *Cameron*, Ins. 191
Cosmophasis, *Simon*, Arachn. 44
Cosmoscotopa, *Lower*, Ins. 247
Cotteswoldia, *Buckman*, Moll. 57
Cotylotretus, *Odhner*, Verm. 56
Coxtexta, *Jordan*, Ins. 159
Cramauchenia, *Ameghino*, Mamm. 42
Crapulo, *Miehe*, Prot. 80
Craspedoprion, *Berlepsch and Hartert*, Aves 54
Craterostigmus, *Pocock*, Myr. 10
Crenimargo, *Cossmann*, Moll. 83
Crimona, *Smith*, Ins. 223
Cristigera, *Roux*, Prot. 85
Cristina, *Loman*, Arachn. 54
Crithidia, *Léger*, Prot. 80
Cromerus, *Distant*, Ins. 272
Crosslandia, *Eliot*, Moll. 68
Crurosaurus, *v. Huene*, Rept. 26
Crypsicœla, *Dognin*, Ins. 234
Crypsimetalla, *Warren*, Ins. 234
Crypsiplocia, *Warren*, Ins. 234
Crypsiprora, *Meyrick*, Ins. 223
Cryptoflata, *Melichar*, Ins. 281
Cryptomima, *Butler*, Ins. 213
Cryptopithecus, *Wittich*, Mamm. 29
Cryptosemelus, *Collinge*, Moll. 59
Crystallias, *Jordan and Snyder*, Pisces 25
Ctenacanthus, *Gharyaev*, Crust. 57
Ctenaulis, *Warren*, Ins. 234
Ctenisolabis, *Verhoeff*, Ins. 305
Ctenosaurus, *v. Huene*, Rept. 26
Cucurbitella, *Penard*, Prot. 61
Cuna, *Hedley*, Moll. 83
Curimopsis, *Ganglbauer*, Ins. 124
Curubis, *Simon*, Arachn. 44
Cyanojoppa, *Cameron*, Ins. 191
Cyclinella, *Dall*, Moll. 81
Cyclomenia, *Nierstrasz*, Moll. 85
Cyclorisma, *Dall*, Moll. 81
Cylindrogyra, *Repelin*, Moll. 67
Cylistella, *Simon*, Arachn. 44
Cyllodania, *Simon*, Arachn. 44
Cynodontophis, *Werner*, Rept. 21
Cyphonichus, *Sharp*, Ins. 124
Cyphura, *Warren*, Ins. 234
Cypridinodes, *Brady*, Crust. 72
Cyrta, *Melichar*, Ins. 286
Cyrtocara, *Boulenger*, Pisces 28
Cyrtostropha, *Donald*, Moll. 79
Cyrtotelus, *Tschitschérine*, Ins. 110

Dabessus, *Distant*, Ins. 268
Dacentrurus, *Lucas*, Rept. 23
Dallatorrea, *Ashmead*, Ins. 191
Damiricus, *Fairmaire*, Ins. 143
Dascalina, *Melichar*, Ins. 281
Dasycomota, *Lower*, Ins. 215
Dasycyptus, *Simon*, Arachn. 44
Dasytanobium, *Pic*, Ins. 146
Dautzenbergia, *Chevreux*, Crust. 57
Dayro, *Cameron*, Ins. 191
Deania, *Jordan and Snyder*, Pisces 45
Decapotoma, *Voigts*, Ins. 150
Degonetus, *Distant*, 268
Deguernea, *Thomson*, Crust. 65
Dekana, *Hogg*, Arachn. 26
Deloripa, *Simon*, Arachn. 44
Deltoceras, *Buckman*, Moll. 57
Deltoidoceras, *Buckman*, Moll. 57
Dentaxis, *Pilsbry*, Moll. 64
Depaoceras, *Buckman*, Moll. 57
Dercitancorina, *Topsent*, Spong. 28
Derechinus, *Fairmaire*, Ins. 161
Derelominus, *Champion*, Ins. 153
Derisa, *Melichar*, Ins. 281
Deropristis, *Odhner*, Verm. 56
Desmopsammia, *Reis*, Cœl. 26
Dessoroceras, *Buckman*, Moll. 57
Devillea, *Brölemann*, Myr. 14
Diablepia, *Kirby*, Ins. 310
Diachelus, *Desbrochers*, Ins. 153
Diadocyrtus, *Simon*, Arachn. 26
Diaglyptus, *D'Orbigny*, Ins. 127
Diagondas, *Simon*, Arachn. 45
Dialeurodes, *Cockerell*, Ins. 289
Dialeurodicus, *Cockerell*, Ins. 289
Dialictus, *Robertson*, Ins. 174
Diandrocarpa, *van Name*, Tun. 6
Diapetus, *Cameron*, Ins. 191
Diasia, *Sörensen*, Arachn. 54
Diastanus, *Fairmaire*, Ins. 148
Diastellidea, *Bolivar*, Ins. 307
Diaxis, *Sars*, Crust. 65
Dichelosus, *Szépligeti*, Ins. 196
Dichelura, *Mabille*, Ins. 211
Dichroatettix, *Bruner*, Ins. 310
Dicoryphus, *Loman*, Arachn. 54
Dicroctura, *Hendel*, Ins. 263

Dicrogaster, *Looss*, Verm. 57
Dictyoconites, *Mojsisovics*, Moll. 56
Dictyolathys, *Banks*, Arachn. 28
Dicyphonia, *Ball*, Ins. 286
Didymocystis, *Ariola*, Verm. 57
Dilestes, *Ameghino*, Mamm. 44
Dimerostephanos, *Ameghino*, Mamm. 42
Dinocynops, *Ameghino*, Mamm. 32
Dinomenia, *Nierstrasz*, Moll. 85
Dinoscaris, *Alluaud*, Ins. 110
Diocoris, *Kirkaldy*, Ins. 276
Diparopsis, *Hampson*, Ins. 224
Diphyodus, *Lambe*, Pisces 42
Dipleurostyla, *Roux*, Prot. 86
Diplobdella, *Moore*, Vermes 43
Diplomonadina, *Dangeard*, Prot. 80
Diplootocus, *Hartert*, Aves 60
Diplopsis, *Fauvel*, Ins. 115
Diplotrema, *Spencer*, Verm. 40
Dipurella, *Hargitt*, Cœl. 17
Dircemella, *Weise*, Ins. 165
Dischizillus, *Wasmann*, Ins. 147
Discias, *Rathbun*, Crust. 46
Disphærona, *Jordan*, Ins. 159
Dissomma, *Brauer*, Pisces 35
Distantidea, *Kirkaldy*, Ins. 270
Distefanaster, *Checchia*, Ech. 62
Disticta, *Hampson*, Ins. 224
Distylophorus, *Ameghino*, Mamm. 42
Ditænia, *Hendel*, Ins. 263
Ditherus, *Cameron*, Ins. 196
Dnopheropis, *Turner*, Ins. 224
Doddiana, *Turner*, Ins. 242
Dodecacius, *Schwarz*, Ins. 137
Dohertya, *Warren*, Ins. 242
Doleromima, *Meyrick*, Ins. 247
Dolichophorus, *Lichtwardt*, Ins. 259
Dolichopteryx, *Brauer*, Pisces 40
Dolichorhynchops, *Williston*, Rept. 26
Doliovertebra, v. *Huene*, Rept. 26
Donoessus, *Simon*, Arachn. 45
Dorada, *Melichar*, Ins. 286
Dorydruppa, *Vinassa*, Prot. 71
Doryprunum, *Vinassa*, Prot. 72
Dosinella, *Dall*, Moll. 81
Dosinidia, *Dall*, Moll. 81
Dosinisca, *Dall*, Moll. 81
Dosinorbis, *Dall*, Moll. 81
Douglasia, *Green*, Ins. 290
Dræculacephala, *Ball*, Ins. 286
Drepanopsaltria, *Breddin*, Ins. 279
Dryphias, *Simon*, Arachn. 45
Dumasella, *Cossmann*, Moll. 73
Dunga, *Eliot*, Moll. 68
Dunnius, *Distant*, Ins. 268
Dyarcyops, *Hogg*, Arachn. 26
Dybowskia, *Gharyaev*, Crust. 57
Dyserythra, *Weise*, Ins. 166
Dysmilichia, *Speiser*, Ins. 224
Dystecta, *Breddin*, Ins. 274
Dysteropsis, *Roux*, Prot. 85

Eblis, *Kirkaldy*, Ins. 276
Eccleta, *Turner*, Ins. 224
Ecclitura, *Kokujew*, Ins. 196
Echinocheres, *Hansen*, Crust. 65
Echinoclinum, *van Name*, Tun. 7
Echinussa, *Simon*, Arachn. 45
Ecitonetes, *Brues*, Ins. 199
Ecpatia, *Turner*, Ins. 224
Ectochela, *Hampson*, Ins. 224
Ectolopha, *Hampson*, Ins. 224
Ectothyris, *Swinhoe*, Ins. 216
Egnatioides, *Vosseler*, Ins. 310
Eimeriella, *Stiles*, Prot. 77
Eisigella, *Gravier*, Vermes 36
Elasmocentrum, *Pilsbry*, Moll. 66
Elasmosomus, *Schwarz*, Ins. 137
Elassoptila, *Turner*, Ins. 247
Eleona, *Fairmaire*, Ins. 166
Elimorrhinus, *Kolbe*, Ins. 154
Ellipes, *Scudder*, Ins. 307
Elosaurus, *Petersen and Gilmore*, Rept. 23
Embolimus, *Weise*, Ins. 166
Emperoptera, *Grimshaw*, Ins. 259
Enantiodrilus, *Cognetti*, Verm. 41
Encoccidium, *Lühe*, Prot. 77
Encymachus, *Simon*, Arachn. 45
Endianaulax, *Cossmann*, Moll. 78
Endiatænia, *Cossmann*, Moll. 73
Enoploclerus, *Hintz*, Ins. 143
Enoplopteryx, *Hendel*, Ins. 261
Entaphius, *Buckton*, Ins. 284
Entebbia, *Gahan*, Ins. 162
Entochilus, *Moellendorff and Kobelt*, Moll. 75
Entypesa, *Simon*, Arachn. 26
Eoctodon, *Ameghino*, Mamm. 38
Eomannodon, *Ameghino*, Mamm. 44
Eopodoces, *Zarudny and Loudon*, Aves 71
Eoscarta, *Breddin*, Ins. 285
Eosiren, *Andrews*, Mamm. 43
Eosphoropteryx, *Dyar*, Ins. 224
Eosteiromys, *Ameghino*, Mamm. 38
Eosteropus, *Tschitschérine*, Ins. 110
Eotrechus, *Kirkaldy*, Ins. 273
Epalxis, *Roux*, Prot. 85
Epamontor, *Kirby*, Ins. 310
Epanerchodus, *Attems*, Myr. 14
Epeuchætes, *Lyman*, Ins. 162
Epeurycaulus, *Kolbe*, Ins. 147

Ephippiomyia, *Bezzi*, Ins. 256
Ephutomorpha, *André*, Ins. 180
Epicallima, *Dyar*, Ins. 247
Epicoccus, *Cockerell*, Ins. 290
Epidelaxia, *Simon*, Arachn. 45
Epinoorda, *Rebel*, Ins. 242
Epitonychus, *Szépligeti*, Ins. 196
Epitornoceras, *Frech*, Moll. 57
Epitripta, *Turner*, Ins. 224
Eporectis, *Meyrick*, Ins. 224
Eprius, *Fairmaire*, Ins. 166
Eremogryllus, *Krauss*, Ins. 310
Eremomydas, *Semenow*, Ins. 258
Erichsonella, *Benedict*, Crust. 53
Erineophilus, *Hopkins*, Ins. 158
Erlangeria, *Preiss*, Ins. 133
Erythrobapta, *Weise*, Ins. 166
Erythrodesmus, *Silvestri*, Myr. 14
Erythrojoppa, *Cameron*, Ins. 192
Escasona, *Matthew*, Crust. 73
Essonistis, *Meyrick*, Ins. 224
Esthlodora, *Turner*, Ins. 225
Eterozemus, *Senna*, Ins. 159
Euaurivillius, *Packard*, Ins. 216
Eublemmistis, *Hampson*, Ins. 225
Eubrochis, *Schrammen*, Spong. 22
Eucallista, *Dall*, Moll. 81
Eucataulus, *Kobelt*, Moll. 75
Euchætias, *Lyman*, Ins. 216
Eucnocerus, *Sharp*, Ins. 124
Eucondylops, *Brauns*, Ins. 174
Eucoptacra, *Bolivar*, Ins. 310
Eucora, *Schaus*, Ins. 209
Eudaimonisma, *Lucas*, Ins. 242
Eudictyon, *Schrammen*, Spong. 25
Eugasmia, *Simon*, Arachn. 45
Eulasia, *Warren*, Ins. 236
Eulophias, *Smith*, Pisces 24
Eumeyrickia, *Busck*, Ins. 247
Euphanta, *Melichar*, Ins. 281
Euphonus, *Fauvel*, Ins. 115
Euplectrotettix, *Bruner*, Ins. 310
Eupsenius, *Wasmann*, Ins. 115
Eurima, *Melichar*, Ins. 281
Eurybrochis, *Kirkaldy*, Ins. 276
Eurycervix, *v. Huene*, Rept. 26
Eurymiris, *Kirkaldy*, Ins. 276
Euryparasitus, *Oudemans*, Arachn. 58
Eurytermes, *Wasmann*, Ins. 297
Eurythrips, *Hinds*, Ins. 301
Eustiromastix, *Simon*, Arachn. 45
Eustolomorphus, *Desbrochers*, Ins. 154
Euthryptus, *Sharp*, Ins. 124
Euthydesmus, *Silvestri*, Myr. 14
Euthyroides, *Harmer*, Bry. 8
Eutryxalis, *Bruner*, Ins. 310
Evarcha, *Simon*, Arachn. 45
Evolocera, *Sharp*, Ins. 123
Evylæus, *Robertson*, Ins. 175
Exithemus, *Distant*, Ins. 268
Exoma, *Melichar*, Ins. 281
Exosternus, *Lewis*, Ins. 119

Fallia, *Sharp*, Ins. 123
Fallotia, *Douvillé*, Prot. 64
Fametesta, *Pilsbry*, Moll. 59
Farona, *Melichar*, Ins. 281
Fenenias, *Cameron*, Ins. 192
Festucula, *Simon*, Arachn. 45
Fethalia, *Cameron*, Ins. 202
Fislistina, *Cameron*, Ins. 192
Flacilla, *Simon*, Arachn. 45
Flatomorpha, *Melichar*, Ins. 281
Flatopsis, *Melichar*, Ins. 281
Flatula, *Melichar*, Ins. 281
Florilegus, *Robertson*, Ins. 175
Folsomia, *Willem*, Ins. 303
Fontannesia, *Buckman*, Moll. 57
Fourtaunio, *Lambert*, Ech. 66
Fracastorius, *Distant*, Ins. 270
Friona, *Cameron*, Ins. 192
Froggattella, *Forel*, Ins. 185
Froggattia, *Horváth*, Ins. 272
Frontinella, *Cambridge*, Arachn. 33
Fryanus, *Fleutiaux*, Ins. 135
Fultonia, *Scott*, Crust. 66
Fusivoluta, *Martens*, Moll. 70

Galeograptus, *Wiman*, Cœl. 20
Gangus, *Simon*, Arachn. 45
Ganosteus, Pisces 46
Gasocaris, *Fritsch*, Crust. 49
Gastrimargus, *Schwarz*, Ins. 138
Gastrohalictus, *Ducke*, Ins. 175
Gedea, *Simon*, Arachn. 45
Gelataspis, *Kirkaldy*, Ins. 268
Genattus, *Sharp*, Ins. 124
Genysochœra, *Simon*, Arachn. 26
Geococcus, *Green*, Ins. 290
Gephyroberyx, *Boulenger*, Pisces 32
Gephyrocrinus, *Koehler and Bather*, Ech. 84
Gephyrostegus, *Jaekel*, Rept. 32
Germanonautilus, *Mojsisovics*, Moll. 58
Giardinai, *Destefani Perez*, Ins. 196
Gigantactis, *Brauer*, Pisces 22
Gigantura, *Brauer*, Pisces 41
Glabellula, *Bezzi*, Ins. 257
Glodianus, *Cameron*, Ins. 192
Glomeropsis, *Fritsch*, Myr. 15
Glyptias, *Walcott*, Brach. 7

Glyptidotea, *Stebbing*, Crust. 53
Glyptobensonia, *Moellendorff*, Moll. 59
Gnamptonia, *Warren*, Ins. 236
Gnathomysis, *Bonnier and Perez*, Crust. 49
Gonaporus, *Ashmead*, Ins. 180
Gonionautilus, *Mojsisovics*, Moll. 58
Goniospira, *Donald*, Moll. 79
Gonolabina, *Verhoeff*, Ins. 305
Gonoreta, *Warren*, Ins. 217
Gophoa, *Simon*, Arachn. 45
Gorgoderina, *Looss*, Verm. 58
Gorgyrella, *Purcell*, Arachn. 26
Gotra, *Cameron*, Ins. 192
Gouna, *Péringuey*, Ins. 129
Gradilucina, *Cossmann*, Moll. 83
Grasidius, *Champion*, Ins. 154
Gryphonautilus, *Mojsisovics*, Moll. 58
Grypidiopsis, *Champion*, Ins. 154
Guruia, *Loman*, Arachn. 54
Gutrida, *Kirkaldy*, Ins. 276
Gymnæta, *Adelung*, Ins. 308
Gymnobates, *Banks*, Arachn. 59
Gymnobracon, *Szépligeti*, Ins. 196
Gymnodamæus, *Kulczyński*, Arachn. 59
Gymnodraco, *Boulenger*, Pisces 25
Gymnostreptus, *Brölemann*, Myr. 15
Gynoxypteron, *Speiser*, Ins. 245
Gyralina, *Andreae*, Moll. 59
Gyrinocheilus, *Vaillant*, Pisces 39

Habrojoppa, *Cameron*, Ins. 192
Hadrojoppa, *Cameron*, Ins. 192
Halimococcus, *Cockerell*, Ins. 290
Halys, *Weise*, Ins. 166
Hansenia, *Kirkaldy*, Ins. 281
Hapaloides, *Ameghino*, Mamm. 43
Haplocion, *Pilsbry*, Moll. 66
Haplopoma, *Levinsen*, Bry. 8
Haploporus, *Looss*, Verm. 58
Haplopseustis, *Meyrick*, Ins. 226
Haplosplanchnus, *Looss*, Verm. 58
Harenactis, *Torrey*, Cœl. 27
Harmonides, *Kirkaldy*, Ins. 286
Harpactirella, *Simon*, Arachn. 26
Hathor, *Kirkaldy and Edwards*, Ins. 272
Hatsckekia, *Poche*, Crust. 66
Hedroneura, *Hendel*, Ins. 264
Hekista, *Kirkaldy*, Ins. 276
Helicometra, *Odhner*, Verm. 58
Helpidius, *Simon*, Arachn. 46
Helpis, *Simon*, Arachn. 46
Hemeromyia, *Coquillett*, Ins. 264
Hemicara, *Schlueter*, Ech. 67
Hemijana, *Aurivillius*, Ins. 217
Hemimenia, *Nierstrasz*, Moll. 85
Heminectes, *Philippi*, Rept. 29
Heminomada, *Cockerell and Atkins*, Ins. 175
Hemipauropus, *Silvestri*, Myr. 12
Hemiphoberia, *Fritsch*, Myr. 21
Hemiphracta, *Weise*, Ins. 166
Hemiphrynus, *Fritsch*, Arachn. 24
Hemiphrynus, *Pocock*, Arachn. 24
Hemirhopalum, *Sharp*, Ins. 124
Hemitilapia, *Boulenger*, Pisces 29
Hemiutaetus, *Ameghino*, Mamm. 43
Hepsidera, *Swinhoe*, Ins. 226
Heptadesmus, *Cook*, Myr. 15
Herklotzia, *Loriol*, Ech. 67
Hermolaus, *Distant*, Ins. 268
Heronimus, *MacCullum*, Verm. 58
Herpetophrya, *Siedlecki*, Prot. 85
Herpetosoma, *Doflein*, Prot. 80
Hesperagrion, *Calvert*, Ins. 300
Hesperolabops, *Kirkaldy*, Ins. 277
Hesperoptila, *Meyrick*, Ins. 248
Heterastræa, *Reis*, Cœl. 27
Heteresthes, *Warren*, Ins. 236
Heteroceras, *Forti*, Prot. 80
Heterodoxus, *Le Souef and Bullen*, Ins. 295
Heterodrilus, *Pierantoni*, Verm. 41
Heteromigas, *Hogg*, Arachn. 26
Heteronota, *Meyrick*, Ins. 226
Heteroplema, *Warren*, Ins. 236
Heteropsaltria, *Jacobi*, Ins. 280
Heteropsocus, *Verrill*, Ins. 295
Heteropteryx, *Coquillett*, Ins. 264
Heteroverhoeffia, *Fritsch*, Myr. 21
Heteroxenicus, *Sharpe*, Aves 58
Hevaheva, *Kirkaldy*, Ins. 288
Hexacladus, *Vinassa*, Prot. 72
Hierichthys, *Jordan and Fowler*, Pisces 23
Hilipinus, *Champion*, Ins. 154
Himerois, *Turner*, Ins. 226
Hiorada, *Cameron*, Ins. 192
Hirasea, *Pilsbry*, Moll. 59
Hirasiella, *Pilsbry*, Moll. 60
Hoeocryptus, *Habermehl*, Ins. 192
Holangus, *Pic*, Ins. 162
Holcojoppa, *Cameron*, Ins. 192
Holconautilus, *Mojsisovics*, Moll. 58
Holcotroticus, *Cameron*, Ins. 196
Holoreta, *Warren*, Ins. 217
Holostixa, *Swinhoe*, Ins. 237
Holozoster, *Loman*, Arachn. 54
Homichloda, *Weise*, Ins. 166
Hopetounia, *Swinhoe*, Ins. 226
Hoplitosaurus, *Lucas*, Rept. 23
Hoplojana, *Aurivillius*, Ins. 217
Houdasia, *Cossmann*, Moll. 78

Howascolex, *Michaelsen*, Verm. 41
Hubertiella, *Kirkaldy*, Ins. 273
Hubrechtella, *Bergendal*, Verm. 45
Huleria, *Ball*, Ins. 286
Hurius, *Simon*, Arachn. 46
Hyattites, *Mojsisovics*, Moll. 57
Hydnophyllia, *Reis*, Cœl. 27
Hydromermis, *Corti*, Verm. 66
Hydropedeticus, *Miall and Gilson*, Ins. 307
Hydrozetes, *Berlese*, Arachn. 59
Hyetussa, *Simon*, Arachn. 46
Hylobænus, *Pic*, Ins. 149
Hylocrabro, *Perkins*, Ins. 180
Hyperioides, *Chevreux*, Crust. 59
Hyperiosoma, *Lea*, Ins. 155
Hyperythra, *Weise*, Ins. 166
Hyphantosoma, *Dall*, Moll. 81
Hypnarea, *Waite*, Pisces 45
Hypoferreola, *Ashmead*, Ins. 180
Hyposyntactus, *Ashmead*, Ins. 193
Hypoxestus, *Loman*, Arachn. 54
Hypsimetopus, *Sayce*, Crust. 51
Hyrcanolestes, *Simroth*, Moll. 60

Ia, *Thomas*, Mamm. 29
Icasma, *Turner*, Ins. 226
Ichthyotænia, *Lönnberg*, Verm. 52
Ideodelphis, *Ameghino*, Mamm. 44
Idiochroma, *Bédel*, Ins. 111
Idobrium, *Kolbe*, Ins. 162
Idutywa, *Péringuey*, Ins. 130
Iliophilus, *Lilljeborg*, Crust. 66
Inanda, *Péringuey*, Ins. 130
Indiana, *Matthew*, Crust. 73
Indonautilus, *Mojsisovics*, Moll. 58
Indra, *Kirkaldy and Edwards*, Ins. 272
Inocatoptes, *Broun*, Ins. 155
Inostranzewia, *Amalitzki*, Rept. 26
Interhippus, *Ameghino*, Mamm. 42
Iolania, *Kirkaldy*, Ins. 281
Iomelissa, *Robertson*, Ins. 175
Ionella, *Bonnier*, Crust. 54
Isabel, *Kirkaldy*, Ins. 277
Isadelphia, *Semenow*, Ins. 189
Ischnuridia, *Sauber*, Ins. 248
Isocymatodera, *Hintz*, Ins. 143
Isojulus, *Fritsch*, Myr. 15
Isokerandria, *Sars*, Crust. 66
Isolabella, *Verhoeff*, Ins. 305
Isolabis, *Verhoeff*, Ins. 305
Isoloxantha, *Semenow*, Ins. 151
Isomicraster, *Lambert*, Ech. 68
Isostylops, *Ameghino*, Mamm. 42
Isutaetus, *Ameghino*, Mamm. 43
Ithamar, *Kirkaldy*, Ins. 270
Itokiia, *Sjostedt*, Ins. 308
Janomima, *Aurivillius*, Ins. 217
Jasoda, *Peckham*, Arachn. 46
Jethsura, *Cameron*, Ins. 193
Jolias, *Simon*, Arachn. 46
Joyeuxella, *Brasil*, Prot. 79
Juvavionautilus, *Mojsisovics*, Moll. 58

Kailasius, *Moore*, Ins. 204
Kamehameha, *Kirkaldy*, Ins. 277
Kangra, *Kirkaldy*, Ins. 277
Kareiga, *Péringuey*, Ins. 130
Karschiella, *Verhoeff*, Ins. 305
Keeneia, *Etheridge*, Moll. 79
Kentrosia, *Schrammen*, Spong. 26
Khafra, *Distant*, Ins. 274
Khoina, *Péringuey*, Ins. 130
Kima, *Peckham*, Arachn. 46
Kingotrochus, *Ihering*, Moll. 78
Klossiella, *Smith and Johnson*, Prot. 77
Knysna, *Péringuey*, Ins. 130
Koanoa, *Kirkaldy*, Ins. 277
Kobya, *Loriol*, Moll. 83
Koramius, *Moore*, Ins. 204
Korasiocapsus, *Kirkaldy*, Ins. 277
Korisaba, *Péringuey*, Ins. 130
Kosmiomiris, *Kirkaldy*, Ins. 277
Kubousa, *Péringuey*, Ins. 130
Kuragea, *Kishinouye*, Cœl. 21

Labidomilla, *André*, Ins. 180
Lactistomyia, *Melander*, Ins. 259
Lactolus, *Cameron*, Ins. 193
Lagenotillus, *Fairmaire*, Ins. 143
Lamelliconcha, *Dall*, Moll. 81
Lampodrilus, *Michaelsen*, Verm. 41
Lamproapis, *Cameron*, Ins. 175
Lamprobyrrhulus, *Ganglbauer*, Ins. 124
Lapaphras, *Cameron*, Ins. 193
Lasiomorychus, *Ganglbauer*, Ins. 124
Latteva, *Cameron*, Ins. 193
Latumcephalum, *Le Souef*, Ins. 295
Lecithobotrys, *Looss*, Verm. 58
Lecithodesmus, *Braun*, Verm. 58
Legnotomyia, *Bezzi*, Ins. 258
Leiocrinus, *Springer*, Ech. 85
Leionymphon, *Möbius*, Crust. 82
Leiopleurus, *Lambert*, Ech. 69
Leiorhynx, *Hampson*, Ins. 226
Leiostracosia, *Schrammen*, Spong. 25
Lepidocardia, *Dall*, Moll. 81
Lepidophyllum, *Odhner*, Verm. 59
Leptacoenites, *Strobl*, Ins. 193
Leptarthra, *Lower*, Ins. 245
Leptaulaca, *Weise*, Ins. 167

Lepthercus, *Purcell*, Arachn. 26
Leptisolabis, *Verhoeff*, Ins. 305
Leptobelistis, *Turner*, Ins. 248
Leptoglanis, *Boulenger*, Pisces 37
Leptophyllum, *Cohn*, Verm. 59
Leptopontia, *Scott*, Crust. 66
Leptospathius, *Szépligeti*, Ins. 197
Lerina, *Bolivar*, Ins. 311
Leucesthes, *Warren*, Ins. 237
Leucophrydium, *Roux*, Prot. 85
Libyaspis, *Kirkaldy*, Ins. 268
Lichena, *Melichar*, Ins. 281
Limnospila, *Schnabl*, Ins. 262
Liocentrum, *Pilsbry*, Moll. 66
Liolope, *Cohn*, Verm. 59
Liolytopelte, *Simroth*, Moll. 60
Liomys, *Merriam*, Mamm. 36
Liroaspis, *Banks*, Arachn. 60
Lissoblemma, *Warren*, Ins. 237
Litanomyia, *Melander*, Ins. 259
Lithacrosiphon, *Shipley*, Verm. 33
Lithracia, *Cameron*, Ins. 202
Lithurgopsis, *Fox*, Ins. 175
Lixomorpha, *Champion*, Ins. 155
Loberina, *Grouvelle*, Ins. 122
Lobidiopteryx, *Warren*, Ins. 237
Lobopora, *Levinsen*, Bry. 8
Lochmæotrochus, *Alcock*, Cœl. 28
Lomophorelus, *Ameghino*, Mamm. 43
Lophiodonticulus, *Ameghino*, Mamm. 42
Lophostica, *Simon*, Arachn. 46
Lophosticha, *Lower*, Ins. 237
Lophotarsia, *Hampson*, Ins. 227
Lophotoma, *Turner*, Ins. 227
Lophyrophorus, *Meunier*, Ins. 107
Losaria, *Moore*, Ins. 204
Lovcenipora, *Giattini*, Cœl. 28
Luanthus, *Ameghino*, Mamm. 38
Lucya, *Buckman*, Moll. 57
Ludwigella, *Buckman*, Moll. 57
Lurio, *Simon*, Arachn. 46
Luzulaspis, *Cockerell*, Ins. 291
Lycomedes, *Sörensen*, Arachn. 54

Macaronapæus, *Kobelt*, Moll. 66
Machlydotherium, *Ameghino*, Mamm. 43
Macridiscus, *Dall*, Moll. 81
Macrobrachonyx, *Pic*, Ins. 155
Macrobracon, *Szépligeti*, Ins. 197
Macrochiridothea, *Ohlin*, Crust. 53
Macrolopha, *Weise*, Ins. 167
Macropharynx, *Brauer*, Pisces 36
Macropidonia, *Pic*, Ins. 162
Macropsammus, *Cossmann*, Moll. 81
Macroscython, *Fleutiaux*, Ins. 135
Macrostomias, *Brauer*, Pisces 39
Madurea, *Bolivar*, Ins. 311
Makua, *Kirkaldy*, Ins. 277
Malacopeplus, *Kirkaldy*, Ins. 277
Malacothrips, *Hinds*, Ins. 301
Maldivia, *Borradaile*, Crust. 36
Mallocampa, *Aurivillius*, Ins. 218
Malloneta, *Simon*, Arachn. 47
Mallos, *Cambridge*, Arachn. 28
Manataria, *Kirby*, Ins. 208
Mandersia, *Sharp*, Ins. 124
Mangomaloba, *Sjöstedt*, Ins. 308
Mankuninga, *Distant*, Ins. 274
Maraces, *Cameron*, Ins. 193
Marlianus, *Distant*, Ins. 274
Marma, *Simon*, Arachn. 47
Marsdenius, *Wellburn*, Pisces 46
Matyoscor, *Ameghino*, Mamm. 37
Matyringa, *Busck*, Ins. 248
Mauronapæus, *Kobelt*, Moll. 66
Mayriella, *Forel*, Ins. 186
Megalocrærus, *Lewis*, Ins. 119
Megaloxantha, *Kerremans*, Ins. 134
Megamelanus, *Ball*, Ins. 282
Meginoe, *Kirkaldy*, Ins. 277
Meigeniella, *Coquillett*, Ins. 262
Melanapis, *Cameron*, Ins. 176
Melaniris, *Meek*, Pisces 33
Melanocrabro, *Perkins*, Ins. 181
Melanocryptus, *Cameron*, Ins. 193
Melanonosoma, *Gilchrist*, Pisces 32
Melanoporus, *Ashmead*, Ins. 181
Melanostomias, *Brauer*, Pisces 40
Melcha, *Cameron*, Ins. 193
Melicharella, *Semenow*, Ins. 287
Meliphila, *Schrottky*, Ins. 176
Mellesia, *Weise*, Ins. 167
Memnonia, *Ball*, Ins. 287
Mentanus, *Fairmaire*, Ins. 159
Mercatus, *Distant*, Ins. 269
Mercimonia, *Dall*, Moll. 81
Meriolus, *Fairmaire*, Ins. 159
Mesaulus, *Braun*, Verm. 59
Mesitiopterus, *Ashmead*, Ins. 189
Mesobracon, *Szépligeti*, Ins. 197
Mesochelidura, *Verhoeff*, Ins. 305
Mesocœla, *Warren*, Ins. 237
Mesodina, *Meyrick*, Ins. 212
Mesogaleodes, *Heymons*, Arachn. 52
Mesogenea, *Hampson*, Ins. 227
Mesolea, *Breddin*, Ins. 269
Mesolecanium, *Cockerell*, Ins. 291
Mesophantia, *Melichar*, Ins. 282
Mesophylla, *Melichar*, Ins. 282
Metabolocrinus, *Jaekel*, Ech. 85
Metacalanus, *Cleve*, Crust. 67
Metafecenia, *Cambridge*, Arachn. 28
Metallogorgia, *Versluys*, Cœl. 28

Metapodiessa, *Kirkaldy*, Ins. 270
Metargus, *Cambridge*, Arachn. 34
Meteutatus, *Ameghino*, Mamm. 43
Metopiora, *Meyrick*, Ins. 227
Metriosoma, *Szépligeti*, Ins. 197
Mexcala, *Peckham*, Arachn. 47
Michaelsenia, *van Name*, Tun. 7
Michtheimysis, *Norman*, Crust. 49
Micreuglenes, *Pic*, Ins. 149
Micreumenes, *Ashmead*, Ins. 178
Microblastidium, *Schrammen*, Spong. 25
Microflata, *Melichar*, Ins. 282
Microglyphis, *Dall*, Moll. 69
Microhasarius, *Simon*, Arachn. 47
Microliotia, *Boettger*, Moll. 74
Micromonas, *Borrel*, Prot. 81
Micronomada, *Cockerell and Atkins*, Ins. 176
Micronotus, *Hancock*, Ins. 311
Microplidius, *Péringuey*, Ins. 130
Microstylus, *Kishinouye*, Cœl. 21
Microtermes, *Wasmann*, Ins. 297
Microthrissa, *Boulenger*, Pisces 41
Miltinobates, *Sjöstedt*, Ins. 308
Mimobrachyoma, *Lower*, Ins. 248
Mimocoptops, *Fairmaire*, Ins. 162
Mimomys, *Major*, Mamm. 36
Minutius, *Fairmaire*, Ins. 162
Miocris, *Fairmaire*, Ins. 162
Miojoppa, *Cameron*, Ins. 193
Mionides, *Hampson*, Ins. 228
Mioscarta, *Breddin*, Ins. 285
Mistichthys, *Smith*, Pisces 26
Mitraceras, *Loman*, Arachn. 54
Mixodetis, *Meyrick*, Ins. 248
Modunda, *Simon*, Arachn. 47
Molopa, *Swinhoe*, Ins. 228
Monobiella, *Ashmead*, Ins. 178
Monoclova, *Peckham*, Arachn. 47
Monomastix, *Roux*, Prot. 84
Monoporina, *Levinsen*, Bry. 9
Monorchis, *Clerck*, Verm. 52
Monorhabdium, *Loman*, Arachn. 54
Mopiopia, *Simon*, Arachn. 47
Morawitzia, *Friese*, Ins. 176
Morsina, *Melichar*, Ins. 282
Muriculus, *Thomas*, Mamm. 35
Musonius, *Fairmaire*, Ins. 162
Muziris, *Simon*, Arachn. 47
Myogramma, *Maas*, Cœl. 21
Myrmilloides, *André*, Ins. 181
Myrmoxenus, *Ruzsky*, Ins. 186
Myrmozercon, *Berlese*, Arachn. 60
Mytilicola, *Steuer*, Crust. 67
Myxodiscus, *Prowazek*, Prot. 70
Myzomyia, *Blanchard*, Ins. 255
Myzorhynchus, *Blanchard*, Ins. 255
Nalicora, *Moore*, Crust. 52
Nanaga, *Péringuey*, Ins. 130
Nannenus, *Simon*, Arachn. 47
Nannopompilus, *Ashmead*, Ins. 181
Napoca, *Simon*, Arachn. 47
Nasigona, *Jacoby*, Ins. 167
Naubolus, *Simon*, Arachn. 47
Neaxestis, *Hampson*, Ins. 228
Nebridia, *Simon*, Arachn. 47
Neleucania, *Smith*, Ins. 228
Nemolestes, *Ameghino*, Mamm. 44
Nennius, *Kirby*, Ins. 212
Neocerus, *Melichar*, Ins. 282
Neochrostis, *Hampson*, Ins. 228
Neoctodon, *Thomas*, Mamm. 37
Neoinoceramus, *Ihering*, Moll. 84
Neojulodis, *Kerremans*, Ins. 134
Neolimnophora, *Schnabl*, Ins. 262
Neopodocinum, *Oudemans*, Arachn. 60
Neopterostichus, *Tschitschérine*, Ins. 111
Neopupina, *Kobelt*, Moll. 75
Neorhyssa, *Szépligeti*, Ins. 197
Neosebus, *Senna*, Ins. 159
Nephacodus, *Ameghino*, Mamm. 42
Nephopteryx, *Klapálek*, Ins. 298
Nephotettix, *Matsumura*, Ins. 287
Nephrocephalus, *Odhner*, Verm. 59
Nesidiocheilus, *Kirkaldy*, Ins. 277
Nesidiocoris, *Kirkaldy*, Ins. 277
Nesidiolestes, *Kirkaldy*, Ins. 274
Nesidiorchestes, *Kirkaldy*, Ins. 277
Nesiomiris, *Kirkaldy*, Ins. 277
Nesobates, *Sharpe*, Aves 58
Nesogaster, *Verhoeff*, Ins. 305
Nesogastrella, *Verhoeff*, Ins. 305
Netrocerocora, *Bartel*, Ins. 228
Neurankylus, *Lambe*, Rept. 25
Newnesia, *Smith*, Moll. 69
Newsteadia, *Green*, Ins. 291
Niptomezium, *Pic*, Ins. 146
Nisopsis, *Matheron*, Moll. 67
Nongoma, *Péringuey*, Ins. 132
Nossis, *Bergh*, Moll. 68
Nothaima, *Cameron*, Ins. 194
Notopleura, *Krauss*, Ins. 311
Notoscarta, *Breddin*, Ins. 285
Nuncia, *Loman*, Arachn. 55
Nursea, *Cameron*, Ins. 182
Nyctinomops, *Miller*, Mamm. 30
Nyctiphantus, *Semenow*, Ins. 167
Nyssorhynchus, *Blanchard*, Ins. 255

Ocnotelus, *Simon*, Arachn. 47
Octhophora, *Turner*, Ins. 228

Octomma, *Willem*, Ins. 303
Odontonycteris, *Jentink*, Mamm. 29
Odontophotopsis, *Viereck*, Ins. 182
Œdebasis, *Hampson*, Ins. 228
Œderastria, *Hampson*, Ins. 228
Œdicentra, *Warren*, Ins. 238
Œophronistes, *Blackburn*, Ins. 116
Oistosomum, *Odhner*, Verm. 59
Olbiorchilus, *Oberholser*, Aves 59
Olbodotes, *Osborn*, Mamm. 38
Oligobiotherium, *Ameghino*, Mamm. 44
Oligocrinus, *Springer*, Ech. 85
Oligoneurus, *Szépligeti*, Ins. 197
Olympiocapsus, *Kirkaldy*, Ins. 277
Omocycla, *Tschitschérine*, Ins. 111
Oncodocnemis, *Rebel*, Ins. 238
Oningis, *Simon*, Arachn. 48
Onychosaurus, *Nopcsa*, Rept. 23
Opandrena, *Robertson*, Ins. 176
Opaon, *Kirby*, Ins. 311
Ophionotus, *Bell*, Ech. 81
Ophiophycis, *Koehler*, Ech. 81
Ophiosteira, *Bell*, Ech. 81
Opifex, *Hutton*, Ins. 256
Opuna, *Kirkaldy*, Ins. 277
Orbione, *Bonnier*, Crust. 55
Orchestridoptera, *Sjöstedt*, Ins. 308
Oreocrabro, *Perkins*, Ins. 182
Oreomyias, *Reichenow*, Aves 56
Oreothalia, *Melander*, Ins. 259
Ornitheza, *Speiser*, Ins. 266
Ornithoctona, *Speiser*, Ins. 266
Ornithopertha, *Speiser*, Ins. 266
Oronomiris, *Kirkaldy*, Ins. 277
Orophocotyle, *Looss*, Verm. 60
Orphnodella, *Spaeth*, Ins. 168
Orsima, *Simon*, Arachn. 48
Orthagoriscicola, *Poche*, Crust. 67
Orthogeniops, *Ameghino*, Mamm. 42
Ortholfersia, *Speiser*, Ins. 266
Orthutaetus, *Ameghino*, Mamm. 43
Oryctogale, *Merriam*, Mamm. 33
Oryxa, *Melichar*, Ins. 282
Osmophila, *Szépligeti*, Ins. 197
Otomonas, *Léger*, Prot. 81
Otomphalus, *Cossmann*, Moll. 78
Otonomysops, *Ameghino*, Mamm. 38
Outeniqua, *Péringuey*, Ins. 130
Oxynautilus, *Mojsisovics*, Moll. 58
Oxypolella, *Bergendal*, Verm. 45
Oxytella, *Weise*, Ins. 171

Pachybiotherium, *Ameghino*, Mamm. 44
Pachycentris, *Friese*, Ins. 177
Pachycnemida, *Péringuey*, Ins. 131
Pachyfornax, *Fleutiaux*, Ins. 135
Pachylepisma, *Schrammen*, Spong. 26
Pachymelas, *Tschitschérine*, Ins. 111
Pachypoessa, *Simon*, Arachn. 48
Pachysphæra, *Brandt*, Prot. 72
Pachyzaedyus, *Ameghino*, Mamm. 43
Padillothorax, *Simon*, Arachn. 48
Pagaronia, *Ball*, Ins. 287
Pagurias, *Benedict*, Crust. 42
Palæmonias, *Hay*, Crust. 47
Palæocardia, *Ameghino*, Mamm. 38
Palæoedalea, *Meunier*, Ins. 107
Palæohilarimorpha, *Meunier*, Ins. 107
Palæoparamesia, *Meunier*, Ins. 107
Palæopipiza, *Meunier*, Ins. 107
Palæopsammia, *Wanner*, Cœl. 28
Palæoschisma, *Donald*, Moll. 79
Palæpanorthus, *Ameghino*, Mamm. 44
Paleologus, *Distant*, Ins. 273
Pancorius, *Simon*, Arachn. 48
Pancra, *Swinhoe*, Ins. 229
Pannona, *Lörenthey*, Moll. 74
Paonidia, *Meyrick*, Ins. 229
Parabderites, *Ameghino*, Mamm. 44
Paraboeckella, *Mrázek*, Crust. 67
Parabroteas, *Mrázek*, Crust. 67
Paracastalia, *Kerremans*, Ins. 134
Paracerithium, *Cossmann*, Moll. 73
Parachænichthys, *Boulenger*, Pisces 25
Parachlidorhinus, *Senna*, Ins. 159
Paracoccidium, *Laveran and Mesnil*, Prot. 77
Paracopium, *Distant*, Ins. 272
Paracromna, *Melichar*, Ins. 282
Paradmontia, *Coquillett*, Ins. 262
Paragathia, *Warren*, Ins. 238
Paragelocus, *Schlosser*, Mamm. 40
Paragrubia, *Chevreux*, Crust. 59
Paralces, *Allen*, Mamm. 39
Paralichthodes, *Gilchrist*, Pisces 27
Paralimnus, *Matsumura*, Ins. 287
Paralobites, *Mojsisovics*, Moll. 57
Paralytoceras, *Frech*, Moll. 57
Paranautilus, *Mojsisovics*, Moll. 58
Paranthomyza, *Czerny*, Ins. 264
Paranura, *Axelson*, Ins. 303
Paraparmarion, *Collinge*, Moll. 61
Paraphacodes, *Belon*, Ins. 163
Paraphlæoba, *Bolivar*, Ins. 312
Paraphractura, *Boulenger*, Pisces 37
Paraplanocera, *Laidlaw*, Verm. 48
Parapolichne, *Bolivar*, Ins. 308
Parasphæroma, *Stebbing*, Crust. 52

Paraspirobolus, *Brölemann*, Myr. 16
Parastephos, *Sars*, Crust. 68
Parasthena, *Warren*, Ins. 238
Paratachidius, *Brady*, Crust. 68
Paratella, *Melichar*, Ins. 282
Parathermes, *Hampson*, Ins. 229
Paratheta, *Meyrick*, Ins. 249
Paratuerta, *Hampson*, Ins. 229
Paraxestis, *Hampson*, Ins. 229
Parelops, *Fritsch and Bayer*, Pisces 41
Parepalpus, *Coquillett*, Ins. 262
Parephydra, *Coquillett*, Ins. 264
Parhomaloptera, *Vaillant*, Pisces 39
Parichthyocrinus, *Springer*, Ech. 85
Parmulina, *Dall*, Moll. 81
Parmulina, *Penard*, Prot. 62
Parodinia, *Coquillett*, Ins. 264
Paroriza, *Herouard*, Ech. 56
Parorphula, *Bruner*, Ins. 312
Paroruza, *Hampson*, Ins. 229
Partona, *Simon*, Arachn. 48
Parutaetus, *Ameghino*, Mamm. 43
Parvirota, *Cossmann*, Moll. 79
Paterculus, *Distant*, Ins. 269
Patuleius, *Fairmaire*, Ins. 144
Paurocoma, *Lower*, Ins. 239
Paurophylla, *Turner*, Ins. 229
Pearsonia, *Kobelt*, Moll. 76
Peckhamia, *Simon*, Arachn. 48
Pectenosaurus, *v. Huene*, Rept. 26
Pedinotus, *Szépligeti*, Ins. 197
Pelagohydra, *Dendy*, Cœl. 18
Pelecinotus, *Bolivar*, Ins. 312
Pelecyora, *Dall*, Moll. 81
Pelmatorycter, *Pocock*, Arachn. 27
Peltecoelus, *Ameghino*, Mamm. 43
Peltosaris, *Meyrick*, Ins. 249
Penestomus, *Simon*, Arachn. 28
Peponapis, *Robertson*, Ins. 177
Periallactis, *Meyrick*, Ins. 249
Periclitena, *Weise*, Ins. 168
Perirhiza, *Kishinouye*, Cœl. 21
Peristomella, *Levinsen*, Bry. 9
Perittocrinus, *Jaekel*, Ech. 86
Petræocerastus, *Kobelt*, Moll. 66
Phacodinium, *Prowazek*, Prot. 86
Phæomyias, *Berlepsch and Hartert*, Aves 54
Phæoparus, *Madarász*, Aves 63
Phalacrichus, *Sharp*, Ins. 125
Phalacrocidaris, *Lambert*, Ech. 72
Phaleropygus, *Loriol*, Ech. 73
Phallodrilus, *Picrantoni*, Verm. 42
Pharacocerus, *Simon*, Arachn. 48
Phasmena, *Melichar*, Ins. 282
Phaulostylus, *Simon*, Arachn. 48
Phausina, *Simon*, Arachn. 48
Phavorinus, *Distant*, Ins. 269
Phelliomorpha, *Carlgren*, Cœl. 29
Phenacobryum, *Cockerell*, Ins. 291
Phenococeras, *Frech*, Moll. 57
Phialella, *Browne*, Cœl. 18
Philaronia, *Ball*, Ins. 285
Philetor, *Thomas*, Mamm. 29
Phintia, *Simon*, Arachn. 48
Phiomia, *Andrews and Beadnell*, Mamm. 33
Phlæobida, *Bolivar*, Ins. 312
Phlœocyathus, *Alcock*, Cœl. 29
Phlyseogrammoceras, *Buckman*, Moll. 57
Photoblepharon, *Weber*, Pisces 31
Phrixolestes, *Simroth*, Moll. 61
Phthorimæa, *Meyrick*, Ins. 249
Phyaces, *Simon*, Arachn. 48
Phygoscotus, *Schulz*, Ins. 148
Phyllonotus, *Hancock*, Ins. 312
Phyllotettix, *Hancock*, Ins. 312
Phyma, *Melichar*, Ins. 283
Phymatechus, *Belon*, Ins. 163
Phymatodesmus, *Saussure and Zehntner*, Myr. 16
Pibrocha, *Kirkaldy*, Ins. 283
Pilia, *Simon*, Arachn. 48
Pimelobia, *Trägårdh*, Arachn. 62
Pinarocorys, *Shelley*, Aves 66
Pionothele, *Purcell*, Arachn. 27
Placochelys, *Jaekel*, Rept. 25
Placotrochides, *Alcock*, Cœl. 29
Plathanocera, *Schenkling*, Ins. 144
Platydromia, *Fulton and Grant*, Crust. 40
Platygraphoceras, *Buckman*, Moll. 57
Platyngomiris, *Kirkaldy*, Ins. 278
Platynychus, *Du Buysson*, Ins. 139
Platyozius, *Borradaile*, Crust. 36
Platypsyllus, *Scott*, Crust. 68
Platytes, *Mojsisovics*, Moll. 57
Plectodermatum, *Schrammen*, Spong. 26
Pleuracanthus, *Gharyaev*, Crust. 59
Pleuragramma, *Boulenger*, Pisces 25
Pleurocorallium, *Moroff*, Cœl. 29
Pleurocoralloides, *Moroff*, Cœl. 29
Pleurocryptella, *Bonnier*, Crust. 55
Pleurogorgia, *Versluys*, Cœl. 29
Pleurojulus, *Fritsch*, Myr. 17
Pleuroprion, *Zur Strassen*, Crust. 53
Pleurystomus, *Ameghino*, Mamm. 42
Plexaris, *Kirkaldy*, Ins. 278
Plicifusus, *Dall*, Moll. 71
Pliodolops, *Ameghino*, Mamm. 44
Plotius, *Simon*, Arachn. 49
Podagra, *Smith*, Ins. 229
Podateles, *Boulenger*, Pisces 23
Pœciloïdes, *Bianchi*, Aves 63

Pœcilopompilus, *Ashmead*, Ins. 182
Pœcilorchestes, *Simon*, Arachn. 49
Pœcilotettix, *Bolivar*, Ins. 312
Pœcilotiphia, *Cameron*, Ins. 182
Poessa, *Simon*, Arachn. 49
Polemus, *Simon*, Arachn. 49
Poliothripa, *Hampson*, Ins. 229
Polyacanthus, *Gharyaev*, Crust. 59
Polycaryum, *Stempell*, Prot. 79
Polycestella, *Kerremans*, Ins. 134
Polycestoides, *Kerremans*, Ins. 134
Polycoryphus, *Loman*, Arachn. 55
Polyopesia, *Schrammen*, Spong. 24
Polyphyma, *Groom*, Crust. 74
Polyporina, *Levinsen*, Bry. 9
Pompeckjites, *Mojsisovics*, Moll. 57
Pompilinus, *Ashmead*, Ins. 182
Pompilogastra, *Ashmead*, Ins. 182
Pontanus, *Distant*, Ins. 273
Pontosphæra, *Lohmann*, Prot. 82
Pornothemis, *Krüger*, Ins. 300
Porophlœus, *Melichar*, Ins. 283
Porotemnus, *Ameghino*, Mamm. 42
Portschinskia, *Semenow*, Ins. 261
Posteutatus, *Ameghino*, Mamm. 43
Potamothrix, *Vejdovský and Mrázek*, Verm. 42
Poterioochromonas, *Scherffel*, Prot. 81
Præsorites, *Douvillé*, Prot. 69
Prioclerus, *Hintz*, Ins. 144
Prionofrontia, *Hampson*, Ins. 229
Prionomma, *Loman*, Arachn. 55
Pristobæus, *Simon*, Arachn. 49
Proasmodeus, *Ameghino*, Mamm. 42
Probethylus, *Ashmead*, Ins. 200
Probolitrema, *Looss*, Verm. 60
Procarinina, *Bergendal*, Verm. 45
Procerithium, *Cossmann*, Moll. 73
Procerosaurus, *v. Huene*, Rept. 26
Prochalicotherium, *Ameghino*, Mamm. 42
Procladosictis, *Ameghino*, Mamm. 44
Proclydonautilus, *Mojsisovics*, Moll. 58
Procœdicia, *Bolivar*, Ins. 308
Proconis, *Hampson*, Ins. 229
Proctostephanus, *Börner*, Ins. 303
Prodromocrinus, *Jaekel*, Ech. 86
Proeurete, *Schrammen*, Spong. 24
Prohyracotherium, *Ameghino*, Mamm. 42
Proleucoptera, *Busck*, Ins. 249
Prolicaphrium, *Ameghino*, Mamm. 42
Promecilla, *André*, Ins. 182
Promelocrinus, *Jaekel*, Ech. 86
Prometopidia, *Hampson*, Ins. 239
Promygale, *Fritsch*, Arachn. 52
Promysops, *Ameghino*, Mamm. 38
Proneusticosaurus, *Volz*, Rept. 26
Pronucula, *Hedley*, Moll. 84
Proparamenia, *Nierstrasz*, Moll. 85
Proparoides, *Bianchi*, Aves 58
Proplanodus, *Ameghino*, Mamm. 42
Proruaca, *Hampson*, Ins. 230
Proschismotherium, *Ameghino*, Mamm. 43
Proscrana, *Turner*, Ins. 230
Prosobothrium, *Cohn*, Verm. 53
Prospaniomys, *Ameghino*, Mamm. 38
Prospatangus, *Lambert*, Ech. 73
Prostegotherium, *Ameghino*, Mamm. 43
Protacaremys, *Ameghino*, Mamm. 38
Protadelphomys, *Ameghino*, Mamm. 38
Protapes, *Dall*, Moll. 81
Prothoatherium, *Ameghino*, Mamm. 42
Protobradys, *Ameghino*, Mamm. 43
Protoclepsis, *Livanous*, Verm. 43
Protomeceras, *Rebel*, Ins. 239
Protothaca, *Dall*, Moll. 81
Psaltriodes, *Meyrick*, Ins. 249
Psammotermes, *Wasmann*, Ins. 297
Psebena, *Gahan*, Ins. 163
Pselaphanus, *Szépligeti*, Ins. 197
Psephidia, *Dall*, Moll. 82
Pseudalmenus, *Druce*, Ins. 210
Pseudamycla, *Pace*, Moll. 71
Pseudapinops, *Coquillett*, Ins. 262
Pseudarbela, *Sauber*, Ins. 249
Pseudarietites, *Frech*, Moll. 57
Pseudauximus, *Simon*, Arachn. 28
Pseudemathis, *Simon*, Arachn. 49
Pseudepyris, *Ducke*, Ins. 189
Pseudeutatus, *Ameghino*, Mamm. 43
Pseudhippus, *Ameghino*, Mamm. 42
Pseudidothea, *Ohlin*, Crust. 53
Pseudiphisus, *Fairmaire*, Ins. 157
Pseudoboeckella, *Daday*, Crust. 68
Pseudoboeckella, *Mrázek*, Crust. 68
Pseudoborhyæna, *Ameghino*, Mamm. 44
Pseudocalea, *Luze*, Ins. 117
Pseudocaligus, *Scott*, Crust. 68
Pseudochelidura, *Verhoeff*, Ins. 305
Pseudocladosictis, *Ameghino*, Mamm. 44
Pseudoclerada, *Kirkaldy*, Ins. 278
Pseudodiæretus, *Fleutiaux*, Ins. 135
Pseudodinia, *Coquillett*, Ins. 264
Pseudofœnus, *Kieffer*, Ins. 198
Pseudogelocus, *Schlosser*, Mamm. 40
Pseudogrammoceras, *Buckman*, Moll. 57
Pseudojerdonia, *Kobelt*, Moll. 76

Pseudolais, *Vaillant*, Pisces 36
Pseudoleptodesmus, *Brölemann*, Myr. 18
Pseudolimerodes, *Strobl*, Ins. 194
Pseudolops, *Ameghino*, Mamm. 44
Pseudomalus, *Ashmead*, Ins. 189
Pseudomasaris, *Ashmead*, Ins. 179
Pseudomenes, *Fleutiaux*, Ins. 135
Pseudomesochra, *Scott*, Crust. 68
Pseudonoba, *Boettger*, Moll. 74
Pseudoparasitus, *Oudemans*, Arachn. 62
Pseudophaënna, *Sars*, Crust. 68
Pseudopodoces, *Zarudny and Loudon*, Aves 71
Pseudoprionopeltis, *Carl*, Myr. 18
Pseudoprosymna, *Lindholm*, Rept. 21
Pseudopsyllus, *Scott*, Crust. 68
Pseudoscatella, *Becker*, Ins. 264
Pseudoscython, *Fleutiaux*, Ins. 135
Pseudoseps, *Becker*, Ins. 265
Pseudosieversia, *Pic*, Ins. 163
Pseudospathius, *Szépligeti*, Ins. 198
Pseudospiraculum, *Kobelt*, Moll. 76
Pseudostegotherium, *Ameghino*, Mamm. 43
Pseudosterrha, *Rebel*, Ins. 219
Pseudostollia, *Breddin*, Ins. 269
Pseudotephritis, *Johnson*, Ins. 265
Pseudotetralobus, *Schwarz*, Ins. 139
Pseudothrips, *Hinds*, Ins. 301
Pseudothylacinus, *Ameghino*, Mamm. 44
Psilophthalmus, *Szépligeti*, Ins. 198
Psythia, *Agassiz and Mayer*, Cœl. 18
Pterandrena, *Robertson*, Ins. 177
Ptereulima, *Casey*, Moll. 77
Pterocapoëta, *Günther*, Pisces 38
Pteroceanis, *Meisenheimer*, Moll. 69
Pterodesmus, *Saussure and Zehntner*, Myr. 18
Pteropsaron, *Jordan and Snyder*, Pisces 25
Pteroptyx, *Olivier*, Ins. 142
Pteropygme, *Speiser*, Ins. 244
Pterygida, *Verhoeff*, Ins. 305
Ptilandrena, *Robertson*, Ins. 177
Ptilocnemidia, *Kirkaldy*, Ins. 275
Ptychobothrium, *Lönnberg*, Vermes 53
Ptychochloritis, *Moellendorff*, Moll. 64
Pubala, *Grouvelle*, Ins. 122
Pundaluoya, *Kirkaldy*, Ins. 283
Purkynia, *Fritsch*, Myr. 21
Pycnobracon, *Cameron*, Ins. 198
Pygodon, *Saussure and Zehntner*, Myr. 18
Pyguropsis, *Loriol*, Ech. 74
Pyræchmes, *Champion*, Ins. 157
Pyramidops, *Loman*, Arachn. 55
Pycnopompilus, *Ashmead*, Ins. 183
Pyretophorus, *Blanchard*, Ins. 255
Pyrgauchenia, *Breddin*, Ins. 284
Pyrgophyllum, *Breddin*, Ins. 284
Pyrgulina, *Matheron*, Moll. 67
Pystira, *Simon*, Arachn. 49

Quekettia, *Peckham*, Arachn. 49

Rabula, *Péringuey*, Ins. 131
Racovitzanus, *Giesbrecht*, Crust. 68
Radiocrista, *Dall*, Moll. 82
Radulina, *Meissner*, Bry. 9
Raillietia, *Trouessart*, Arachn. 62
Randolotus, *Distant*, Ins. 269
Reabotis, *Smith*, Ins. 230
Rebelula, *Poche*, Crust. 69
Reticulograptus, *Wiman*, Cœl. 20
Reynesella, *Buckman*, Moll. 57
Reynesia, *Buckman*, Moll. 57
Rhabdiopteryx, *Klapálek*, Ins. 298
Rhabdodermella, *Urban*, Spong. 20
Rhabdoena, *Kobelt and Moellendorff*, Moll. 66
Rhagomicrus, *Fleutiaux*, Ins. 135
Rhecas, *Champion*, Ins. 157
Rhetenor, *Simon*, Arachn. 49
Rheumatometra, *Kirkaldy*, Ins. 273
Rhinocœtus, *Desbrochers*, Ins. 157
Rhinofulvius, *Reuter*, Ins. 278
Rhinophantia, *Melichar*, Ins. 283
Rhinopterocaris, *Chapman*, Crust. 60
Rhinomiris, *Kirkaldy*, Ins. 278
Rhodacarus, *Oudemans*, Arachn. 62
Rhodozona, *van Name*, Tun. 8
Rhondes, *Simon*, Arachn. 49
Rhopaloaspis, *Guercio*, Ins. 292
Rhopalosoma, *Voigt*, Vermes 70
Rhoptromutilla, *André*, Ins. 183
Rhynchogonia, *Arrow*, Ins. 131
Rhyphelia, *Simon*, Arachn. 49
Risellopsis, *Kesteven*, Moll. 73
Romicpus, *Reed*, Ins. 271
Rosaphe, *Kirkaldy and Edwards*, Ins. 272
Rudarius, *Jordan and Fowler*, Pisces 22

Sadengia, *Moore*, Ins. 204

Sadypus, *Ameghino*, Mamm. 43
Saghatherium, *Andrews and Beadnell*, Mamm. 41
Sakuntala, *Kirkaldy*, Ins. 273
Salarium, *Fairmaire*, Ins. 144
Salvianus, *Distant*, Ins. 269
Samarangia, *Dall*, Moll. 82
Sandalodesmus, *Silvestri*, Myr. 18
Sandtneria, *Fritsch*, Myr. 21
Sanurus, *Melichar*, Ins. 283
Sarona, *Kirkaldy*, Ins. 278
Sasakia, *Kuwana*, Ins. 292
Saturniomiris, *Kirkaldy*, Ins. 278
Scaphiostreptus, *Brölemann*, Myr. 18
Scaphocalanus, *Sars*, Crust. 69
Schistissa, *Aurivillius*, Ins. 219
Schistoloma, *Kobelt*, Moll. 76
Schizodiscus, *Kishinouye*, Coel. 21
Schizospondylus, *Fritsch and Bayer*, Pisces 42
Schottus, *Distant*, Ins. 275
Schumacheria, *Cossmann*, Moll. 82
Scleropauropus, *Silvestri*, Myr. 12
Scleropoides, *Lea*, Ins. 157
Scolecithricella, *Sars*, Crust. 69
Scolothrips, *Hinds*, Ins. 301
Scottula, *Sars*, Crust. 69
Scoturius, *Simon*, Arachn. 50
Scybis, *Champion*, Ins. 157
Scylliogaleus, *Boulenger*, Pisces 45
Scyphoniscus, *Chilton*, Crust. 56
Scyphosphæra, *Lohmann*, Prot. 82
Scythocentropus, *Speiser*, Ins. 230
Selenotholus, *Hogg*, Arachn. 27
Selidopogon, *Bezzi*, Ins. 258
Semiopyla, *Simon*, Arachn. 50
Semirhytus, *Szépligeti*, Ins. 198
Semnolius, *Simon*, Arachn. 50
Sephena, *Melichar*, Ins. 283
Sephora, *Kirkaldy*, Ins. 271
Sericopompilus, *Ashmead*, Ins. 183
Severinia, *Finot*, Ins. 306
Shana, *Kirkaldy*, Ins. 278
Shelfordia, *Stummer-Traunfels*, Verm. 49
Shelfordia, *Cameron*, Ins. 198
Siderofungia, *Reis*, Cœl. 29
Sigytes, *Simon*, Arachn. 50
Siloca, *Simon*, Arachn. 50
Simæthula, *Simon*, Arachn. 50
Simondella, *Laveran*, Ins. 256
Sinophora, *Melichar*, Ins. 285
Siphimedia, *Cameron*, Ins. 194
Sitticus, *Simon*, Arachn. 50
Skiffia, *Meek*, Pisces 34
Soccocœlium, *Looss*, Verm. 61
Solanderina, *Dall*, Moll. 82
Sophropompilus, *Ashmead*, Ins. 183
Soranus, *Fairmaire*, Ins. 157
Sosia, *Vaillant*, Pisces 37
Spaniodonta, *Kobelt and Moellendorff*, Moll. 66
Sparattina, *Verhoeff*, Ins. 305
Spathorrhamphus, *Marshall*, Ins. 159
Spathoschiza, *Arrow*, Ins. 131
Speculitermes, *Wasmann*, Ins. 297
Spelaeoconcha, *Sturany*, Moll. 66
Spelæorhynchus, *Neumann*, Arachn. 62
Sphænelater, *Schwarz*, Ins. 140
Sphærornimus, *Saussure and Zehntner*, Myr. 19
Sphinctogonia, *Breddin*, Ins. 287
Sphondylia, *Weise*, Ins. 169
Spilargis, *Simon*, Arachn. 50
Spilonota, *Weise*, Ins. 169
Spilopompilus, *Ashmead*, Ins. 183
Spirocoptis, *Pilsbry*, Moll. 66
Spiromanes, *Saussure and Zehntner*, Myr. 19
Spiromimus, *Saussure and Zehntner*, Myr. 19
Spiroplectina, *Schubert*, Prot. 69
Spirostrophus, *Saussure and Zehntner*, Myr. 20
Spongocardium, *Kirkpatrick*, Spong. 27
Squamularia, *Gemmell*, Brach. 7
Stalix, *Jordan and Snyder*, Pisces 31
Stearodea, *Cambridge*, Arachn. 31
Stegoceras, *Lambe*, Rept. 23
Stegophryxus, *Thompson*, Crust. 55
Stelidium, *Robertson*, Ins. 177
Stenauchenia, *Attems*, Myr. 20
Stenella, *Weise*, Ins. 169
Stenocrepidius, *Schwarz*, Ins. 140
Stenodactylus, *Philippi*, Rept. 30
Stenoplium, *Fairmaire*, Ins. 145
Stenoscyphus, *Kishinouye*, Cœl. 21
Stenothoides, *Chevreux*, Crust. 59
Stenotrophis, *Lewis*, Ins. 120
Stephanoprora, *Odhner*, Verm. 61
Stereocephalus, *Lambe*, Rept. 23
Sthenometopa, *Norman*, Crust. 59
Stictogaster, *Purcell*, Arachn. 27
Stictolecanium, *Cockerell*, Ins. 292
Stiphidion, *Simon*, Arachn. 28
Stirellus, *Osborn and Ball*, Ins. 287
Stoidis, *Simon*, Arachn. 50
Strongylophthalmus, *Hendel*, Ins. 265
Strongylophthalmyia, *Hendel*, Ins. 265
Strotocera, *Schenkling*, Ins. 145
Stylophthalmus, *Brauer*, Pisces 41

Styloscolex, *Michaelsen*, Verm. 42
Styrionautilus, *Mojsisovics*, Moll. 58
Sulamita, *Kirkaldy*, Ins. 278
Symmolpis, *Turner*, Ins. 231
Symphylella, *Silvestri*, Myr. 11
Symphyta, *Turner*, Ins. 219
Syndetodes, *Warren*, Ins. 240
Synellapus, *Fairmaire*, Ins. 145
Syngamoptera, *Schnabl*, Ins. 263
Synthalia, *Warren*, Ins. 240
Syntheosciurus, *Bangs*, Mamm. 34
Syntheta, *Turner*, Ins. 231
Syntomomelus, *Kokujew*, Ins. 198
Syntrechalea, *Cambridge*, Arachn. 38
Synuropus, *Richardson*, Crust. 56
Syracosphæra, *Lohmann*, Prot. 82
Syringonautilus, *Mojsisovics*, Moll. 58

Tabora, *Péringuey*, Ins. 132
Tachycines, *Adelung*, Ins. 308
Tachypompilus, *Ashmead*, Ins. 183
Tadumia, *Moore*, Ins. 204
Tæniodomus, *Krause*, Moll. 73
Tæniotriccus, *Berlepsch and Hartert*, Aves 54
Tainionautilus, *Mojsisovics*, Moll. 58
Tallium, *André*, Ins. 183
Tanybelus, *Simon*, Arachn. 50
Tanysomus, *Fairmaire*, Ins. 157
Tarachodia, *Weise*, Ins. 169
Tariona, *Simon*, Arachn. 51
Tectoporus, *Carl*, Myr. 21
Teinoptila, *Sauber*, Ins. 250
Telys, *Champion*, Ins. 158
Temnocrinus, *Springer*, Ech. 87
Temorites, *Sars*, Crust. 69
Terires, *Champion*, Ins. 158
Termitaphis, *Wasmann*, Ins. 288
Termitonannus, *Wasmann*, Ins. 117
Termitophya, *Wasmann*, Ins. 117
Termitopsenius, *Wasmann*, Ins. 117
Tetanocentria, *Rebel*, Ins. 250
Tetracme, *Hampson*, Ins. 231
Tetrædophrya, *Zykoff*, Prot. 87
Tetraleurodes, *Cockerell*, Ins. 289
Tetraspidoptera, *Speiser*, Ins. 241
Tettigoscarta, *Breddin*, Ins. 285
Thabina, *Péringuey*, Ins. 131
Thalainodes, *Lower*, Ins. 241
Thalassiosolen, *Wolfenden*, Prot. 73
Thammaca, *Simon*, Arachn. 51
Tharybis, *Sars*, Crust. 69
Thaumastaneis, *Kirkaldy and Edwards*, Ins. 272
Thaumastiellus, *Schwarz*, Ins. 140
Thaumastodictya, *Kirkaldy*, Ins. 283
Thaumastomiris, *Kirkaldy*, Ins. 278
Thecocyathus, *Jaensch*, Cœl. 30
Theiosia, *Lucas*, Ins. 250
Thelxinoa, *Turner*, Ins. 231
Theobaldia, *Neveu-Lemaire*, Ins. 256
Theognete, *Champion*, Ins. 158
Thomsoneonymus, *Desbrochers*, Ins. 158
Thuringionautilus, *Mojsisovics*, Moll. 58
Thyenula, *Simon*, Arachn. 51
Thylacoplethus, *Coutière*, Crust. 76
Thysbina, *Weise*, Ins. 169
Tiaricodon, *Browne*, Cœl. 19
Tilluma, *André*, Ins. 183
Timorodes, *Meyrick*, Ins. 231
Tinginotum, *Kirkaldy*, Ins. 278
Tirolonautilus, *Mojsisovics*, Moll. 58
Tissanga, *Aurivillius*, Ins. 220
Toledonia, *Dall*, Moll. 69
Tonostylops, *Ameghino*, Mamm. 42
Torbda, *Cameron*, Ins. 195
Torodera, *Weise*, Ins. 169
Toxolioceras, *Buckman*, Moll. 57
Trachandrena, *Robertson*, Ins. 177
Trachichthyoides, *Woodward*, Pisces 32
Trachyglanis, *Boulenger*, Pisces 37
Trachynautilus, *Mojsisovics*, Moll. 58
Trallianus, *Distant*, Ins. 271
Transylvanites, *Palfy*, Moll. 73
Trapezicepon, *Bonnier*, Crust. 55
Trematomus, *Boulenger*, Pisces 25
Trialeurodes, *Cockerell*, Ins. 289
Triastrum, *Cleve*, Prot. 73
Trichæta, *Spencer*, Verm. 42
Trichloma, *Lower*, Ins. 250
Trichobensonia, *Moellendorff*, Moll. 61
Trichobyrrhulus, *Ganglbauer*, Ins. 125
Trichoceræa, *Sauber*, Ins. 244
Trichoscarta, *Breddin*, Ins. 285
Trichospira, *Roux*, Prot. 85
Trichostigma, *Gerber*, Arachn. 63
Trigenerina, *Schubert*, Prot. 70
Trigonistis, *Meyrick*, Ins. 231
Trigonopora, *Maplestone*, Bry. 9
Trilaccodea, *Spaeth*, Ins. 169
Trilaccus, *Horváth*, Ins. 278
Trimerophorella, *Verhoeff*, Myr. 21
Triplophos, *Brauer*, Pisces 39
Tripterophycis, *Boulenger*, Pisces 32
Trissernis, *Meyrick*, Ins. 231
Trisyringium, *Vinassa*, Prot. 75
Tritaphros, *Lönnberg*, Verm. 53
Trixodes, *Coquillett*, Ins. 263
Trochanterium, *v. Huene*, Rept. 26

Tropidolytopelte, *Simroth*, Moll. 61
Tropidophidion, *Werner*, Rept. 21
Trotommideomorpha, *Pic*, Ins. 150
Trypanoplasma, *Laveran and Mesnil*, Prot. 81
Trypocella, *Maplestone*, Bry. 9
Trypostega, *Levinsen*, Bry. 9
Tryssothele, *Simon*, Arachn. 27
Tumidifrontia, *Hampson*, Ins. 231
Turcomilax, *Simroth*, Moll. 61
Tusitala, *Peckham*, Arachn. 51
Tutelina, *Simon*, Arachn. 51
Tylogonus, *Simon*, Arachn. 51
Tylotosoma, *Hintz*, Ins. 145
Typhlopleura, *Schrammen*, Spong. 24
Typhlorhynchus, *Laidlaw*, Verm. 49

Udeus, *Champion*, Ins. 158
Uhleriella, *Ball*, Ins. 287
Ultracœlostoma, *Cockerell*, Ins. 292
Umbilicosphæra, *Lohmann*, Prot. 82
Umlima, *Cameron*, Ins. 195
Umslopogas, *Kirkaldy*, Ins. 278
Undinella, *Sars*, Crust. 69
Urana, *Melichar*, Ins. 283
Uroballus, *Simon*, Arachn. 51
Uroblaniulus, *Attems*, Myr. 21
Uropodias, *Richardson*, Crust. 57
Utaetus, *Ameghino*, Mamm. 43
Uxuma, *Simon*, Arachn. 51

Valencinura, *Bergendal*, Verm. 45
Vallentinia, *Browne*, Cœl. 19
Venturia, *Schrottky*, Ins. 195
Verbenapis, *Cockerell and Atkins*, Ins. 177
Verreo, *Jordan and Snyder*, Pisces 28
Vinnius, *Simon*, Arachn. 51
Viriathus, *Fairmaire*, Ins. 148
Visitara, *Swinhoe*, Ins. 241
Vittorius, *Distant*, Ins. 271

Wachsmuthicrinus, *Springer*, Ech. 87
Walkeria, *Buckman*, Moll. 57
Westonia, *Walcott*, Brach. 7
Winteria, *Brauer*, Pisces 40
Wolfius, *Distant*, Ins. 271

Xanionotum, *Brues*, Ins. 260
Xanthisthisa, *Speiser*, Ins. 241
Xanthoencyrtus, *Ashmead*, Ins. 199
Xenaporus, *Ashmead*, Ins. 183
Xenion, *Tschitschérine*, Ins. 112
Xenochroma, *Warren*, Ins. 241
Xenoclerus, *Schenkling*, Ins. 145
Xenocrabro, *Perkins*, Ins. 183
Xenopathia, *Rebel*, Ins. 250
Xerocerastus, *Kobelt and Moellendorff*, Moll. 66
Xylomedes, *Lesne*, Ins. 147
Xylonæus, *Lewis*, Ins. 120
Xylophomya, *Whitfield*, Moll. 80
Xystrophorus, *Lesne*, Ins. 146

Zacalles, *Jordan and Snyder*, Pisces 23
Zacco, *Jordan and Evermann*, Pisces 39
Zanessa, *Kirkaldy*, Ins. 278
Zangiola, *Breddin*, Ins. 270
Zanna, *Kirkaldy*, Ins. 283
Zarudnya, *Melichar*, Ins. 283
Zatteria, *Eliot*, Moll. 68
Zelota, *Gahan*, Ins. 164
Zeuxevania, *Kieffer*, Ins. 198
Zigzagiceras, *Buckman*, Moll. 57
Zilephus, *Simon*, Arachn. 35
Zoarchias, *Jordan and Snyder*, Pisces 24
Zonojoppa, *Cameron*, Ins. 195
Zoogoneticus, *Meek*, Pisces 34
Zoogonoides, *Odhner*, Verm. 61
Zophochroa, *Turner*, Ins. 232
Zophohelops, *Reitter*, Ins. 148
Zophoryctes, *Simon*, Arachn. 27
Zschokkia, *Fuhrmann*, Verm. 54
Zulaimena, *Kirkaldy*, Ins. 278
Zygiella, *Cambridge*, Arachn. 35
Zygophlæoba, *Bolivar*, Ins. 313
Zyzzogeton, *Breddin*, Ins. 287

END OF THE THIRTY-NINTH VOLUME.

CAMBRIDGE: PRINTED BY J. AND C. F. CLAY, AT THE UNIVERSITY PRESS.

THE ZOOLOGICAL RECORD.

THE object of the ZOOLOGICAL RECORD is to give, by means of an annual Volume, complete lists of the Works and Publications relating to Zoology in all its branches that have appeared during the year preceding the issue of the Volume, together with full information as to the points they deal with, arranged in such a manner as to serve as an Index to the literature of Zoology in all parts of the globe, and thus to form a repertory that will retain its value for the Student in future years.

The 'Zoological Record' is published by the Society at the price of 30*s*. per volume. But all Members of the Zoological Society of London have the privilege of receiving it, including the cost of delivery (within the United Kingdom), at a subscription price of 20*s*. per annum. This Subscription is due on the 1st of July in every year, and the privilege of Subscription is forfeited unless the amount be paid before the 1st of December following.

The Zoological Society, having purchased the entire stock of the 'Zoological Record,' is able to supply complete sets. The thirty-seven Volumes to the end of the nineteenth century, and the Index-Volume (1880–1900) in addition, will be supplied for £15 net (or *without* the Index-Volume, for £14. 10*s*. net). Volumes of any single year (exclusive of the last five volumes and Vol. 6) can likewise be supplied at 10*s*. per volume net.

The price of the Index Zoologicus (Index Volume 1880–1900) is 20*s*., to Fellows 18*s*.

Members of the Society wishing to subscribe to the 'Record' are requested to apply at this office for a Form, to be returned when filled up and signed by the subscriber. In order to facilitate the payment of the subscription, a Banker's Order Form is also supplied to those who prefer that mode of payment. This order, when filled up and signed, should be sent to the Society's office for registration; it will then be sent to the Agents named therein.

Learned Societies and Institutions and members of the former Zoological Record Association are permitted to subscribe to the 'Record' on the same conditions as are accorded to Members of the Zoological Society.

Commencing with Vol. XXXIX, the divisions of the Zoological Record may be obtained separately as shown on the next page.

SEPARATE DIVISIONS OF THE ZOOLOGICAL RECORD.

At present each Volume of the ZOOLOGICAL RECORD consists of 20 separately paged Divisions. Beginning with Vol. XXXIX, for 1902, these Divisions may be obtained separately, in paper covers, stitched and lettered.

The following are the Divisions and their net prices, viz.:—

		s.	d.
1.	List of abbreviations of journals, etc.	2	0
2.	General Subjects	2	6
3.	Mammalia	2	6
4.	Aves	6	0
5.	Reptilia and Batrachia	2	6
6.	Pisces	2	6
7.	Tunicata	1	0
8.	Mollusca	4	0
9.	Brachiopoda	1	0
10.	Bryozoa	1	0
11.	Crustacea	2	6
12.	Arachnida	2	0
13.	Myriopoda	1	6
14.	Insecta	12	0
15.	Echinoderma	3	6
16.	Vermes	3	0
17.	Cœlenterata	1	6
18.	Spongiæ	2	0
19.	Protozoa	2	0
20.	Index of new names of genera and subgenera	2	0

On receipt of the price any Division will be forwarded as soon as ready.

These separate Divisions can be obtained from the Zoological Society, 3 Hanover Square, London, and also from the following Agents: Friedländer & Sohn, 11 Carlstrasse, Berlin; Librairie A. Hermann, 6 rue Sorbonne, Paris. Cheques and Post-office orders should be made payable to "The Zoological Society" and crossed "Drummond's."

P. CHALMERS MITCHELL,
Secretary.

December, 1903.
ZOOLOGICAL SOCIETY OF LONDON,
3, HANOVER SQUARE, W.

LIST OF VOLUMES OF THE 'ZOOLOGICAL RECORD.'

The Record of Zoological Literature, 1864—1868, Vols. I—V. Edited by ALBERT C. L. G. GÜNTHER, M.A., M.D., Ph.D., F.Z.S., &c. Price 10*s.* each Volume. Net.

The Record of Zoological Literature, 1869, Volume Sixth. Edited by ALBERT C. L. G. GÜNTHER, M.A., M.D., Ph.D., F.R.S., F.Z.S., &c. London, 1870. Price 30*s.*

The Zoological Record for 1870—1872, Vols. VII—IX. Edited by ALFRED NEWTON, M.A., F.R.S., F.L.S., V.P.Z.S., &c. Price 10*s.* each Volume. Net.

The Zoological Record for 1873—1883, Vols. X—XX. Edited by EDWARD CALDWELL RYE, F.Z.S., M.E.S. Price 10*s.* each Volume. Net.

The Zoological Record for 1884, 1885, Vols. XXI, XXII. Edited by F. JEFFREY BELL, M.A. Price 10*s.* each Volume. Net.

The Zoological Record for 1886—1890, Vols. XXIII—XXVII. Edited by FRANK E. BEDDARD, M.A., F.Z.S. Price 10*s.* each Volume. Net.

The Zoological Record for 1891—1897, Vols. XXVIII—XXXIV. Edited by D. SHARP, M.A., F.R.S., F.Z.S., &c. Price 10*s.* each Volume. Net.

The Zoological Record, Volume the Thirty-fifth; being Records of Zoological Literature relating chiefly to the year 1898. By J. A. Thomson, R. Lydekker, R. Bowdler Sharpe, G. A. Boulenger, W. A. Herdman, E. R. Sykes, E. A. Smith, G. C. Crick, A. W. Brown, D. Sharp, F. A. Bather, Florence Buchanan, R. T. Günther, and R. von Lendenfeld. Edited (for the Zoological Society of London) by DAVID SHARP, M.A., F.R.S., F.Z.S., &c. London, 1899. Price 30*s.*

The Zoological Record, Volume the Thirty-sixth; being Records of Zoological Literature relating chiefly to the year 1899. By J. A. Thomson, R. Lydekker, R. Bowdler Sharpe, G. A. Boulenger, W. A. Herdman, E. R. Sykes, E. A. Smith, G. C. Crick, A. W. Brown, D. Sharp, F. A. Bather, A. Willey, and R. v. Lendenfeld. Edited (for the Zoological Society of London) by DAVID SHARP, M.A., F.R.S., F.Z.S., etc. London, 1900. Price 30*s.*

The Zoological Record, Volume the Thirty-seventh; being Records of Zoological Literature relating chiefly to the year 1900. By J. A. Thomson, R. Lydekker, R. Bowdler Sharpe, G. A. Boulenger, W. A. Herdman, E. R. Sykes, E. A. Smith, G. C. Crick, A. W. Brown, D. Sharp, F. A. Bather, A. Willey, and E. A. Minchin. Edited (for the Zoological Society of London) by DAVID SHARP, M.A., F.R.S. F.Z.S., etc. London, 1901. Price 30*s*.

The Zoological Record, Volume the Thirty-eighth; being Records of Zoological Literature relating chiefly to the year 1901. By J. A. Thomson, R. Lydekker, R. Bowdler Sharpe, G. A. Boulenger, Alice L. Embleton, E. R. Sykes, E. A. Smith, S. Pace, Albert Brown, D. Sharp, F. A. Bather and E. A. Minchin. Edited (for the Zoological Society of London) by DAVID SHARP, M.A., F.R.S., F.Z.S., etc. London, 1902. Price 30*s*.

The Zoological Record, Volume the Thirty-ninth; being Records of Zoological Literature relating chiefly to the year 1902. By D. Sharp, R. Lydekker, R. Bowdler Sharpe, G. A. Boulenger, W. T. Calman, E. R. Sykes, E. A. Smith, Alice L. Embleton, F. A. Bather, E. A. Minchin and H. M. Woodcock. Edited (for the Zoological Society of London) by DAVID SHARP, M.A., F.R.S., F.Z.S., etc. London, 1903. Price 30*s*.

Index Zoologicus. An alphabetical list of names of genera and subgenera proposed for use in Zoology, as recorded in the Zoological Record 1880—1900; together with other names not included in the "Nomenclator zoologicus" of S. H. Scudder. Compiled (for the Zoological Society of London) by CHARLES OWEN WATERHOUSE and edited by DAVID SHARP, Editor of the Zoological Record. London, 1902. Price to Fellows, 18*s*.; price to the public, 20*s*.

These publications may be obtained at the SOCIETY'S OFFICE (*3 Hanover Square, W.*).